NI 43-101 TECHNICAL REPORT

MINERAL RESOURCE ESTIMATE AND PRELIMINARY ECONOMIC ASSESSMENT ON THE

CLAVOS "JV" PROPERTY

PORCUPINE MINING DIVISION

NORTHEAST ONTARIO, CANADA

Prepared for Sage Gold Inc.

Prepared by Robert Ritchie, P.Eng.

Date: April 12, 2013

Effective Issue Date: April 12,2013

Project: 2013- 04

DATE & SIGNATURE PAGE

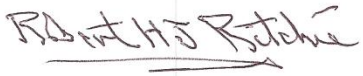
This report titled "NI 43-101 Technical Report Mineral Resource Estimate and Preliminary Economic Assessment on the Clavos "JV" Property, Porcupine Mining Division, Northeast Ontario, Canada" for Sage Gold Inc., dated April 12, 2013, was prepared and signed by the following author:

Effective Date: April 12, 2013

Dated April 12, 2013, at Toronto, Ontario.

Respectfully Submitted:

Robert Ritchie, P.Eng.



Certificate Of Qualification

I, Robert H. J. Ritchie, B.Sc., P.Eng, (Ontario & Manitoba), in connection with the technical report titled "NI 43-101 Technical Report Mineral Resource Estimate and Preliminary Economic Assessment on the Clavos "JV" Property, Porcupine Mining Division, Northeast Ontario, Canada dated effective April 12, 2013 (the "Technical Report") do hereby certify that:

I reside at 16 Laird Ave., P.O. Box 253, Cobalt, Ontario, P0J 1C0.

1. I am employed as a Professional Engineer with offices at 16 Laird Ave, Cobalt, Ontario P0J 1C0, Tel: (705) 622-0122 (rhjr2248@hotmail.com) and have worked continuously as a professional engineer for a total of 41 years since my graduation from university.

2. I am a graduate of:
   - Provincial Institute of Mining, Haileybury, Ontario (1968) "Mining Diploma",
   - Michigan Technological University (1971) "B.Sc. Geological Engineer".

3. I am a Professional Engineer (P.Eng.) registered with the Ontario Association of Professional Engineers (No. 39052014), the Association of Professional Engineers and Geoscientists of Manitoba (APEGM, No 7924).

4. I have been engaged as a professional engineer by various companies in Canada, South America and China since 1972, on various gold (Au) and base metal mines and projects in NWT, B.C., Manitoba, Quebec, Ontario, U.S.A., Venezuela, Peru, Chile, Argentina and China. Additional experience includes the completion of NI43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") technical reports for gold metal projects on behalf of Trueclaim Resources and D-Fense Capital Ltd.

5. I have read the definition of "qualified person" as set out in the NI43-101 and certify that by reason of my education, affiliation with a professional engineering 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.

6. I am responsible for all sections of the Technical Report.

7. I have visited the Clavos JV property holdings on August 22 - 23, 2012, September 28, 2012, and October 23 - 25, 2012.

8. I have no prior involvement with the issuer, nor involvement with the Clavos JV property that is the subject of this PEA Report.

9. I am independent of the issuer when applying all of the tests in Section 1.5 of NI 43-101.

10. As of the effective date of the Technical Report, to the best of my knowledge, information, and belief, the PEA Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

11. I have read NI 43-101 and Form 43-101F1, and the PEA Report has been prepared in compliance with that instrument and form.

Effective Date: April 12, 2013

Dated: April 12, 2013

TABLE OF CONTENTS

LIST OF FIGURES:

LIST OF TABLES:

1.0 SUMMARY

Sage Gold Inc. commissioned R. Ritchie P.Eng. (Ontario & Manitoba), an independent engineer to prepare an independent PEA, in accordance with National Instrument 43-101 ("NI43-101") and Form 43-101F1 guidelines, on the Clavos JV Property located in the general area of Timmins, Ontario.

R. Ritchie P.Eng, understands that this PEA is an evaluation as to the current status of the Clavos JV mining potential. This PEA does not indicate the economic viability of the mineral resources. The PEA is preliminary in nature, includes inferred mineral resources that are considered too speculative geologically to have the economic consideration applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

1.1 Property Overview

The Clavos JV property is owned 60% by Sage Gold Inc. (Sage) and 40% by St. Andrew Goldfields Inc. (SAS).

Timmins, Ontario is presently serviced by provincial Hwy #101, by the air carriers Air Canada Jazz, Porter Airlines, Bearskin Airways, Thunder Airlines and Air Creebec, all operating from the Victor M Power Airport, and is also serviced by the Timmins Transit Authority bus services for inter-city and by long haul Ontario Northland Motor Coach Services.

The Clavos JV property is located within Stock, German and Clergue Townships, some 50 to 65 km east of the City of Timmins, and is in close proximity to the village of Barbers Bay, the Kettle Lakes Provincial Park and Matheson, Ontario, all within the District of Cochrane, Porcupine Mining Division of north-eastern Ontario.

Access to the Clavos JV property can be gained via Hwy #101 east of Timmins or north on Hwy #11, to west on Hwy #101 to Hwy #67, to north on provincial Hwy #67, to eastward on Finn Road for 6.0 km.

This area is considered to be well serviced through an excellent provincial highway system connecting the Clavos JV property with the communities of Timmins, Cochrane, Iroquois Falls, Kirkland Lake, Matheson, Sudbury, North Bay and Toronto, Ontario, plus the town of Rouyn-Noranda, Quebec.

Prevailing climatic conditions are typical northern to mid continental and exhibit wide temperature variances of -46º C during the winter months of January through February (severe, cold and snowy) to +24º C during the summer months of June through August. This local area is normally snow covered from mid-November to the end of April, with snow accumulations averaging +2.0 meters in depth.

Yearly average precipitation for Timmins area is 874 mm with 485 mm (60%) as rainfall during the warmer months and 346mm (40%)as snow and ice during the winter months.

The available work season is 12 months per year with no climatic conditions affecting the type of work programs contemplated here-in.

1.2 Surface Infrastructure

The Clavos JV mine site is equipped with the following surface infrastructure, which includes:

- All weather gravel road (Finn Road) provides direct access to the mine site
- Clavos JV private 10 km truck haulage road provides direct access to the Brigus Stock Mill Facility
- Clavos JV owned overhead 10 km by 27.6 kv power line provides an electrical power corridor between the Brigus Mill Facility and the Clavos JV Mine Site
- Land based telephone communications
- Cell phone services
- Internet service
- Abundant ground water for process water supply
- Moderate undulating terrain suitable for most mine construction requirements
- Waste rock stockpile disposal area
- Mine site access roadways
- Two prefab metal buildings with foundations (shop and cold storage)
- Two mobile office trailers
- A three unit mobile trailer dry facility
- Three settling ponds
- Metal prefab diesel generator building
- Metal prefab compressor house
- Polishing pond

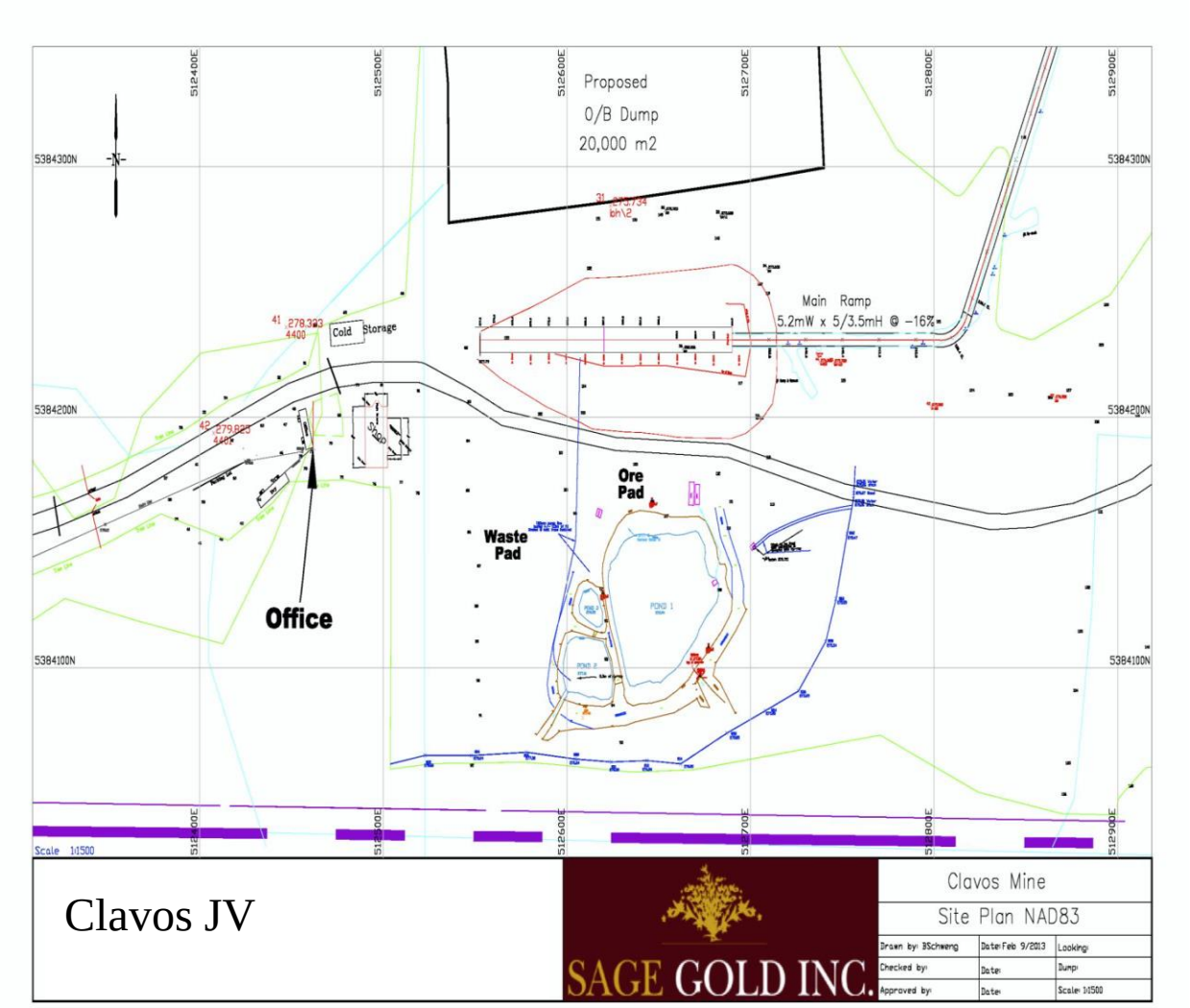
1.3 Underground Infrastructure

The Clavos JV mine site includes 6,691 metres of underground infrastructure, which when considering a replacement cost estimate of $5,300 per meter, would total approximately $35.4 million.

- Underground workings are presently flooded with restricted access for personnel, at both of the entrance locations
- Surface decline ramp access provides access to all underground mine workings for trackless type diesel equipment
- Mine was developed as a trackless mine
- Stoping blocks were designed to accommodate mineralized material extraction by sill drift cuts with undercut excavation as a long hole production stope and/or modified shrinkage stope block

- Typical stope dimensions varied from 10.0m to 12.5m in width by 10.0m to 25.0m in height by the actual strike length
- Production stopes were not to be backfilled either with waste rock from development nor backfill/sand fill material
- Conventional ground support methods employed point anchor rock bolts, resin rebar bolts and 4" x 4" welded screen
- Limited application was made of unstressed cemented cable bolting

Figure 1.1 – Surface Plan - April 2013



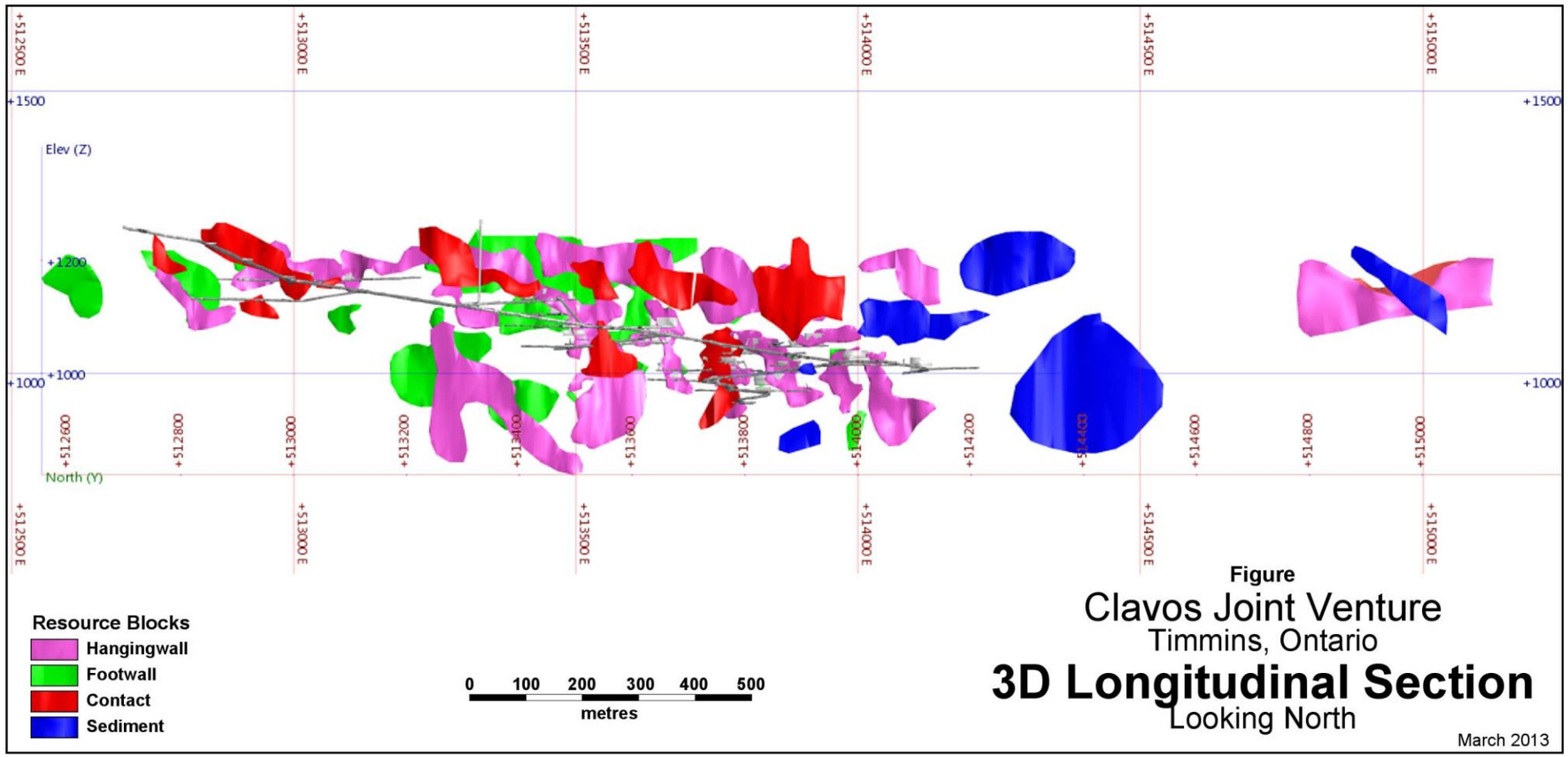


Figure 1.2 – Underground Workings and Location of Known Mineralization

1.4 Environmental & Permitting

All environmental permits required for the Clavos JV project to produce a maximum of 700 tpd, have been received. The Closure Plan and financial assurance have been filed with the Director of the Ministry of Northern Development and Mines.

1.5 Geology & Mineralization

The Clavos Project is centrally located in the Abitibi greenstone belt in the Superior Province of the Canadian Shield. The Abitibi Belt is a 750 km long by 250 km wide strip of deformed and metamorphosed volcanic and sedimentary rocks and granitoid batholiths ranging in age from approximately 2,745 to 2,680 Ma.

The Clavos property straddles the contact between Porcupine Group sedimentary rocks(2,689 to 2,680 Ma) to the south and ultramafic volcanic rocks of the Kidd-Munro Assemblage (2,718 to 2,710 Ma) to the north. The unconformity represented by this east-west trending ultramafic-sedimentary contact defines the location of the Pipestone Fault, a major regional structure in the Timmins mining camp. In general, the contact dips steeply south, although shallow south to steep north dips occur locally and may be fold or fault related. Mineralization at Clavos is located within an envelope of highly altered ultramafic flows and volcanic clastic fragmental rocks referred to as the DL zone. This DL zone, lies approximately 10m north of the sedimentary-volcanic contact, varies in thickness from 30mto 60m, is cored by several semi-concordant east-west trending steeply dipping and shallow east-plunging feldspar porphyry bodies of up to 20m in thickness. The shallow easterly plunge is regional in character and is overprinted by local structures. There are five gold-bearing zones for which mineral resources have been estimated. These are the Hanging Wall Zone (HW Zone), the Footwall Zone (FW Zone), the Contact Zone, the Sediment Zone, and a group of miscellaneous intersections listed as 'Other Mineralization'. Of these zones, the HW Zone has been the main target of past mining activities. Please refer to Section 7.0 of this report.

1.6 Mineral Resource

An updated Mineral Resource estimate having an effective date of October 12, 2012 was completed on the Clavos Project as based upon bothsurface and underground diamond drilling plus chip sampling results by previous owners.

The Sage surface drill results, completed in years 2010 to 2012, were included in theestimation data base.

Table 1.1 - Mineral Resource Estimate

Sage Gold Inc. – Clavos Project

Category	Cut-off Grade (g/t Au)	Tonnage	Grade (g/t Au)	Contained Metal (oz Au)
Indicated				
	4.0	635,500	6.25	127,700
	3.0	1,115,300	5.06	181,400
	2.75	**1,258,400**	**4.81**	**194,600**
	2.5	1,399,100	4.59	206,500
	2.0	1,618,100	4.28	222,500
Inferred				
	4.0	394,000	6.2	78,000
	3.0	674,000	5.0	109,000
	2.75	**796,000**	**4.7**	**120,000**
	2.5	866,000	4.5	126,000
	2.0	994,000	4.2	136,000

Notes:

1. **CIM definitions were followed for Mineral Resources**
2. **RPA recommends that a cut – off grade of 2.75 g/t is used for economic evaluations**
3. **Mineral Resources are estimated at a long term gold price of US$1,600 per ounce and a US$/CDN$ exchange rate of 1:1**
4. **A minimum mining width of 1.5m was used**
5. **Bulk Density is 2.76 t/m^3**
6. **Number may not add due to rounding**

Reference –Technical Report on the Clavos Project in the Timmins area, Northeastern Ontario Canada;RPA, Chester M. Moore P.Eng, David A Ross P.Geo;October 12, 2012.

The sample preparation, security, and assay procedures at the Clavos Project are completed to industry standards and the data from the 2010 to 2012 drill program are suitable for use in resource estimation. Data collection and entry, and database verification procedures for the Clavos Project comply with industry standards and the compiled database is suitable for the estimation of Mineral Resources.

The potential to expand the known mineralization exists along the strike and down dip directions at Clavos. Further drilling is warranted.

1.6 Mine Production Rate & Mine Life

For the purposes of this PEA, a mine production rate of 600 tonnes per day was selected as optimum for the mineralized structures containing the estimated mineral resources. However, the PEA does not indicate the economic viability of the mineral resource. The PEA is preliminary in nature, includes inferred resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and that there is no certainty that the PEA will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.
This mineral estimate was based on a 2.75 g/t cut-off extracted material estimate, a 60.0 g/t cut grade, and could permit an expected life of mine of seven years to extract 70% of the outlined estimated mineral resource.

1.7 Mine Development Schedule

If Sage were to move forward with the project, it is expected that a 23-month period is required to permit mine dewatering, mine rehabilitation, definition/delineation diamond drilling and pre-stope development to prepare the project for the potential to achieve a potential forecasted production rate of 600 tonnes per day, 52,500 tonnes per quarter, and 210,000 tonnes per year.

1.8 Geotechnical & Hydrological Evaluation

At the Clavos JV project, the rock stress is considered to be of low magnitude based on observations of the historic workings from surface, on detail records kept during past operation and upon general knowledge garnered from those who worked at the previous operation as employees. The author concurs with this assessment based upon his experience working in the same type of ground conditions less than 10 km away and due to the limited vertical distance from surface (less than 300 meters below surface).

Minor cross faulting is expected at the Clavos JV project; however, it is not expected to be pervasive. Additional control in the application of ground support methods employed may be needed within the general area of the cross faulting. Increased support around faults is not considered by the author to be a significant cost item at Clavos JV, as normally the cross fault displacement is less than a few meters.

Golder & Associates an independent consulting engineering group prepared a study on the ground water hydrological conditions at the Clavos JV and provided a reasonable understanding of the subterranean water flows.

1.9 Mine Design

The Clavos JV mining plan is directly influenced by the mineralized structures within the Existing Clavos JV deposit as represented by 3 separate mineralized structures in relatively close proximity to each other, namely the Contact, HW, and FW Zones. These structures are steeply dipping, which allows the mine planner to make use of gravity in planning the extraction of the mineralized material and enhances the flow characteristics of the broken rock. As a result of these three structures being relatively close with each other, the mine planning of the individual cut & fill stope block permits a grouping together of as many as three of these structures into a single cut & fill stope complex.

The author is of the opinion that mining costs could potentially be reduced and efficiencies increased by having:

- The same set of stope gear service all three stope blocks
- Make use of common mill holes and service raises
- Increase the number of working faces for drilling, blasting, mucking and/or filling
- The key could be to connect and continually raise up the waste connection sub drifts (by taking the backs down with use of this material for fill purposes) as the overall stoping block advances upwards. This would not be possible in a long hole stope block.
- Mine planning exercise could be influenced by, and use be made at all times, of the existing development openings that were left intact by the past mining operation.

Another positive consequence that could be provided by the past mining operation is that the previous underground workings have potential to be incorporated into primary, secondary and pre-stope access openings, ventilation passageways and exploration jump off points.
Initial mineralized material planned for extraction couldbe that material that is most readily accessible from the existing workings with the shortest haul distance to surface.

1.10 Mining Method

The stope mining methods proposed in this PEA for the Clavos JV project are cut & fill stoping and bulk long hole stoping with pillars for the most part located in waste material. These stoping methods are common in mining, and are considered to be inherently safe methods of mineralized material extraction.

1.11 Mineralized Material & Waste Movement

This PEA suggests that broken rock including, waste and/or mineralized material will be loaded either into 15 ton or 20 ton underground diesel haulage trucks by 3.5 yard and/or 2.5 yard diesel scoop tram by loading directly from the working face, re-muck station, and/or stope mill hole discharge area.

Inventory the waste material underground, either in a mined out stope area or a dead end drift, such that this material can be readily available for placement into a cut & fill stope block,

especially the initial sill cut fill cycle, thus avoiding the long haul distance to the surface waste stockpile area.

Pre-stope development and stope mineralized material could be loaded into underground diesel haul trucks by scoop tram and delivered to the proposed location for a storage chute on the 100m level, whereby surface articulated 30 ton diesel haul trucks could load from the chute and deliver the mineralized material directly to the custom milling facility.

Haul distance for broken rock material to the 100m level at Existing Clavos JV by underground diesel haulage truck, especially from the lower depths of Existing Clavos and from the Sediment Zone and the 960 Zone, could be cost prohibitive as compared to providing for rail haulage on the 250m level east drift heading and the installation of a single skip muck winze that would load at the 300m level and skip this material to the 100m level. This would be contingent upon success from the planned exploratory diamond drill program, and has not been included in this PEA.

Please refer to Section 13.0 for details related to the current and historic metallurgical test work completed.

1.12 Custom Milling

There are a number of milling facilities within the general area which, subject to favourable commercial arrangements, are considered to be suitable for processing the Clavos JV mineralized material.

1.13 Mine Waste Rock

At the Clavos JV project, the majority of the underground waste development rock generated by the mining operation, could be deposited either into an active cut & fill stoping complex as waste fill and/or deposited into an empty long hole stope complex for possible recovery (as needed) to supplement fill material for a cut & fill stope.

The pre-production period, waste rock from the surface waste rock stockpile could be screened as 3"+1" material for road bed material in the underground mine during the mine rehabilitation phase. Other waste rock material could be utilized for construction purposes, capping, and mine site haul/road reconditioning.

A series of composite samples can be analyzed quarterly to confirm field test results at an accredited independent environmental laboratory for toxicity characteristic leaching procedure (TCLP) assessment of metal concern.

1.14 Labour & Staffing

Management, supervision, and experienced skilled miners, mechanics and electricians could be recruited from northern Ontario with the majority being from the local area. This group could form the core group of employees from which a greater workforce can be trained during the initial 2 year phase of the Clavos JV project the Clavos JV Mine could be expected to operate for a minimum mine life of seven years and thus the project could attract experienced mining personnel.

The Clavos JV employees can have the choice of residing at various locations of their choosing within the general area which includes Timmins, Kirkland Lake, or one of the many smaller towns, villages, or rural areas of northern Ontario.

A travel allowance could be paid at a daily rate to assist the employees with their travel costs to the Clavos JV site.

1.15 Economic Evaluation

The Preliminary Economic Assessment in this report is preliminary in nature, and has been prepared using inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the Preliminary Economic Assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability. The PEA is deemed to be reliable +/- 50% level.

The following Clavos JV economic analysis was prepared in CDN dollars except for the gold metal price which was reported in US dollars at an exchange rate to the CDN dollar of 1:1.

The analysis indicates that the Clavos JV project can expect a pre-tax net present value ("**NPV**") of $23.2 million at an8% discount rate, and an internal rate of return (IRR) of 71%. After taxes the net present value is forecasted to be $12.6 million at a discount rate of 8%, and an internal rate of return of 47% at an average gold price of USD$1500 per ounce.

Initial capital and sustaining capital ("**CAPEX**"), plus operating expenses ("**OPEX**")costs have been estimated on a quarter to quarter basis for the mine life of the Clavos JV project.

Contingency allowances vary as to the project area, and further are dependent on the assumed level of risk of change in the cost estimates.

Revenue has been based on an average price for gold of US$1,500.00 per ounce. Gold prices have steadily increased over the last number of years. Traditionally two year historical price averages were often taken as the basis for economic analyses. Sensitivity analysis has been completed assuming a gold price of US$1,400.00 per ounce and US$1,600.00 per ounce.

Initial and sustaining CAPEX and OPEX costs have been included on a quarter-by-quarter basis, for the forecasted seven year life of the mine.

Initial capital is anticipated to be $14.1 million. The majority of this spend could occur in the first two years at $8.2 million in Year 1and $3.8 million in Year 2. This includes funding for mine dewatering, rehabilitation of the existing mine, underground mining equipment and surface infrastructure facilities.

Sustaining capital has been budgeted towards continuing to expand and better define the mineral resource at $21.1 million. It is expected this capital for primary development and exploratory diamond drilling could be funded through existing cash flow. Total CAPEX is budgeted at $35.2 million.

OPEX (excluding Royalties and General and Administration) is budgeted to be $130.4million over the life of the mine. This includes haulage, crushing, processing and refining.In addition, royalties are estimated at $6.5 million, and General and Administration expenses are estimated at $12.1 million. Total OPEX is forecasted to be $149.0 million.

Total unit operating costs (economic capital) for the project are estimated at $129.7/tonne of ore resulting in a net cash production cost of $1,024.77per ounce (including an apportionment for direct corporate expenses).

Table 1.2 – Total Operating Costs

	Millions	Price per Tonne	Price per Ounce
Total Underground Mining costs	$ 130.4	$ 113.5	$ 896.8
General and Administration	$ 12.1	$ 10.5	$ 82.9
Royalties	$ 6.5	$ 5.7	$ 45.0
	$ 149.0	$ 129.7	$ 1,024.7

A 3% NSR has been assumed in the analysis.

Payback period was calculated as achievable within 2.0 years of Clavos JV project start-up at an average gold price of USD$1500 per ounce.

The seven year mine life, NPV and IRR were based upon extraction of 70% of the estimated indicated and inferred mineral resource.

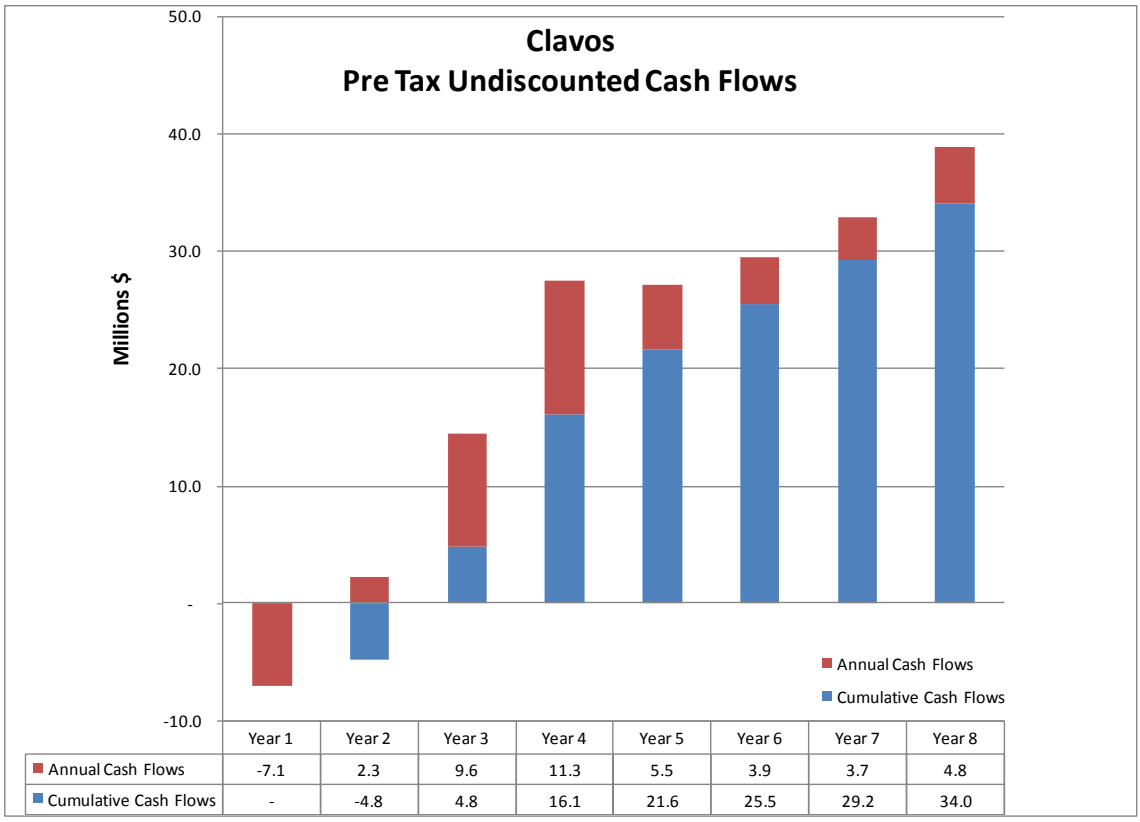
A PEA is deemed to be reliable +/- 50%. To give a more granular view, more sensitivity analysis has been performed and can be referenced in Section 22

Undiscounted cash flow over the life of the project including initial and sustaining capital is forecasted to be $34.0 M.

The economic model used in the current PEA study is simplified as follows:

- No inflation is incorporated into the model
- No allowances for depreciation or taxes
- Cashflow and NPV is based on individual stope sections

Figure 1.3 - Pre-Tax Undiscounted Cash Flow



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Annual Cash Flows	-7.1	2.3	9.6	11.3	5.5	3.9	3.7	4.8
Cumulative Cash Flows	-	-4.8	4.8	16.1	21.6	25.5	29.2	34.0

1.16 Risks

A "Preliminary Economic Study (PEA)" is not to be interpreted as either a Preliminary Feasibility or a Feasibility Study. This PEA type of study can also be referenced as a Scoping Study and thus may contain results of an economic analysis that includes and is based upon inferred mineral resources.

The Preliminary Economic Assessment in this report is preliminary in nature and has been prepared using inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the Preliminary Economic Assessment will be

realized. Risks at the Clavos JV could be defined as those contributing factors that can affect the project with a significant probability of occurrence, both adversely or contributory to the project economics. Areas whereby the above events would have a straightforward solution available are not considered as a risk and thus are not included.

External risks that could affect the Clavos JV project include:

- Significant reduction in the gold price
- Increased OPEX cost as the result of inflationary increases in labour, electricity, diesel, and/or mining materials and supplies
- Increased CAPEX cost as the result of inflationary increases in raw materials, original equipment manufacturer ("OEM") components, and/or contractor costs
- Delays in construction schedule due to external political influences, First Nations, a result of due process and/or a shortage of construction labour

Internal risks that could affect the Clavos JV project include:

- Increased OPEX cost as the result of operational inefficiencies
- Increased CAPEX cost as the result of weak on site project management
- Reduction in published contained gold grade as a result of definition and delineation diamond drilling on close spacing
- Inconsistent ore thickness (too narrow to extract efficiently) as a result of detail data from the definition and delineation diamond drilling on close spacing
- Reduced stope block mineralized material extraction productivities
- Increased internal and/or external waste dilution for stope block mineralized material extraction
- Lower than expected metallurgical recoveries for gold resulting from mill facility inefficiencies or flow sheet inconsistencies
- Increased OPEX cost for processing plant consumable materials and supplies
- Increased OPEX cost due to environmental contamination by hazardous materials
- Increased inflow of ground water and/or ground stabilization problems within the underground workings

The author of this PEA Report (PEA) does not believe that any of the above risks, as identified, should be considered as being more likely to adversely impact the Clavos JV project to any degree greater than the same risk factor profiles at any other similar mine development project elsewhere. There are available numerous mitigating strategies that can be devised and implemented for control measures.

In the author's opinion, the Clavos JV project has a low risk profile when compared to other similar projects at this same stage of development as a result of the majority of the mine facilities

and underground mine development workings being established, in place and sound with little economic risk associated.

1.17 Conclusion

The author of this PEA Report makes no attempt to demonstrate any conclusions in regards to the economic viability of the Clavos JV project as it is intended to only demonstrate a potential viability of the mineral resource estimate. Following the proposed program of mine dewatering, mine rehabilitation, re-surveying the underground workings and the definition/delineation diamond drilling program, a decision could be made towards the preparation of a Pre-Feasibility Study.

The following procedures and formats detailed below could be implemented to ensure and improve the selection criteria applied towards moving the Clavos JV project forward:

- Confirm the mineral resource estimate grade and tonnage as published
- Verify that the correct type of stoping method has been selected
- Detail the mineralized envelope configuration
- Verify the value parameters assigned to each of the stoping blocks selected
- Verify that the correct type of underground mining equipment has been selected
- Verify that the correct operating cost estimates are in effect

The author of this PEA is of the opinion that the absence of stoping block detailed definition/delineation diamond drilling, on aclose spacing, was a significant contributing factor in the poor economic results obtained in the historical production from Clavos during the 2005 to 2007 period.

Local variations in mineralized material resource grade and tonnage arerecognized as likely to occur, which could be considered as quite typical of the types of mineralized structures present within this general area, however, the author of this PEA is of the opinion that these variances can be managed and accommodated by completion of a suitable quantity of detail definition/delineation diamond drilling on close spacing, by detailed face sampling, and by ensuring that an abundance of working headings are constantly under development thus reducing the need for short term planning to meet the demands of the mill facility. The author of this PEA is of the opinion that the change in mining methods selected from primarily long hole mining methods to cut & fill mining methods, will aid with reducing previous impediments to the practical mining extraction sequence by the earlier extraction experience for this mineralized structure.

The additional surface exploration program completed by Clavos JV recently, renewed interest in the mineralized structures to the east (namely the Sediment and the 960 Zone structures) with further exploration work required to fully understand the actual grade and structural configurations present.

The type of custom mill facility proposed can be considered to be conventional gold recovery process plant design and essentially the same as those employed by the other mine operators in this general area since the early part of the last century.

The gold recovery and estimated processing costs for the custom mill facility design proposed in this PEA study can be considered as reliable, with predicted gold recoveries similar to the gold recoveries experienced during the earlier mining phase at Clavos.

1.18 Recommendation

The following plan is recommended by the author of this PEA towards advancing the Clavos JV project into the future:

Phase 1:

- Secure key Clavos JV project execution team members
- Install the polishing pond discharge weir
- Upgrade the required surface infrastructure needed to support the underground mine dewatering (Phase 1 and 2) and the mine rehabilitation program
- Commence with worldwide sourcing and procurement, at discounted prices, of good condition and/or good value underground capital equipment that either will require repair and/or complete rebuild
- Dewater the mine (Phase 1) between surface and the 150m level while working from within the confines of the mine egress ventilation raise opening
- Construct the surface ventilation fan house at the egress ventilation raise collar
- Commission the surface ventilation fans thus providing fresh air flow down the egress ventilation raise to the 150m level while exhausting over to and up the access ramp decline to surface
- Rehabilitate the mine while progressing down the access decline ramp until the 150m level is reached
- Commence with the required definition/delineation diamond drill programs at those selected stoping blocks that could be prepared for mineralized material extraction
- Dewater the mine between the 150m level to the 285m level (bottom of the mine)
- Rehabilitate the mine to the 285m level

Phase 2:

- Provided positive results can be obtained from the Existing Clavos mineralized structure definition/delineation diamond drill program, prepare the required detail mine planning for Clavos JV underground mineralized material extraction
- Commence with the 250m level exploration mine development and exploratory diamond drilling program to define the Sediment and the 960 Zone mineralized structures previously defined by the past surface diamond drilling completed
- Provided positive results can be obtained from the above programs, prepare a Pre-Feasibility Study

- **Table 1.3 – Recommendations**

	PHASE 1:	Year 1	Year 2
1)	Surface Building Construction	$ 170,662	$ 341,809
2)	Safety Facilities & Training	$ 63,268	$ 6,383
3)	Governmental Requirements	$ 65,750	$ 59,350
4)	Environmental	$ 78,000	$ 63,000
5)	Mine Services	$ 180,328	$ 97,500
6)	Roads & Access	$ 141,495	$ 108,060
7)	Secure Staff Members	$ 130,482	$ 74,083
8)	Install Polishing Pond Discharge Weir	$ 35,000	
9)	Surface Primary Fresh Air Supply	$ 355,250	$ 43,250
10)	Mine Dewatering – Stage 1	$ 461,362	
11)	Mine Rehabilitation	$ 877,157	
12)	Mine Dewatering – Stage 2	$ 193,153	
13)	Mine Water Discharge	$ 83,500	$ 239,200
14)	Primary Production Equipment	$ 1,852,500	$ 1,163,000
15)	Primary Support Equipment	$ 612,000	$ 36,000
16)	Primary Mining Equipment	$ 175,000	$ 75,000
17)	Fixed Underground Equipment	$ 502,047	$ 329,425
18)	Misc. Services & Infrastructure	$ 302,444	$ 111,525
19)	Safety Facilities	$ 142,750	$ 49,750
20)	G & A - Manpower	$ 636,424	$ 415,258
21)	G & A - Supplies	$ 316,270	$ 585,240
22)	G & A – Misc.	$ 24,250	$ 39,500
23)	Definition/Delineation Diamond Drilling	$ 65,625	$ 426,563
24)	Head Office	$ 143,000	
25)	Contingency	$ 620,571	$ 228,832
	SUB TOTAL (Phase 1)	**$ 8,228,288**	**$ 4,492,728**
	PHASE 2:		
26)	Mine Supervision	$ 145,498	$ 468,683
27)	Technical Services	$ 242,820	$ 284,020
28)	Mine Operating - Services	$ 95,106	$ 135,865
29)	Mine Operating - Operating	$ 318,008	$ 446,200
30)	Head Office		$ 71,500
	SUB TOTAL (Phase 2)	**$ 801,432**	**$ 1,406,268**
	TOTAL (Phase 1 + 2)	**$ 9,029,720**	**$ 5,898,996**
	GRAND TOTAL		**$ 14,928,716**

2.0 INTRODUCTION & TERMS OF REFERENCE

Sage Gold Inc. commissioned R. Ritchie, P.Eng. (Ontario & Manitoba), an independent engineer to prepare an independent technical report, in accordance with National Instrument 43-101 (NI43-101) and Form 43-101F1 guidelines, on the Clavos JV Property located in the general area of Timmins, Ontario.

R. Ritchie, P.Eng. understands that this PEA Report is an evaluation as to the current status of the Clavos JV mining potential. This PEA does not indicate the economic viability of mineral resources and is to be considered as preliminary in nature, includes inferred mineral resources that are considered too speculative geologically to have the economic consideration applied to them that would enable them to be categorized as mineral reserves, and contains no certainty that the PEA will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The compilation of data for this PEA was provided by the following personnel some of whom were a part of the Clavos JV group while others were independent:

- Chester Moore P.Eng. of RPA provided overall supervision for the Clavos JV Mineral Resource Estimate Study (2012).
- David Ross P.Geo of RPA provided expertise with compilation of the Clavos JV Mineral Resource Estimate Study (2012).
- John Boyce P.Eng of RPA provided expertise with geological modelling of the Clavos JV Mineral Resource Estimate (2012) mineralized structures.
- Peter Hubacheck, P.Geo., an Independent Qualified Person, visited the Clavos JV property on two occasions between early February, 2012 through early March, 2012 to log core from the 960 Zone, prepared a detailed surface and underground exploration diamond drill program, prepared samples for metallurgical test work and provided guidelines and overall supervision on behalf of Clavos JV for the RPA Mineral Resource Estimate (2012).
- Bill Schweng, an Independent Mine Technician, provided mine modelling and planning services for the Clavos JV underground mineralized structures.
- Harri Ollila, an Independent Environmental Professional, visited the property on several occasions, between August, 2012 and December, 2012, and provided input into the environmental aspects within this PEA Report.
- R. Ritchie P.Eng, an Independent Qualified Person, visited the Clavos JV property on several occasions between October, 2011 and January, 2012 and provided overall responsibility for the writing of this PEA Report which includes the mining study CAPEX estimates, OPEX estimates and conceptual economics.

The author of this PEA would like to acknowledge the co-operation and transmittal of technical material by the following groups: Sage, SAS, Peter Hubacheck and RPA personnel.

Table 2.1 – Personnel Familiar With the Clavos JV Project

COMPANY	LOCATION	NAME	TITLE
Sage Gold	Toronto, ON	Nigel Lees	President & CEO
Sage Gold	Stratford, ON	Bill Love	VP Business Development
Sage Gold	Toronto, ON	Ron Reed	CFO
St. Andrew	Toronto, ON	Doug Cater	VP Exploration
St. Andrew	Kirkland Lake, ON	Duncan Middlemiss	Chief Operating Officer
St. Andrew	Matheson, ON	Craig Todd	Exploration Manager
Consultant	Timmins, ON	Bill Schweng	Mine Planner
Consultant	Timmins, ON	Harri Ollila	Environmental Manager

In addition, this PEA has been prepared utilizing the reports and documents, as noted in Section 27 References. The author does not disclaim any responsibility for this PEA.

List of Abbreviations

Within this report, monetary units are expressed in Canadian dollars (CDN$) unless otherwise specified as displayed in United States dollars (US$).

The metric system of measurements and units has been applied exclusively unless otherwise stated. A table of abbreviations utilized throughout this report is summarized below.

Table 2-2– LIST OF ABBREVIATIONS

CLAVOS JV

Units of measurement applied in this report conform to the SI (metric) system.

micron	µ	gram	g	kilopascal	kPa	part per million	ppm
degree Celsius	°C	giga (billion)	G	kilovolt-amperes	kVA	pound per square inch absolute	psia
degree Fahrenheit	°F	Imperial gallon	Gal	kilowatt	kW	pound per square inch gauge	psig
microgram	µg	gram per litre	g/L	kilowatt-hour	kWh	relative elevation	RL
ampere	A	gram per tonne	g/t	liter	L	second	s
annum	a	Imperial gallons per minute	gpm	litres per second	L/s	short ton	st
barrels	bbl	grain per cubic foot	gr/ft3	metre	m	short ton per year	stpa
British thermal units	Btu	grain per cubic metre	gr/m3	mega (million)	M	short ton per day	stpd
Canadian dollars	C$	hour	hr	square metre	m2	metric tonne	t
calorie	cal	hectare	ha	cubic metre	m3	metric tonne per year	tpa
cubic metres per minute	cfm	horsepower	hp	minute	min	metric tonne per day	tpd
centimeter	cm	inch	in	metres above sea level	MASL	United States dollar	US$
square centimeter	cm2	square inch	in2	millimetre	mm	United States gallon	USg
day	d	joule	J	miles per hour	mph	US gallon per minute	USgpm
diameter	dia.	kilo (thousand)	k	megavolt-amperes	MVA	volt	V
dry metric tonne	dmt	kilocalorie	kcal	megawatt	MW	watt	W
dead-weight ton	dwt	kilogram	kg	megawatt-hour	MWh	wet metric tonne	wmt
foot	ft	kilometre	km	cubic metres per hour	m3/h	cubic yard	yd3
foot per second opt,	ft/s	kilometre per hour	km/h	ounce per short ton	oz/st	year	yr
square foot	ft2	square kilometer	km2	Troy ounce (31.1035g)	oz	year to date	YTD
cubic foot	ft3	centre to centre	c – c	ounce per dry metric tonne	oz/dmt		

Table 2-3 – UNITS OF MEASURE
CLAVOS JV

Centimetre		cm	Million		M
Cubic centimetre		cm^3	Million tonnes		Mt
Cubic foot		ft^3	Minute	(plane angle)	'
Cubic inch		in^3	Minute	(time)	min
Cubic metre		m^3	Month		mo
Cubic yard		yd^3	Ounce		oz
Degree		°	Ounces per ton		opt
Degrees Celsius		°C	Parts/billion		ppb
Degrees Fahrenheit		°F	Parts/million		ppm
Diameter		ø	Percent		%
Foot		ft	Pound(s)		lb
Gallon		gal	Pounds per square inch		psi
Gallons per minute	(US)	gpm	Quart		qt
Gram		g	Revolutions per minute		rpm
Grams per tonne		g/t / ppm	Second (plane angle)		"
Hectare	(10,000 m2)	ha (2.471 acres)	Second (time)		s
Horsepower		hp	Short ton	(2,000 lb)	st
Hour		hr	Short ton	(US)	(0.907185 tonnes)
Hours per day		h/d	Short tons per day	(US)	tpd
Hours per week		h/wk	Short tons per hour	(US)	tph
Hours per year		h/a	Short tons per year	(US)	tpy
Inch		"	Square centimetre		cm^2
Kilo	(thousand)	k	Square foot		ft^2
Kilogram		kg	Square inch		in^2
Kilometre		km	Square kilometre		km^2
Kilometres per hour		km/h	Square metre		m^2
Litre		L	Thousand tonnes		kt
Metre		m	Ton	(2,000 lb)	ton
Metres above sea level		masl	Tons per day		tpd
Metres per second		m/s	Tonne	(1,000 kg)	t
Metric ton	(tonne)	t	Tonnes per day		t/d
Micrometre	(micron)	µm	Tonnes per hour		t/h
Miles per hour		mph	Tonnes per year		t/a
Milligram		mg	Troy Ounce		(31.1035 grams)
Milligrams per litre		mg/L	Week		wk
Millilitre		m level	Yard		yd
Millimetre		mm	Year	(annum)	a

Table 2-4 – ABBREVIATIONS & ACRONYMS
CLAVOS JV

Above Mean Sea Level	amsl
Canadian Dollars	Cdn$
Day	d
Days per week	d/wk
Days per year (annum)	d/a
Diamond Drill Hole	DDH
Electromagnetic	EM
Footwall	FW
Greater Than	>
Hanging Wall	HW
Horizontal Loop Electro-Magnetic	HLEM
Induced Polarization	IP
Less Than	<
Long Hole	LH
Meter Level	mL
National Instrument 43-101	NI 43-101
Overburden Drill Hole	ODH
Rock Mass Rating	RMR
Specific Gravity	SG
United States Dollars	US$
Vertical Loop Electro-Magnetic	VLEM
Very Low Frequency Electro-Magnetic	VLF-EM

2.1 Disclaimer

This PEA has been prepared by R Ritchie, P.Eng. for Clavos JV with the information, conclusions, opinions, and estimates as contained herein based upon the following:

- Information available at the time of preparation of this report.
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and opinions as provided by Sage, SAS, RPA, and other third party sources.

The author does not disclaim any responsibility for this PEA.

The author of this PEA completed many site visits to the Clavos JV property holdings as follows: October 23 - 25, 2012, September 28, 2012 and August 22 - 23, 2012. During the site visits the author verified the information and data contained within this PEA.

2.2 Forward-Looking Information

This PEA contains "forward-looking information" within the meaning of applicable Canadian securities legislation and “Forward-Looking Statements" within the meaning of Section 21E of the United States Securities Exchange Act of 1934. Forward-looking information includes, but is not limited to, statements related to activities, events or developments that the author expects or anticipates will or may occur in the future, including, without limitation: statements related to the economic analysis; business strategy; and objectives and goals. Forward-looking information is often identified by the use of words such as "plans", "planning", "planned", "expects" or "looking forward", "does not expect", "continues", "scheduled", "estimates", "forecasts", "intends", "potential", "anticipates", "does not anticipate", or "belief", or describes a "goal", or variation of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. Forward-looking information is based on a number of factors and assumptions made by the author and considered reasonable at the time such information is provided. Forward-looking information involves known and unknown risks, uncertainties and other factors that may cause the actual results, performance, or achievements to be materially different from those expressed or implied by the forward-looking information. The PEA is, by definition, preliminary in nature and should be considered speculative. It is based upon estimates that may change, which would impact all costs and estimates.

Operating Costs for the project were based upon assumptions including energy cost, water cost, labor, and other variables that are likely to change. Capital Costs were based upon a list of equipment thought to be necessary for production. Changes in estimated costs to acquire, construct, install, or operate the equipment may adversely impact project economics. Among other factors, the Company's inability to complete further NI 43-101 resource estimates; the inability to complete the future assessments; changes to the economic analysis; the failure to obtain necessary permits to advance the project; environmental issues or delays; inability to successfully complete additional drilling at the project; factors disclosed in the Company's current Management's Discussion and Analysis; as well as information contained in other public disclosure documents available on SEDAR at www.sedar.com may adversely impact the project. Although the author has attempted to identify important factors that could cause actual actions, events, or results to differ materially from those described in the forward-looking information, there may be other factors that cause actions, events, or results not to be as anticipated, estimated, or intended. There can be no assurance that forward-looking information will prove to be accurate. The forward-looking information contained herein is presented for the purposes of assisting investors in understanding the Company's plan, objectives, and goals and may not be appropriate for other purposes. Accordingly, readers should not place undue reliance on forward-looking information. The author and the Company do not undertake to update any forward-looking information, except in accordance with applicable securities laws.

3.0 RELIANCE ON OTHER EXPERTS

This PEA Report has been prepared by R. Ritchie, P. Eng., for the Clavos JV property holdings.

The information, conclusions, opinions, and estimates contained herein are based upon:

- Information available to the author at the time of preparation of this PEA Report
- Assumptions, conditions, and qualifications as set forth within this PEA Report
- Data, reports, and other information as supplied by Sage, SAS, or other third party sources.

For the purpose of this report, the author has relied on ownership information as provided by Sage and SAS with respect to Section 4 of this PEA. The author has not researched the property titles other than to verify the status of the property taxes, nor has the author researched the mineral rights for the Clavos JV property holdings and therefore expresses no legal opinion as to the ownership status of the property.

The opinions, deductions and recommendations as expressed by the author of this PEA Report, rely in part upon outside information collected and interpreted from previous operators and this information is believed to be complete and accurate.

The author has studied and relied upon the many sources of excellent technical data made available from the numerous assessment reports filed with the Ministry of Northern Development and Mines and/or through numerous other reliable data sources as provided within previous work programs as completed on this general area by others.

From the above, the author was able to apply professional judgments and recommendations in regards to the potential of this particular geological environment for the provision of potential gold bearing mineralized zones on the Clavos JV property.

The data contained within this PEA Report is believed by the author to be both reliable and accurate. The author has taken all appropriate steps, in his professional judgement, to ensure that the information is sound and does not disclaim any responsibility for this report.

The author is not aware of any material fact or material change, with respect to the subject matter of this PEA Report that is not reflected, or of any omissions to disclose, which would render this PEA Report as misleading.

4.0 PROPERTY DESCRIPTION & LOCATION

4.1 Site Location

The Clavos JV property is comprised of patents, leases and mining claims with an aggregate area of 2,071 ha (mineral rights)located in German, Stock and Clergue Townships, to the east of Timmins in northeastern Ontario, between the community of Barbers Bay and the Kettle Lakes Provincial Park. The patents, including surface and mineral rights cover the planned mining area of the existing Clavos JV mineralization.

The Clavos JV property is centred at approximately:

- 514,000E and 5384000N, NAD 83, Zone 17 in UTM coordinates.
- 80.81752° W, 48.60901° N (latitude and longitude)

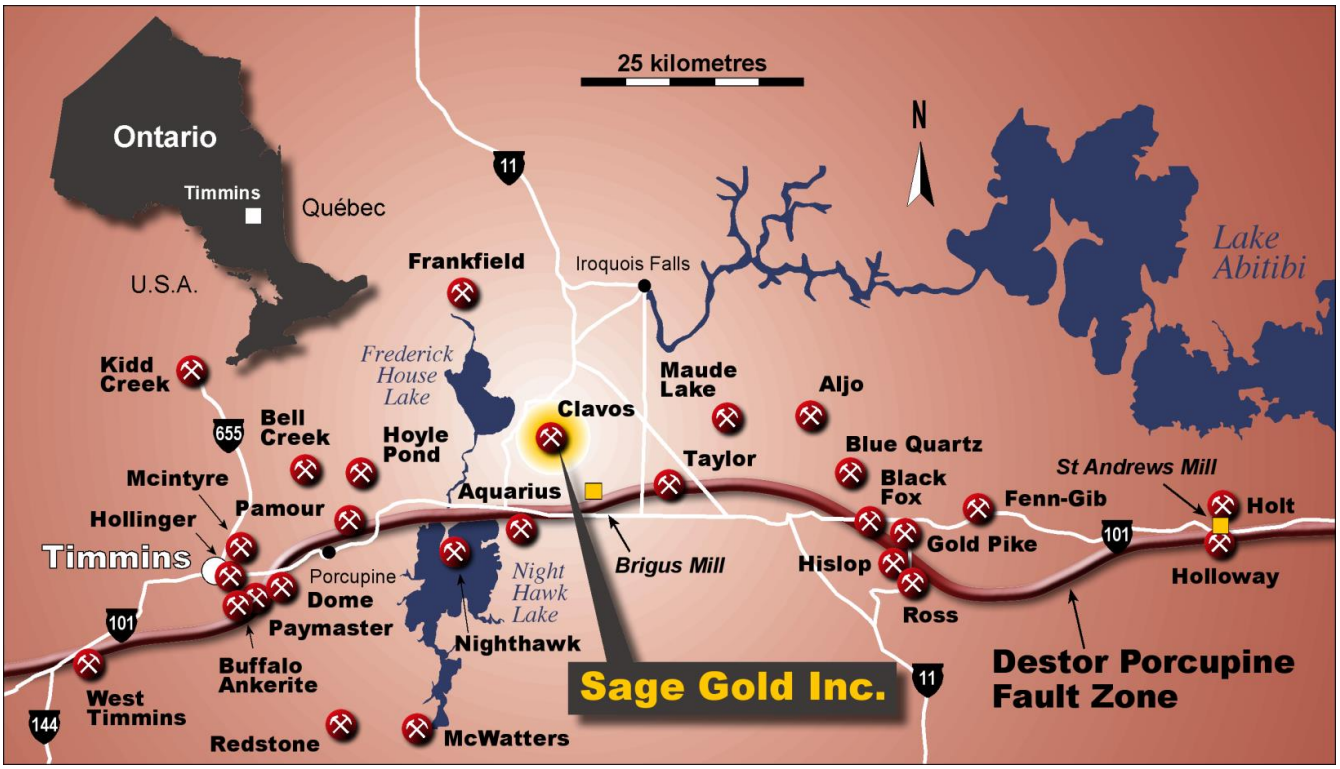


Figure 4.1 – Location Map – Source: Sage Gold Inc

The individual claim holdings are leased and/or patented land which is 60% owned by Sage Gold and 40% owned by SAS with all claims having been surveyed.

The Existing Clavos JV deposit was discovered during a field exploration program in 1939 and since that time has been evaluated by a number of companies that include Noranda Mines Ltd., Canamax Resources, United Tex-Sol Mines Inc. and Kinross Gold Corporation.

The Clavos JV property was then acquired by SAS during 2003 when an advanced underground exploration program consisting of exploratory diamond drilling and mine development commenced during 2004. Underground mineral extraction occurred from 2005 to 2007, with the mineralized material transported approximately10 km to the Stock Mill for metallurgical processing.

Clavos Property	**No. of Claims**	**Hectares**
Surface and Mineral Rights	7	166
Surface Rights Only	2	64
Mining Rights Only	13	473
Overlying Surface Rights	13	478
Underlying Mineral Rights	25	496
Unpatented Claims	14	936

Please refer to Section 4.5 for claim, patent and lease listing.

4.2 Permitted Encumbrances

A summary of the permitted encumbrances applicable to the Clavos JV claim holdings is provided below:

- Instruments registered on the mining claim abstracts as published by the Ministry of Northern Development and Mines (Ontario) for the unpatented mining claim holdings
- Instruments registered against title on the patent mining claim holdings
- Security given to a public utility or any governmental authority, when required in the ordinary course of business including, without limitation, liens given in connection with reclamation bonds, environmental bonds or operating permits
- Liens for taxes, assessments or governmental charges incurred in the ordinary course of business, that are not yet due and payable
- Rights reserved or vested in any governmental authority by the terms of a lease, licence, franchise, grant or permit, or by any statutory provision to terminate the same, to take action which results in an expropriation, or to require annual or other payments as a condition to the continuance thereof
- Construction, contractors', mechanics', carriers', warehousemen's, suppliers' and material men's liens and liens in respect of vacation pay, workers' compensation, unemployment insurance or similar statutory obligations, provided the obligations secured by such liens are not yet due and payable and, in the case of construction liens, which have not yet been filed or for which Clavos JV have not received written notice of a lien

- Minor encumbrances, including without limitation, servitudes, encroachments, easements, rights-of-way, restrictive covenants or other similar rights in land granted to or reserved by other persons, rights-of-way for sewers, electric lines, telegraphs and telephone lines, and other similar purposes or zoning or other restrictions as to the use of the rights-of-way and other similar rights and restrictions, which do not in the aggregate materially detract from the value of the property or materially impair the existing uses of the property
- Title defects or irregularities which are of a minor nature and which do not materially detract from the value of the property
- Reservation in any original grants from the Crown of any land or interest therein and statutory exceptions to title
- Royalties referred to in the Joint Venture Agreement

4.3 Environmental Liabilities

The Clavos JV property has been subjected to a comprehensive surface diamond drill program, an exploratory underground diamond drill program and an underground advanced exploration mine development program during the recent past (year 2004 to 2007).

Presently the underground workings are flooded with the existing surface infrastructure on site consisting of the following:

- Gated property access
- 2 only mobile type office trailers
- 3 only mobile dry facility trailers
- 40' x 120' ATCO fold-away shop facility
- 30' x 30' pre-fab metal building
- Commercial septic field
- Potable water well source
- 10 km overhead hydro transmission line between the nearby Stock Mill facility and the Clavos JV property
- Surface portal ramp entrance and enclosure
- Waste rock stockpile
- Functional settling pond
- 30' x 30' diesel generator building containing 2 only 1,250 kw Ruston diesel generators
- 30' x 30' compressor house containing no compressors, but equipped with a functional air receiver
- Natural degradation polishing pond

- Surface primary fresh air raise collar (2nd egress from the underground workings to surface).

Golder Associates Ltd. ("Golder") prepared a closure plan for the Clavos JV property in 2004. In July, 2012, SAS submitted an updated closure plan to the Ministry of Northern Development and Mines ("MNDM") along with the upgraded financial assurance. This closure plan was accepted by the Director of MNDM in October, 2012. Sage provided the necessary documentation to the MNDM to transfer the closure plan to Sage in August, 2012. The Director acknowledged the transfer of the closure plan and financial assurance from SAS to Sage in October, 2012.

A ministry approved mine water discharge settling pond plus an approved polishing pond are in place and remain functional.

All environmental permits necessary to commence operation and development of the Clavos JV have been secured including:

- Permit To Take Water Permit (PTTW)
- Closure Plan
- Environmental Compliance Approval (ECA) for Air
- ECA for Water Discharge,
- Certificate of Approval - Septic

Provided the Clavos JV proposed Phase 1 work program, as outlined in this PEA Report, produces positive results, a pre-feasibility study could be commissioned to assess the economics of maximizing the underground mine production at Clavos JV. At that time,a revised closure plan may be required to suit the revised mining plan.

The proposed preliminary surface work at Clavos JV could include the following upgrades and or modifications to better support the underground mine program:

- Re-energize the 10 km overhead hydro transmission power line
- Upgrade the 10 km haul road
- Construct a surface hydraulic sand fill plant with fill feed delivered by the returning surface haul trucks containing classified tailings from the mill facility selected for metallurgical processing

Neither mill processing facility nor tailings storage facilities are envisaged on the Clavos JV site.

The Clavos JV Environmental Manager and the author of this PEA Report have held many discussions with the SAS environmental co-ordinator and with the assistance of the environmental services company (Blue Heron) have completed a detailed review of the Clavos JV environmental monitoring and inspection programs regarding past and current status for environment compliance.

Various documents were reviewed in regards to past records of inspections by officers of the Ministry of the Environment for Ontario ("MOE"). Records reveal that Clavos JV presently is in compliance with applicable environmental permitting requirement and regulations. The company's Certificate of Approval has been amended for the construction of a flume control structure at the discharge location.

Cochnour & Associates, Inc. prepared an Environmental Review for the Clavos JV property in November, 2005, where upon the various certificates of approval plus closure plans were assessed regarding the status of environmental issues. Following this assessment, an Environmental Management System (EMS) was developed for environmental permitting requirements, for environmental issues, for identification of roles and responsibilities, for identifying environmental priorities to be addressed and for active management in a timely manner.

In the author's opinion, the Clavos JV property is not subject to any environmental liabilities nor any other known significant factors that could affect access, title or the right or ability to perform any of the work tasks detailed.

4.4 Royalties Under The Clavos Joint Venture Agreement

4.4.1 Royalties payable for material produced from the existing Clavos mineralized structures

The total royalties payable for material produced at the existing Clavos mineralized structures totals 3% with the applicable Royalty Agreements summarized below:

1. Franco-Nevada Corporation:

- Effective date October 1, 2006
- Between SAS and Newmont Canada
- Assigned by Newmont Canada to Franco-Nevada Corp. by agreement dated December 20, 2007
- Perpetual production royalty equal to 1% NSR either payable in cash or refined bullion for precious metals (Au, Ag, & platinum group metals), with cash only for other minerals
- Specifically attached to claims CP2433, L37440, L42729, P29600, and P29895

2. Jubilee Gold Inc:

- Effective date August 18, 1983
- Between Clavos Porcupine Mines and Bruneau Mining, subsequently assigned to Canamax Resources by Bruneau dated July 31, 1984, amended by agreement dated September 30, 1992 among Clavos, Bruneau and Canamax

- By agreement dated December 13, 1996 Golden Harker Explorations acquired the interest of the Clavos royalty
- Jubilee Gold as successor of Golden, Union Gold, Milestone Exploration, Sheldon-Larder Mines, and Wood-Croesus Mines, dated January 1, 2010
- Costs shall mean all costs and expenses attributable to exploration and development of the properties and the additional properties, mining, milling, concentrating, production, handling, delivery and sale of ores or concentrates from the properties and additional properties
- Gross proceeds means the gross sum directly or indirectly received by the owners when ore, metals, minerals products, or minerals are produced and sold by the owners at then current market prices
- Payback shall be achieved on the first day of the month following the date when gross proceeds first equals costs:
    - Before payback, a 2% NSR on all gold produced from the properties and additional properties in any month during which the monthly average gold price exceeds US$700.00 per ounce (adjusted for inflation in accordance with increases in the CCPI after January 1, 1992).
    - After payback, a royalty comprising a percentage of NSR, based on monthly average gold price as follows:

        Monthly average gold price (in US$), (before CCPI adjustments)

Under $450.00/oz	0% NSR
$450.01 - $550.00/oz	2% NSR
$550.01 - $700.00/oz	3% NSR
$700.01 & over/oz	4% NSR

    - All price thresholds referred to above are to be adjusted for inflation in accordance with increases in the CCPI after January 1, 1992.

3. Teck Resources Limited:

- Agreement dated October 31, 1995
- Between 11126 Yukon Ltd. and Eduard Ludwig
- Aur Resources as successor to 11126 Yukon Ltd. with Teck Resources as successor by amalgamation with Aur Resources
- Capitalized terms when not defined in the letter agreement have the respective meanings set forth in the "Clavos Agreement" – Amending Agreement between Clavos Porcupine Mines Ltd and Bruneau Mining Corporation and Canamax Resources Inc, September 30, 1992
- Following royalties to be paid to Teck Resources:
    - If no NSR payable under the Clavos Agreement, a 2% NSR is payable

- If any NSR payable under the Clavos Agreement, after payback a 1% NSR plus a tonnage royalty equal to $1.50 per tonne of ore mined and milled from the properties
- After payback, and if no NSR payable the royalty payer has the right to repurchase one-half of the 2% NSR referred to above from Teck Resources for $1,000,000 together with the granting to Teck Resources of a tonnage royalty equal to $1.50 per tonne of ore mined and milled from the properties
- In other words, should the royalty payer exercise such re-purchase right, the royalties receivable by Teck Resources shall be that specified above regardless of whether or not any NSR is payable under the Clavos Agreement

The author has concluded that, given that the Jubilee royalty of 2% is payable when gold is greater than US$700.00 per oz and that there has been no payback, then the Teck royalty is not payable.

The patents that comprise the Existing Clavos mineralized structures include:

CLAIM	PARCEL	OWNER	%	PIN	RIGHTS	TWP	(Ha)
CP2433	22364sec	Clavos J.V.	100	65362-302	SRO	German	73.963
CP2433	5748sec	Clavos J.V.	100	65362-535	MRO	German	73.963
CP6638	17713sec	Clavos J.V.	100	65362-299	SRO	German	84.314
P29895	12819sec	Clavos J.V.	100	65362-300	MRO	German	20.56
P29600	12819sec	Clavos J.V.	100	65362-300	MRO	German	19.78
P29601	12819sec	Clavos J.V.	100	65362-300	MRO	German	22.34
P28977	12819sec	Clavos J.V.	100	65362-300	MRO	German	21.54
L37440	9250sec	Clavos J.V.	100	65363-184	SMR	Stock	14.864
L37441	9249sec	Clavos J.V.	100	65363-182	SMR	Stock	15.205
L42729	12822sec	Clavos J.V.	100	65363-183	SMR	Stock	15.56
L42608	12822sec	Clavos J.V.	100	65363-183	SMR	Stock	17.035

4.4.2 Balance of Royalties on the Clavos JV Property and Property Holdings

Table 4.1 – Clavos JV Property Claim Holdings

CLAIM	PARCEL	OWNER	%	PIN		TWP	(Ha)	ROYALTY
CP4990	22593sec	Clavos JV	100	65362-305	MRO	German	75.588	9
CP6499	23144sec	Clavos JV	100	65362-311	MRO	German	60.782	1,2,5,6
CP6633	22093sec	Clavos JV	100	65362-154	SRO	German	53.806	1,5,6
CP6634	17709sec	Clavos JV	100	65362-298	SRO	German	71.333	1,5,6
CP6640	22095sec	Clavos JV	100	65363-158	SRO	Stock	63.893	1,5,6
L37438	9238sec	Clavos JV	100	65363-199	MRO	Stock	15.653	1,5,6
L37438	17702sec	Clavos JV	100	65363-186	SRO	Stock	15.653	1,5,6
L37439	9239sec	Clavos JV	100	65363-200	MRO	Stock	16.045	1,5,6
L37439	17703sec	Clavos JV	100	65363-180	SRO	Stock	16.045	1,5,6
L37442	9240sec	Clavos JV	100	65363-185	SMR	Stock	17.578	1,5,6
L37443	9243sec	Clavos JV	100	65363-181	SMR	Stock	18.392	1,5,6
L37454	9241sec	Clavos JV	100	65363-201	MRO	Stock	17.01	1,5,6
L37454	17704sec	Clavos JV	100	65363-187	SRO	Stock	17.01	1,5,6
L37455	9242sec	Clavos JV	100	65363-202	MRO	Stock	16.988	1,5,6
L37455	17705sec	Clavos JV	100	65363-179	SRO	Stock	16.988	1,5,6
L42605	12837sec	Clavos JV	100	65363-211	MRO	Stock	17.613	1,5,6
L42605	17715sec	Clavos JV	100	65363.159	SRO	Stock	17.613	1,5,6
L42606	12821sec	Clavos JV	100	65363-212	MRO	Stock	14.364	1,5,6
L42607	12821sec	Clavos JV	100	65363-212	MRO	Stock	17.618	1,5,6
L42609	12821sec	Clavos JV	100	65363-212	MRO	Stock	16.536	1,5,6
L43304	12821sec	Clavos JV	100	65363-212	MRO	Stock	15.463	1,5,6
L46943	12823sec	Clavos JV	100	65363-246	MRO	Stock	14.517	1,5,6
L46944	12823sec	Clavos JV	100	65363-246	MRO	Stock	16.182	1,5,6
NP2328	8724sec	Clavos JV	100	65363-218	MRO	Stock	71.02	1,5,6
NP2564	667sec	Clavos JV	100	65362-297	SMR	German	67.14	8
NP5348	1184sec	Clavos JV	100	65362-551	MRO	German	67.37	1,3,5,6
P28978	12815sec	Clavos JV	100	65362-301	MRO	German	16.46	1,5,6
P28979	12815sec	Clavos JV	100	65362-301	MRO	German	18.00	1,5,6
P28980	12815sec	Clavos JV	100	65362-301	MRO	German	19.08	1,5,6
P28981	12815sec	Clavos JV	100	65362-301	MRO	German	17.80	1,5,6
P29602	12814sec	Clavos JV	100	65362-507	MRO	German	17.04	1,5,6
P29603	12814sec	Clavos JV	100	65362-507	MRO	German	17.88	1,5,6
P29604	12817sec	Clavos JV	100	65362-505	MRO	German	15.051	1,5,6
P29604	17711sec	Clavos JV	100	65362-156	SRO	German	15.051	1,5,6
P29605	12818sec	Clavos JV	100	65362-504	MRO	German	15.51	1,5,6
P29605	17712sec	Clavos JV	100	65362-157	SRO	German	15.51	1,5,6

P30683	12816sec	Clavos JV	100	65362-506	MRO	German	16.94	1,5,6
P30683	22094sec	Clavos JV	100	65362-155	SRO	German	16.94	1,5,6
P30684	12814sec	Clavos JV	100	65362-507	MRO	German	18.89	1,5,6
P30685	12814sec	Clavos JV	100	65362-507	MRO	German	18.18	1,5,6
P32143	12820sec	Clavos JV	100	65362-503	MRO	German	19.53	1,5,6
P32144	12820sec	Clavos JV	100	65362-503	MRO	German	20.47	1,5,6
P723319	1763LC	Clavos JV	100	65362-567	MRO	German	19.12	1,5,6
P723320	1763LC	Clavos JV	100	65362-567	MRO	German	16.50	1,5,6
P724525	1763LC	Clavos JV	100	65363-001	MRO	Stock	15.60	1,5,6
P724526	1763LC	Clavos JV	100	65363-001	MRO	Stock	13.97	1,5,6
TP738	10046sec	Clavos JV	100	65363-188	SRO	Stock	33.38	1,5,6
TP738	5901sec	Clavos JV	100	65363-189	SRO	Stock	31.04	1,5,6
TP748	6281sec	Clavos JV	100	65363-223	MRO	Stock	62.46	1,5,6
1212954	UPC	Clavos JV	100	n/a	n/a	German	66.82	
1212957	UPC	Clavos JV	100	n/a	n/a	German	16.99	
1213708	UPC	Clavos JV	100	n/a	n/a	German	65.10	
1245302	UPC	Clavos JV GCC	40 60	n/a	n/a	Clergue	129.27	
1245323	UPC	Clavos JV GCC	40 60	n/a	n/a	Clergue	95.62	
1245324	UPC	Clavos JV GCC	40 60	n/a	n/a	Clergue	64.51	
3010679	UPC	Clavos JV	100	n/a	n/a	Stock	260.39	7
3010680	UPC	Clavos JV	100	n/a	n/a	Stock	33.21	7
3010703	UPC	Clavos JV	100	n/a	n/a	Stock	51.37	7
3011212	UPC	Clavos JV	100	n/a	n/a	Stock	16.77	
3011213	UPC	Clavos JV	100	n/a	n/a	Stock	17.07	
3011216	UPC	Clavos JV	100	n/a	n/a	Stock	15.40	
3011217	UPC	Clavos JV	100	n/a	n/a	Stock	16.21	
3011221	UPC	Clavos JV	100	n/a	n/a	German	86.80	

Royalties Applicable

1	Jubilee Gold	0 - 4% NSR	1983	7	Robitaille	2% NSR	2003
2	Kangas	$1.00/ton	1984	8	Desrochers	2% NSR	2004
3	Lahti	$0.50/ton	1984	9	Lund, Lundgren	2% NPI	2005
4	Suhonen	$0.50/ton	1987	9	Teck Res.	2% NSR	2005
5	Teck Res.	2% NSR or 1% NSR + $1.50/ton	1995	10	Franco Nevada	1% NSR	2007

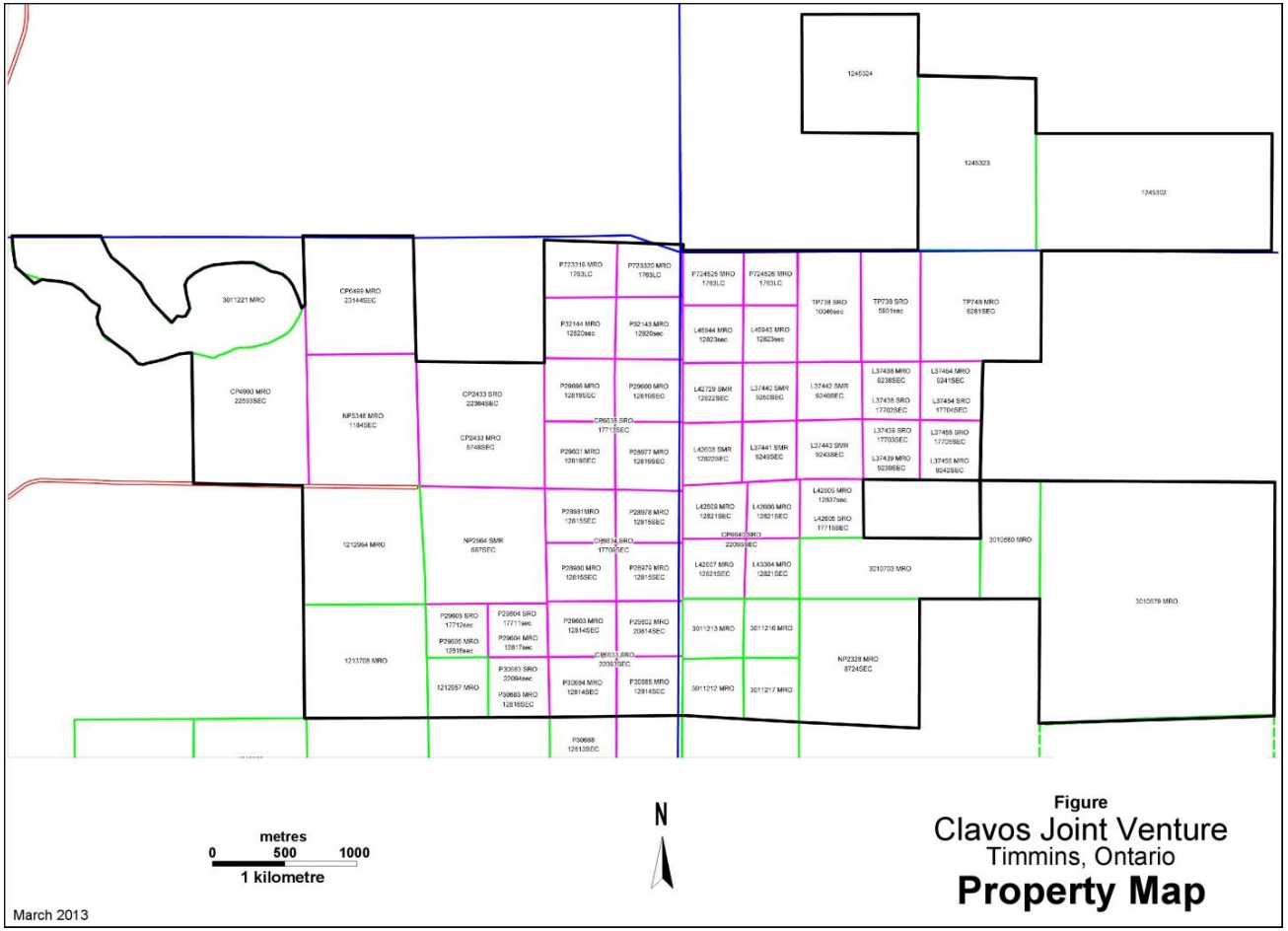
- Royalties referred to as 2,3, & 4 are subject to adjustments using the same percentage of change as to the CPI of Canada, Base 1984 being 1981 = 100.
- If payable under the Clavos JV Royalty is 2% NSR if not then Royalty is 1% NSR + $1.50/ton.

- Nighthawk North (subsidiary of UTX) – NSR dissolved.

Abbreviations for Table 4.1

MRO	Mineral Rights Only	n/a	Not applicable
SMR	Surface & Mineral Rights	Nil	No Royalties
SRO	Surface Rights Only	UPC	Unpatented Mining Claim
NSR	Net Smelter Return	CPI	Consumer Price Index
SAS	St. Andrew Goldfields	GCC	Goldcorp Canada
NPI	Net Profits Interest		No NSR on SRO
	No NSR on SRO		

Figure 4.2 – Clavos JV Property Map



4.5 Unpatented Claim Holdings

The current status of the Clavos JV property mineral claim holdings, as of the date of this PEA Report, is detailed within the excerpts of the claim abstracts summarized below, all the claims are currently classified by the Ontario Ministry of Natural Development and Mines District Office, as "Active & in Good Standing".

Table 4.2– Clavos JV Property Claim Status

Claim Number	Status	Township Area	Recorder Holder	Recorded	Staked	Claim Units	Due Date
P1212954	ACTIVE	GERMAN (G-3992)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	1996-May-17	1996-May-14	4	2014-May-17
P1212957	ACTIVE	GERMAN (G-3992)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	1996-May-17	1996-May-15	1	2015-May-17
P1213708	ACTIVE	GERMAN (G-3992)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	1996-May-17	1996-May-15	4	2014-May-17
P3011221	ACTIVE	GERMAN (G-3992)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Apr-28	2003-Apr-25	8	2015-Apr-28
P3010679	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Jan-27	2003-Jan-21	16	2015-Jan-27
P3010680	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Jan-27	2003-Jan-22	2	2015-Jan-27
P3010703	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Jan-27	2003-Jan-22	3	2015-Jan-27
P3011212	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Mar-07	2003-Mar-06	1	2015-Mar-07
P3011213	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Mar-07	2003-Mar-06	1	2015-Mar-07

P3011213	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Mar-07	2003-Mar-06	1	2015-Mar-07
P3011217	ACTIVE	STOCK (G-3248)	SAGE GOLD INC. (60%) ST. ANDREW GOLDFIELDS LTD. (40%)	2003-Mar-07	2003-Mar-06	1	2015-Mar-07
P1245302	ACTIVE	CLERGUE (G-3487)	*SAGE GOLD INC. (24%) *ST. ANDREW GOLDFIELDS LTD. (16%) *GOLDCORP (60%)	2001-Jun-11	2001-Jun-07	8	2015-Jun-11
P1245323	ACTIVE	CLERGUE (G-3487)	*SAGE GOLD INC. (24%) *ST. ANDREW GOLDFIELDS LTD. (16%) *GOLDCORP (60%)	2001-July-26	2001-July-19	6	2015-July26
P1245324	ACTIVE	CLERGUE (G-3487)	*SAGE GOLD INC. (24%) *ST. ANDREW GOLDFIELDS LTD. (16%) *GOLDCORP (60%)	2001-July-26	2001-July-19	4	2015-July26

4.6 Clavos JV Agreement

On, February 8, 2010, Sage entered into an Option Agreement with SAS on the Clavos Property. In this agreement as of August 12, 2012, Sage earned a 60% undivided interest in the Clavos property and formed a joint venture with SAS (60% Sage and 40% SAS) to further develop the property.

4.6.1 Clavos JV agreement - Changes In Participating Interests

The Joint Venture Agreement stipulates that each participant's participating interest can only be changed as follows:

- Upon an election or deemed election by a participant pursuant not to contribute to an adopted program and budget or to contribute less than the percentage reflected by its participating interest
- In the event of default by a participant in making its agreed upon contribution to an adopted program and budget
- Upon the acquisition by either participant of part or all of the participating interest of the other participant.

4.6.2 Voluntary Reduction in Participation – Dilution

The Clavos JV agreement provides that, in the event that SAS's interest in the property is diluted at any time to less than 10%, SAS's interest in the property will revert to a 2% NSR.

4.7 Waterton Debt Facility

On August 13, 2012, Sage closed a $1.5 million pre-production financing debt facility ("Debt Financing") with Waterton Global Value, L.P. ("Waterton"). The interest rate is 9.5% per annum, and the term of the loan is 18 months.

The Debt Financing is secured by Sage's 60% interest in the Clavos JV gold project, and all of the Company's other assets. Waterton has been granted a right of first refusal on production financing for Sage's 60% interest in the Clavos gold project and a Gold Supply Agreement pursuant to which Waterton has the option to purchase Sage's share of gold production from the Clavos gold project at the lesser of the average market price of gold for the 30 trading days immediately prior to the pricing date and the market price of gold on the day immediately prior to the pricing date. The Gold Supply Agreement will remain in effect for gold sales of up to 120,000 ounces, or for the first five years of production, whichever is greater.

To the knowledge of the author of this Technical Report, there are no known factors or risks that would affect access, title, or the right or ability to perform work on the Clavos JV property.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE & PHYSIOGRAPHY

5.1 General Location

The Clavos JV property and claim holdings are located within Stock, German and Clergue Townships some 50 to 65 km east of the City of Timmins, while in close proximity with the village of Barbers Bay, the Kettle Lakes Provincial Park and the town of Matheson in the District of Cochrane, Porcupine Mining Division of northeastern Ontario

Timmins, Ontario is serviced by the following major highway routes and the following transportation service facilities:

- Hwy #101
- Air Canada Jazz, Porter Airlines, Bearskin Airways, Thunder Airlines and Air Creebec, providing daily scheduled flights through the Victor M Power Airport in Timmins
- The Timmins Transit Authority providing regularly scheduled local bus service
- The long haul Ontario Northland Motor Coach Services

5.2 Highway Access

Year-round access to the Clavos JV property is provided via:

- Provincial Hwy #101 east of Timmins, or north on Hwy #11, then west on Hwy #101 to Hwy #67
- North on Provincial Hwy #67
- Eastward on Finn Road for approximately 6.0 km to the Clavos JV site
- Provincial Highways #11, #101, and #672 are classified respectively as all-weather secondary, concession, and lot roadways which provide excellent year round access to the Clavos JV site.

The Clavos JV property is located along the side of Finn Road which is a graded gravel secondary road approximately 6.0 kms north of the junction of Hwy #672 and Hwy #101. This area is considered to be well serviced with an excellent provincial highway system connecting the Clavos JV property with the communities of Timmins, Cochrane, Iroquois Falls, Kirkland Lake, Matheson, Sudbury, North Bay, and Toronto, Ontario, plus, the town of Rouyn-Noranda, Quebec. Numerous paved and graded secondary roads provide access to most areas off the main highway system, including the mineral resource areas covered by this report.

5.3 Climate Conditions

Prevailing climatic conditions are typical northern to mid continental and exhibit wide temperature variances of -46º C during the winter months of January through February (severe cold and snowy) to +24º C during the summer months of June, through August.

This is considered to be typical of northern Ontario with cold winters, warm summers and only moderate precipitation. Climatic conditions are based upon meteorological information collected for Timmins, Ontario during the period from 1955 to 2012.

The average daily temperature during the month of January experienced in the local area has been recorded as 1.2º C with a mean low of -17.2º C, and a mean high of 17.3ºC during the month of July. An extreme low of -45.6º C was recorded during February 1962 and the extreme high of 38.9º C was recorded on July 31, 1975.

This northern temperate zone experiences winters which are long with fall freeze-up occurring as early as October and spring thaw occurring as late as May. Winter temperatures can reach -40° C for short periods with average temperatures in the -20° C range while persisting for extended periods. Summer temperatures can reach a low of 0° C and exceed +30° C for short periods with mean temperatures in the 18° C to 20° C ranges.

The yearly average precipitation for the local area has been documented at 874 mm with 485 mm (60%) occurring as rainfall during the warmer months and 346mm (40%) occurring as snow and ice during the winter months. A record daily rainfall recorded at 86 mm, occurred on July 29, 1990. The majority of thunderstorm activity occurs during the month of July.
The local area is normally snow covered from mid-November to the end of April with snow accumulations averaging +2.0 meters in depth. The available work season is considered to be 12 months per year with no climatic conditions affecting the type of work programs contemplated in this report.

Table 5.1 –Climatic Data for Clavos JV Property

MONTH	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
RECORD HIGH °C (°F)	6.4 (43.5)	11.7 (53.1)	19.9 (67.8)	29.9 (85.8)	33.3 (91.9)	38.8 (101.8)	38.9 (102)	36.7 (98.1)	32.2 (90)	28.3 (82.9)	18.9 (66)	14.2 (57.6)	38.9
AVERAGE HIGH °C (°F)	-11 (12)	-7.5 (18.5)	-0.9 (30.4)	7.6 (45.7)	16.6 (61.9)	21.7 (71.1)	24.2 (75.6)	22.3 (72.1)	16.1 (61)	8.9 (48)	0.1 (32.2)	-7.8 (18)	7.5 (45.5)
AVERAGE LOW °C (°F)	-23.9 (-11)	-21.3 (-6.3)	-14.5 (5.9)	-5.2 (22.6)	2.5 (36.5)	7.5 (45.5)	10.5 (50.9)	9.1 (48.4)	4.4 (39.9)	-0.6 (30.9)	-8.1 (17.4)	-18.7 (-1.7)	-4.9 (23.2)
RECORD LOW °C (°F)	-44.2 (-47.6)	-45.6 (-50.1)	-37.8 (-36)	-29.4 (-20.9)	-11.1 (12)	-3.2 (26.2)	-0.5 (31.1)	-1.7 (28.9)	-6.4 (20.5)	-13 (9)	-33.9 (-29)	-43.9 (-47)	-45.6
PRECIPITATION mm (in)	53.9 (2.122)	36.6 (1.441)	59.4 (2.339)	52.8 (2.079)	69.2 (2.724)	89.4 (3.52)	91.5 (3.602)	82 (3.23)	88.3 (3.476)	76.8 (3.024)	69.6 (2.74)	61.9 (2.437)	831.3 (32.728)

Source: Environment Canada[2]

5.3 Local Resources & Infrastructure

In 1973, the provincial government of Ontario amalgamated the municipal jurisdictions within a 3,200 km² (1,240 sq. mile) area containing the town of Timmins, South Porcupine, Schumacher (Tisdale Township), Mountjoy Township, Porcupine (Whitney Township) plus other smaller surrounding communities into the Corporation of the City of Timmins.

Timmins has gradually evolved into a regional governmental, transportation, industrial, commercial, medical, and recreational center for north eastern Ontario, the James Bay Coast and the Nishnawbe Aski First Nation.

The population within the city has remained stable during recent years aided by steady mineral exploration, including the discovery of diamonds at the DeBeers Victor Project located near the First Nation James Bay community of Attawapiskat. The Victor Project is considered to be Ontario's first commercial diamond mine operation.

Timmins, Ontario is a city of approximately 45,000 persons and is considered to be the trade centre for the general area with most types of mining equipment, mechanical repair services and mine supplies available from firms located within this city.

Other nearby major mining centres include Kirkland Lake, Ontario, and Rouyn-Noranda, Quebec. These communities also provide all required supplies, services and labour needed to support mineral exploration and gold mining.

The community of Matheson, Ontario which has a population of 1,000 is located approximately 40 kms from the Clavos JV site. Matheson also offers modern housing, education, medical services, recreation, shopping, and rail transport services.

5.4 Local Mines

There are several operating mines located between Timmins and the Quebec border including Lakeshore's Bell Creek and West Timmins mines, the Goldcorp operations in Timmins, the Black Fox mine operated by Brigus Gold, St. Andrew's Holt-Holloway and Hislop operations and the Kidd Creek mine owned by Xstrata.

5.5 Topography And Terrain

There have been at least four different periods of glaciation in Northern Ontario during the Pleistocene Period. Following the most recent glaciation event, the ice receded to the northeast over the local area while depositing a variety of till and glacio-lacustrine sediments. Recent organic terrain was developed primarily within poorly drained depressions with overburden depths ranging from less than 3.0 meters to in excess of 60.0 meters.

The Clavos JV property topography consists of relatively flat lying to gently rolling terrain containing many poorly drained bog and muskeg type swampy areas with little topographic relief. Elevations are found to vary from 285 meters above mean sea level at Clavos JV to 261 meters where the North Driftwood flows under Highway #101.

Vegetation within the low-lying area consists primarily of stunted spruce, alders, scrub brush (Labrador brush), grasses and water plants. In areas having higher relief, spruce, grey pine (jack pine), and minor hardwoods (birch and aspen) can be found.

5.6 Clavos Property Services & Infrastructure

An advanced underground exploration program was undertaken on the Clavos JV property between 2005 and early 2007. The program included the mine development of a ramp down to the 300m level with access drifts driven into the footwall and hanging wall mineralized zones. Underground mineralized material was trucked to surface and transported to the nearby Stock Mill facility for processing.

The local Ontario Hydro Commission maintains a major electrical power distribution line, paralleling Hwy #101, and from this power line provides power to the Clavos JV property through a private (Clavos JV owned) NE-SW overhead transmission power line in place between the Brigus Stock Mill Facility and the Clavos JV property. A single phase 110/220 volt line powers the rural dwellings and cottagers along Finn Road. Approximately 800 amps from this line are available to Clavos JV.

Propane provides the primary heat energy source at the Clavos JV property for the heating of the underground mine fresh air supply and the surface buildings during the winter months. Should a

commercial production decision be made at the Clavos JV property, natural gas could be provided to the Clavos JV site through construction of a 2.0 km gas line from the Union Gas main Canada wide pipeline which traverses the Clavos JV property.

Adequate process water resources are readily available to support the underground workings, while Clavos JV will source its potable water needs from a well drilled into the artesian sand bed at the overburden bedrock interface.

The MOE permit to take water (PTTW) is in place and allows for the removal of 34.7 L/s US gpm.

A mine water discharge settling pond is in place and is constructed as a two (2) cell structure during the summer of 2000. To control seepage from the settling pond, it was constructed with a clay material lining installed during the summer of 2003.

The polishing pond is approved as a biological conditioning pond designed for removal of mine waste water contaminants such as arsenic and ammonia. This pond covers an area of 15.5 ha and has brush and trees growing inside. The biological uptake helps remove metals and nitrates while the additional retention time also helps reduce total suspended solids. The pond sits in clay with clay lining on the upstream of the perimeter walls.

5.7 Physiography

The Clavos JV property exhibits an undulating level plain of sand, clay and swampy type topography which will not impede property access for equipment, supplies and construction activities in supporting surface exploration type work programs.

Muskeg and spruce alder bog areas have developed in the topographically depressed areas with the low elevated ridges subjected to timber harvesting of birch, spruce, fir and jack pine.

Surface rock outcrop exposures are considered to be quite limited over the Clavos JV property holdings.

Notable wild fauna has been found to consist of moose, black bear, beaver, red fox, rabbit, and other small animals as reported during line cutting and geological mapping activities.

For the foreseeable future there will be no demand for tailings storage areas, heap leach pad areas, nor processing plant sites although the Clavos JV topography would be classified as most suitable for light to heavy construction type projects with 1,152 ha providing ample space for any required construction infrastructure.

The existing surface infrastructure includes two buildings with foundations (core shack and cold storage), two mobile office trailers, three settling ponds, a generator building and surface cap for the vent raise. The surface infrastructure is encompassed within the following surface rights patents.

Any additional surface buildings required to support the underground mining operations as detailed in this study could be erected on the existing surface rights patented land.

6.0 HISTORY

Initial gold exploration and mine development within the Timmins area occurred early in the twentieth century when gold mineralization was discovered at Night Hawk Lake in 1907. This was followed by the discovery of gold mineralization in 1909 at the present location of the McIntyre-Hollinger Mine.

Gold exploration activity commenced in 1939 within the general Clavos JV area. Clavos Porcupine Mines first discovered gold in 1946 with exploration activity temporarily ceasing throughout the 1950s and 1960s but resuming in 1973, when Noranda Mines Ltd carried out a modest drill program comprised of nine AQ-size holes. This program was followed in 1983 by Bruneau Mining Corporation, which drilled six BQ-size holes.

Gold exploration programs at the Clavos property date as far back as 1939 with over 500 diamond drill holes, totalling over 150,000 meters drilled to date. The gold mineralization found is typical quartz-vein lode gold deposits comprising a series of tabular quartz vein bodies situated within a steeply dipping alteration envelope striking roughly east-west with the gold system both open to depth and along strike.

Canamax Ltd. acquired the Clavos JV property in 1983 and succeeded in advancing the Clavos deposit to the stage of a pre-feasibility study in 1987. This program advanced to the point where environmental base line studies and metallurgical process test work programs were initiated.

Aur Resources acquired control of the Canamax Resource's asset during the late 1980's and subsequently optioned the Clavos JV property to United Tex-Sol Mines Inc. in 1996. United Tex-Sol Mines earned an interest in the Clavos property over a period of three (3) years, with Aur Resources (now Teck Resources Inc.) retaining a two percent (2%) NSR royalty on any production from the Clavos JV property.

Kinross subsequently optioned the Clavos JV property from United Tex-Sol Mines during 1999 and completed two (2) major diamond drilling programs.

Kinross deemed the final purchase payment to be quite expensive when they took into consideration the gold price at the time, and subsequently returned the property to its original owner, namely United Tex-Sol Mines, during December, 2001, without retaining any interest.

During 2002, United Tex-Sol Mines Inc. commissioned Roscoe-Postle Associates Inc. (RPA) to complete an independent resource estimate based upon all previous data collected including the Kinross diamond drilling program results. NI43-101During July, 2002, SAS acquired a minority interest in United Tex-Sol Mines and by June 2003, United Tex-Sol Mines had become a wholly owned subsidiary of SAS.

A chronological summary for the geological exploration programs that have incurred at the Clavos JV property commencing in 1939 are as follows:

- Clavos Porcupine Mines originally discovered gold mineralization during 1946
- Exploration activity and geological work programs ceased during the period of 1950 and1960
- Exploration activity and geological work activities resumed in 1973 when Noranda Mines Ltd. carried out a nine (9) hole AQ-sized diamond drilling program
- Bruneau Mining completed a six (6) hole BQ-sized diamond drilling program in 1983
- Canamax Resources acquired an interest in the Clavos JV property in 1983, and over a period of four (4) years, completed the following exploration activity:
    - Diamond drill program totalling 241 BQ holes (45,874 meters)
    - Geophysical survey
    - Pre-Feasibility study
- United Tex-Sol Mines Inc. acquired the property in 1996 and conducted a diamond drill program totalling 100 BQ holes (23,585 meters)
- During the period of 1999 to 2001, Kinross acquired the Clavos JV property under option from United Tex-Sol Mines and subsequent completed the following work:
    - Diamond drill program totalling 103 BQ and NQ holes (30,433 meters)
    - Magnetometer, induced polarization, seismic (overburden depth) surveys and metallurgical test work
    - Surface surveying and line-cutting
- Kinross subsequently dropped its option on the Clavos JV property during December, 2001
- SAS purchased 30% of the Clavos JV property from United Tex-Sol Mines in July, 2002
- In January, 2003, SAS amalgamated with United Tex-Sol Mines and Royal Victoria Minerals Ltd. (Royal Victoria) to ultimately obtain a 100% interest in the Clavos JV property holdings
- SAS commenced with a Clavos JV advanced underground exploration program consisting of underground exploration, mine development and underground gold mineralization extraction during 2004
- Construction commenced in November, 2003, on surface infrastructure and mine support facilities and in January, 2004, development of the surface ramp decline commenced
- By February, 2005, the decline ramp had reached the elevation of the 250m level

6.1 Year 2010 to 2012

The Clavos JV property was optioned by Sage Gold Inc. of Toronto, Ontario (Sage) by means of an Option Agreement dated February 8, 2010, whereby, Sage could earn a 60% interest in the Clavos property by incurring $3.0 M in exploration expenditures and the issuing of $260,000 in cash/shares over a 3 year period.

Subsequently, a Joint Venture Agreement dated August 13, 2012, was exercised whereby Sage earned a 60% interest in the Clavos JV property while SAS retained a 40% interest.

6.2 Year 2007

6.2.1 Underground Work Program

During the 1st quarter of 2007, the Clavos mine produced 20,047 tonnes at an extracted grade of 3.28 g/t gold as compared to 27,255 tonnes at an extracted grade of 5.90 g/t gold for the same period in 2006. During the same period of 2007, the Stock Mill facility processed 18,126 tonnes at an average grade of 3.28 g/t gold, at 89.3% gold recovery for 1,707 ounces gold produced as compared to 22,517 tonnes processed at an average grade of 4.14 g/t gold, at 85.3% gold recovery for 3,164 ounces gold produced for the same period in 2006.

In 2007, gold production at the Clavos property was negatively affected by a shortage of skilled underground labour and the complexity and orientation of the mineralized structures. Clavos management initiated a detailed study of the Clavos deposit and a revised mining plan was to be implemented in the 2nd Quarter of 2007. During May, 2007, Clavos management suspended all mining and milling operations at the Clavos property after having processed the following material during 2007:

Table 6.1 – 2007 Mill Production

CLAVOS	Units	2nd Quarter 2007	2nd Quarter 2006	1st Half 2007	1st Half 2006
Mined Grade	g/t	2.90	4.30	3.20	5.10
Tonnes Milled	tonnes	7,701	25,156	25,827	46,672
Mill Recovery	%	85.0	82.9	88.2	79.9
Gold	oz Au	600	3,642	2,306	7,670

6.3 Year 2006

6.3.1 Underground Work Program Progress

During January, 2006 the Clavos property commenced production even though Clavos production during 2005 had been significantly below the production target of 40,000 ounces/year gold. Mining activity at Clavos was to be centered on the need to accomplish the following tasks efficiently:

- Hire additional experienced underground mining crews

- Increase performance of lateral drift development for rapid access to mineralized structures
- Change over existing long hole stope mining methods to predominately shrinkage type stope mining methods
- Provide large tonnages of lower grade lateral drift development muck for blending with the higher grade stope ore material to be produced

During the 2nd half of 2006, the mining method was further modified to an initial lower long hole stoping block with ultimately an upper shrinkage stoping block within the same stope complex. This revised mining method required highly skilled personnel working in a labour intensive environment, and required an initial lock up of large quantities of broken ore reserves. A total of 4,237m of lateral drift development was excavated on the 100m, 150m, 175m, 200m, 225m, and 250m levels to confirm the continuity of mineralization and to determine the overall mineralized structure orientation for proper stope planning.

6.3.2 Underground Work Program Planned

Mine layouts were developed for achieving reasonably sustainable mill feed production rates of 600 tpd to 650 tpd from Clavos at recoverable grades of 0.22 oz/t (6.85 g/t) gold. This was possible as a result of personnel achieving an increased understanding of the ore zones, coupled with a more detailed delineation of the existing mineralized structures which permitted factual detailed stope planning. During 2006, gold production was forecast to be 40,000 ounces gold with a ramping up to 50,000 ounces gold annually. This was subsequently revised to a 2006 gold production forecast of 30,000 ounces gold.

Gold production for the initial three (3) Quarters of 2006 was considered as steady but significantly below the initial expectations for the Clavos deposit. Clavos management were confident that production rates could be maintained for the next 3 years based upon the currently defined measured, indicated and inferred mineral resources. Gold production was forecast at 40,000 ounces for 2007 due to implementation of the following changes:

- Additional underground mining crews were to be recruited and trained
- Shrinkage stoping methods were to be implemented
- Additional working places were to be made available
- Additional working levels were to be developed
- Mine personnel were to gain hands-on experience with both the nature and configuration of the Clavos mineralization

6.3.3 Exploration Work Program Progress

During 2006, the mining plan was to extend the ramp decline to 375m below surface and complete 20,000m of underground diamond drilling to delineate future areas for stope production. An aggressive underground drilling program was initiated to increase and/or replace

mineral resource at Clavos. The program was supported by two diamond drill units that were also used for delineating mineralized structures, allowing for proper mine development and stope detailing.

Mineral resources at Clavos were reduced significantly from the previous published resource (RPA 2003) in a new RPA resource study of October 2006. The new resource included:

- Indicated 753,000t @ 7.3 g/t containing 177,000 ounces gold
- Inferred 452,000t @ 8.9 g/t containing 129,000 ounces gold

TO

- Measured/Indicated 149,400t @ 8.08 g/t to contain 37,100 ounces gold , (RPA 2006)
- Inferred 529,000t @ 6.49 g/t containing 110,300 ounces gold

RPA 2003 –Report on the Clavos, Stock Mine, Taylor, Central Timmins and Golden Reward Properties in the Timmins area of Northeastern Ontario Prepared for St. Andrew Goldfields Ltd..WilliamE.Roscoe Ph.D; P.Eng, Luke Evans M.Sc P.Eng., David W. Rennie B.A Sc, P.Eng, Bruce S. Brady B.Eng, P.Eng. September 2003

During 2006, the plan was to extend the ramp decline to 375m below surface, and complete 20,000m of underground diamond drilling to delineate future areas for stope production.

At the end of the 3rd Quarter of 2006, SAS provided the following disclosure in the MD&A in regards to the Clavos project:

> "St. Andrew's net loss for the three months ended September 30, 2006 was $24,637,341 or $0.59per share as compared to $4,583,734 or $0.16 per share in the same period in 2005. Included in the loss for the three months ended September 30, 2006 was a write-off of the carrying value of the Clavos Project in the amount of $8,984,148 or $0.24 per share. In the third quarter of 2006, following a review of its Stock Gold Complex mining properties and investments, the Company determined that the future cashflow from operations based on revised gold resources currently available for mining, excluding the recovery of amounts capitalized would not recover the carrying value of the Clavos Project and therefore the Company wrote-off of the carrying amount."

6.3.4 Stock Mill Facility

During the 1st Quarter, 2006, the Clavos mine produced 27,255 tonnes at an extracted grade of 5.9 g/t gold with 35% of the mill feed derived from lateral sill drift development material. The total gold produced at the Stock Mill facility was 4,267 ounces gold, while the Stock Mill facility only achieved 25% of its capacity during the 1st Quarter. Both long hole and shrinkage stope production methods were test mined for ore extraction underground.

Table 6.2 – 2006 1st Quarter Production

CLAVOS	UNITS	1ST QTR. 2006
Tonnes Mined	tonnes	27,255
Mined Grade	g/t	5.9
Tonnes Milled	Tonnes	22,517
Mill Recovery	%	85.3
Gold Sales	oz Au	6,006
Gold Production	oz Au	4,267
Ramp Development	M	374
Sill & Access Development	M	648
Underground Diamond Drilling	M	4,714

Gold production during the 2nd Quarter of 2006 continued to be under budget as additional underground stoping areas were under pre-stope development and Clavos mine personnel experimented with new optimal mining methods of ore extraction.

The grade for the mill feed material extracted was negatively affected by the following:

- Large volume of development muck generated during pre-stope development
- Adverse dilution encountered in the long holestoping blocks
- During the 2nd Quarter, 2006, Clavos processed 25,156 tonnes at 4.3 g/t gold with 3,391 ounces gold sold in the quarter and 9,397 ounces gold sold YTD 2006
- A substantial percentage (52%) of the mill feed was lateral sill drift development muck which was blended with the stope mined ore which resulted in a low grade mill feed of less than 5.8 g/t gold

During the 1st half of 2006, the Stock Mill facility processed a total of 47,672 tonnes at a head grade of 5.1 g/t gold producing 7,670 ounces of gold at a gold recovery of only 79.9%. Future annual gold production was forecast to achieve 40,000 ounces gold per annum, whereas the actual Clavos 2006 gold production was 14,355 ounces gold.

Table 6.3 – 2006 2nd Quarter Production

CLAVOS	Units	2nd Quarter	YTD 2006
Tonnes Mined	Tonnes	33,115	60,370
Mined Grade	g/t	4.3	5.1
Tonnes Milled		25,156	47,672
Mill Recovery	%	82.9	79.9
Gold Sales	oz Au	3,391	9,397
Gold Production	oz Au	3,642	7,670
Ramp Development	MMM	373	747
Sill & Access Development	MMM	313	961
Underground Diamond Drilling	MMM	7,636	12,350

During the 3rdQuarter 2006, the grade of material extracted from the production stoping blocks was 7.2 g/t gold with gold sales of 3,671 ounces gold versus 13,069 ounces gold YTD 2006. During the first three quarters of 2006, the Stock Mill facility processed 68,692 t at a head grade of 5.0 g/t gold producing 10,533 ounces gold at a gold recovery of 83%.

It was the opinion of the Clavos mine operators that once the core labour force of trained and experienced shrinkage stope miners was established and the stope broken reserve tonnes was in place, the production stope mining operation at Clavos would achieve the forecast sustainable production levels.

TABLE 6.4 – 2006 3rd Quarter Production

CLAVOS	Units	3rd Quarter	YTD 2006
Tonnes Mined	Tonnes	21,244	79,018
Mined Grade	g/t	5.8	5.0
Tonnes Milled	Tonnes	21,743	68,692
Mill Recovery	%	87.6	93.2
Gold Sales	oz Au	3,671	13,069
Gold Production	oz Au	3,521	10,533
Ramp Development	M	494	1,278
Sill & Access Development	M	905	2,572
Underground Diamond Drilling	M	5,153	17,432

During 2006, Clavos delivered 96,868 tonnes of mineralized material at a grade of 4.75 g/t gold at a gold recovery of 92.0%, for a production of 14,355 ounces gold. The lateral sill drift pre-stope development contributed 38.0% of mineralized material which was blended with the stope

ore production material. Gold production ounces forecast for the 2nd half of 2006 was to have been 16,000 ounces gold, of which only 8,000 ounces gold was produced during the 4thQuarter, 2006.

Table 6.5 – 2006 4th QTR.PRODUCTION

CLAVOS	Units	YTD 2006
Tonnes Mined	tonnes	107,947
Mined Grade	g/t	4.75
Tonnes Milled	tonnes	94,437
Mill Recovery	%	91.7
Gold Production	oz Au	14,355

6.4 Year 2005

- Constructed surface mine water discharge settling pond facility upgrade
- Commissioned surface hydro power overhead power line installation and electrical power distribution system upgrade to support the mine development
- Construction the 11 km haul road during August, 2005

6.4.1 Underground Work Program Progress

During the 3rdQuarter of 2005, the decline ramp was completed to a final depth of 85 meters below the 250m level, with the mine development contractor demobilizing all equipment and personnel from the mine site as the advanced exploration program was considered to be completed. Lateral drift development of 3,750m was completed on the 100m, 150m, 175m, 200m, 225m and 250m levels.

Diamond drilling, lateral drift development, mapping, sampling and trial stope operations were completed on the 100m, 150m, and 200m levels, with the conclusion that the mineralized structures, orientation, configuration and characteristics at Clavos suggested that the mineralization was far more complex than initially anticipated.

The ramp decline was extended to a depth of 315 meters below surface, with additional lateral drift development completed on the 175m**,** 225m and 250m levels. This additional development

was required to access the diamond drill stations needed for definition and delineation diamond drilling at the lower elevations.

6.4.2 Underground Work Program

Since the mineralized structures encountered to date were found to be far more complex than initially indicated, additional exploration diamond drilling, mapping, sampling and lateral drift development was required on the 100m, 150m, 200m, and 250m levels, to achieve sustainable levels of mill feed at the critical level of 700 tpd. A decision was made to extend the advanced underground exploration program to June 2005 in order to increase the understanding, delineation and evaluation of the Clavos deposit. It was then anticipated that sufficient mineral resources would need to be defined to permit a better understanding of the mineralized zones such that requisite planning and layouts for achieving a sustainable Clavos production rate of 700 tpd could be achieved.

This Clavos advanced underground exploration program was not completed until the end of the 4thQuarter, 2005. Construction continued on the 150m level to complete the surface ventilation raise system, underground dirty water sump, and the power reticulation to support a daily production rate of 700 tpd.

6.4.3 Exploration Work Program Progress

Definition diamond drilling, detail geological sampling and detail structural mapping continued on the 150m, 200m, and 250m levels. Underground diamond drilling of18,200m on 15m centers, resulted in good delineation of the easterly mineralized zones. This mineralization had been defined from the +500 surface diamond drill holes totalling +100,000m of drilling. Additional lateral development and an additional 35,000m of underground diamond drilling confirmed the continuity of mineralization.

6.4.4 Stock Mill Facility

The Clavos underground operations commenced building up the underground production tonnage to 700 tpd during the period from July, 2005 through December, 2005. Significant progress was reported in attaining the expected recoveries from the various mineralized zones. Metallurgical recoveries were found to be in line with budgets while achieving the Stock designed mill capacity of 75 tonnes per hour (tph).

It was decided to stockpile the Clavos underground ore at the Stock Mill facility commencing in June, 2005 such that it could then be treated in batches to optimize the metallurgical characteristics and gold recovery circuits.

During 2005, a total of 37,45 tonnes was treated at the Stock Mill facility with 7,948 ounces of gold produced at a recovered grade of 0.21 ounces/t (6.6 g/t) Au milled. The ramp decline

reached an ultimate depth of 320 meters below surface by December 31, 2005. Test mining continued and the evaluation of the Clavos mineralized zones was completed during the 4th Quarter of 2005 with plans to proceed to mine production effective January 1, 2006.

6.5 Year 2004

Dumas Contracting of Timmins, Ontario was awarded a $9.7 M contract to commence with the Clavos advanced underground exploration program.

The scope of the surface work awarded was to:

- Establish Clavos site road access
- Install and commission the required surface facilities and infrastructure
- Construct a mine water discharge sediment settling pond
- Prepare the waste/ore stockpile pads
- Establish the required site buildings and utilities to service the underground work program

The scope of the underground work awarded was for:

- Excavation of a surface portal
- Excavation of a decline ramp
- Excavation of an exploration lateral sill drift development program
- Complete underground definition diamond drilling of potential Clavos gold mineralization continuity
- Extract a metallurgical sample for process testing and gold recovery characteristics

The surface portal excavation/construction commenced during February, 2004 and was to be followed with:

- Excavation of a 5m x 4m x 1,800m x -16% decline ramp to be driven initially a distance of 710m to an intersection with the mineralized structure on the 100m level
- Extent the ramp decline an additional 1,000m to access the 275m level,
- Commence lateral mine sill drift development on the 100m, 150m, 200m and 250m levels
- Excavate 410m vertical raise development to establish fresh air ventilation facility
- Complete 8,000m of underground diamond drilling to upgrade the Clavos mineral resource estimate

During the 1st & 2nd Quarters of 2004, SAS achieved the following progress at the Clavos property:

6.5.1 Surface Work Program

- 6 diamond drill holes (3,092m) were drilled with:
    - 4 holes drilled down-dip within the Clavos eastern limits of the mineral resource, at a distance of 70m to 225m from any past delineated mineral resource

  - 2 holes drilled within the Clavos upper easterly mineral resource to upgrade the previously defined inferred mineral resource
- 7 diamond drill holes (1,088m) were drilled to confirm the Clavos westerly extension mineral resource with the following intersections reported:
  - meters @ 6.20 g/t gold
  - 1.45 meters @ 7.50 g/t gold
  - 8.40 meters @ 2.26 g/t gold
  - 1.85 meters @ 6.34 g/t gold
  - 2.00 meters @ 6.91 g/t gold
- Surface haul road construction planning commenced during the summer of 2004 with completion scheduled for September, 2004.

6.5.2 Underground Work Program Progress

- The ramp decline reached the 100m level during late May, 2004, the 200m level during September, 2004 and the 250m level during November, 2004
- On the 100m level exploration lateral sill drift development confirmed the presence of mineralized structure with 15,000 tonnes of material delivered to the Stock Mill facility for metallurgical test work and processing
- During 2004, a total of 2,000m of lateral sill drift development was completed with 756m on the 100m, 863m on the 150m, 497m on the 200m and 9,500m of diamond drilling accomplished
- Production stope mining commenced on the 100m, 150m and 200m levels with additional mineralized material delivered to surface

6.5.3 Exploration Work Program Progress

- Exploration diamond drilling continued delineating mineralized structures ahead of the proposed mining operations
- On the 100m level diamond drilling confirmed the following mineralized intersections:
  - Hole CL 100-03 reported 3.6 meters @ 15.5 g/t gold
  - Hole CL 100-05 reported 2.0 meters @ 3.2 g/t gold
  - Hole CL 100-08 reported 1.9 meters @ 12.8 g/t gold
    3.6 meters @ 15.5 g/t gold
    2.0 meters @ 3.2 g/t gold
    1.9 meters @ 12.8 g/t gold

6.5.4 Stock Mill Facility

The Stock Mill facility was designed as a Carbon-in-Pulp (CIP) process for recovering gold. The following outlines the construction upgrade details:

- Originally constructed in 1989 with a capacity of 500 tpd

- Mill capacity subsequently increased to 1,300 tpd during 1998
- Mill facility further upgraded and refurbished during 2004
- GBM Mineral Consultants provided engineering, procurement and project management to upgrade the Stock Mill facility at an estimated cost of US$1.5 M
- On-site upgrading work programs included refurbishing the grinding/leaching section and increasing the performance from the crusher and screening sections

This work program commenced during May, 2004 with start-up scheduled for September, 2004 in accordance with the following plan:

- Eliminate all existing bottlenecks within the metallurgical process
- Improve the mill facility throughout
- Install a new secondary crushing circuit, an elution and electro-winning circuit, and a carbon regeneration circuit
- Costs estimated to be $3.5 M
- A further expansion to 3,000 tpd has been prepared at a preliminary cost estimation of $15.0 M.

The proposed mill feed commitment was for Clavos to provide a 20,000 t bulk metallurgical sample to be tested at the Stock Mill facility during September, 2004. The Stock Mill historical gold recovery averaged 95.0%. The improved operating efficiencies should result in a reduction in process operating costs as a result of the 2004 upgrade and refurbishment program.

The Stock Mill facility tailings pond management facility was commissioned in September, 2004 with a permitted 4.0 million tons of available capacity while having suitable room for expansion to 25 million tons. The first gold pour occurred on September 17, 2004 and it was forecast that the Stock Mill facility would process 20,000 tonnes from Clavos during 2004 in a series of continuous bulk samples.

6.5.5 Environmental

Permit applications were submitted to the Ministry for construction of an 11 km haul road between the Clavos property and the SAS Stock Mill facility.

6.6 Year 2003

SAS acquired both Royal Victoria Mines and United Tex-Sol Mines in September, 2003 when SAS exchanged shares for Royal Victoria and United Tex-Sol.

7.0 GEOLOGICAL SETTING & MINERALIZATION

The Clavos Project is centrally located within the Abitibi greenstone belt in the Superior Province of the Canadian Shield. The Abitibi Belt is a 750 km long by 250 km wide strip of deformed and metamorphosed volcanic and sedimentary rock and granitoid batholiths ranging in age from approximately 2,745 to 2,680 Ma.

The Abitibi Belt in Ontario has been interpreted as containing at least nine litho-stratigraphic assemblages. The oldest assemblages (2,745 to 2,700 Ma) are predominantly felsic to mafic meta-volcanic rocks with local minor oxide, silicate, and sulphide chemical sedimentary rock and clastic sedimentary rock, intruded by ultramafic to grano-dioritic bodies. Widespread felsic plutonism comprising grano-diorites, granites, quartz feldspar porphyries, and syenite bodies occurred between 2,700 and 2,680 Ma. Younger sedimentary rock is containedin the Porcupine assemblages dated as 2,698 Ma and the Timiskaming assemblage as 2,685 Ma. The metamorphic grades within the supra-crustal rocks are generally sub-green schist togreen schist facies and to amphibolite facies near intrusive bodies.

A number of major, steeply dipping, east-west striking, and brittle to ductile deformation zones transgress these supra-crustal rocks, with the Porcupine-Destor Fault Zone (PDFZ) being the most significant in the Timmins area. The PDFZ was active relatively late in the history of the belt and many of the gold deposits are closely associated with both the PDFZ and the Timiskaming sediments found along strike length. The Pipestone Fault that hosts the Clavos deposit is a splay off of the PDFZ.

The Clavos property straddles the contact between the Porcupine Group sedimentary rock (2,689 to 2,680 Ma) to the south, and ultramafic volcanic rock of the Kidd-Munro Assemblage (2,718 to 2,710 Ma) to the north. The unconformity represented by this east-west trending ultramafic-sedimentary contact defines the location of the Pipestone Fault, a major regional structure within the Timmins mining camp. In general, the contact dips steeply south, although shallow south to steep north dips occur locally and may be fold or fault related.

The mineralization at Clavos is located within an envelope of highly altered ultramafic flow and volcanic clastic fragmental rock referred to as the DL zone. The DL zone, which lies approximately 10m north of the sedimentary-volcanic contact, varies in thickness from 30m to 60m, is cored by several semi-concordant, east-west trending, steeply dipping and shallow east-plunging feldspar porphyry bodies of up to 20m in thickness. The shallow easterly plunge is regional in character and is overprinted by local structures.

There are six gold-bearing mineralized zones inwhich mineral resources have been estimated at Clavos. These are locally referred to as the Hanging Wall Zone (HW Zone), the Foot Wall Zone (FW Zone), the Contact Zone, the Sediment Zone, the 960 Zone, and a group of miscellaneous intersections listed as Other Mineralization.

Of the above zones, the HW Zone has been the main target of past mining activities.
The Contact, HW and FW zones are hosted in a sericite-carbonate (ankerite) altered and intensely deformed rock of ultramafic composition named as the DL alteration envelope. The fragmental appearance of the sericite-carbonate and fuchsite altered rocks appear to be the result of intense strain deformation of the polygonal jointing/polysuturing textures observed in the talc-chlorite altered ultramafic volcanic rock bounding the DL alteration envelope. The DH alteration envelope, varying in thickness from 60m to 100m, is stratigraphically bounded by the south dipping sediment assemblage and the fragmental volcanic flow sequence to the north.

The HW Zone and FW Zone vary from 1.5m to >4.0m in horizontal thickness and are located along the south and north contacts of the feldspar porphyry bodies respectively. These zones consist of quartz and quartz-carbonate veins and stringers hosted within a sulphide-rich package of fuchsite and sericite altered ultramafic volcanic rocks. Up to 10% sulphides consisting of pyrite, arsenopyrite, galena, gersdorffite (nickel arsenide) and rarely chalcopyrite occur as disseminated grains in the altered host rock and within narrow fractures/veinlets within the quartz veins. Gold occurs as coarse nuggets predominantly within the quartz veins but occasionally within the volcanic host, and also as inclusions within the sulphide grains.

The Contact Zone lies along the contact between the sedimentary rock but, unlike the HW Zone and FW Zone, consists of gold-bearing white (bull) quartz veins and veinlets in both weak to moderately sericitized ultramafic volcanic rock and also with the sedimentary rock. The Contact Zone comprises a relatively small portion of the mineral resource.

The Sediment Zone is characterized by moderate to strong sericite, ankerite alteration with 20% contorted/boudinaged grey quartz-ankerite veins, emplaced sub-parallel to foliation. Minor white quartz-calcite stringers crosscut the earlier grey veins. These veins are locally brecciated with 3% to 10% pyrite mineralization concentrated in siltstone/greywacke bands as disseminated blebs and stringers. Spotty 3% to 5% arsenopyrite mineralization occurs as acicular needles and rhombohedral shaped aggregates replacing breccia clasts.

In general, the best veining within the DL alteration envelope occurs close to the contacts of all three intrusive types. Deformed early grey, ribbon or stylolitic veining, with pyrite and arsenopyrite in stylolites when in close proximity with vein margins appears to be related with to the best gold values.

Significant gold grades have also been encountered within the porphyry bodies, primarily along the contacts with the HW Zone and FW Zone; however the gold mineralization lacks continuity and is more erratic in distribution. Arsenic is common for deposits of this type where the gold is unevenly distributed within the veins. Numerous occurrences of visible gold have been noted in

drill core from the property and there are a number of very high grade assays in the database, measuring in tens and hundreds of g/t Au.

Structurally, the higher grade mineralization occurs within numerous east plunging shoots of up to 50 m in strike length. A secondary shallow plunge to the west defines roll structures within the shoots. Where mined, very high gold grades have been encountered at the intersection of the shoots and roll structures. Both structures overprint an earlier regional plunge of approximately 30º to the east. In general, the best veining within the DH alteration envelope occurs close to the contacts of all three intrusive types. Deformed early grey, ribbon or stylolitic veining, with pyrite and arsenopyrite in stylolites and near vein margins appears to be related with the better gold values.

The Lens geometry of the HW and FW type mineralization in the 960 Zone appears to be controlled by a box fold hinge. In addition, the RPA longitudinal resource model for the 960 Zone region supports a flat lying lens geometry for the HW and FW zones at the 1150m elevation while extending 200m in length from section 514825E to 515035E.

8.0 DEPOSIT TYPES

Gold mineralization occurs in a series of quartz and quartz-carbonate veins which are interpreted from the drilling as being steeply dipping and east-west striking, roughly parallel to the PDFZ. The veins, while appearing to be consistent in orientation from section to section are observed in the drill core to occur in a wide variety of orientations. It is highly likely that many of these veins are not tabular, but irregular in shape, similar to others observed in the gold deposits of the Timmins area.

The quartz veins occur most often in the mafic volcanic rocks, usually in proximity to porphyry intrusions. There is a persistent zone of quartz veining associated with the sedimentary-volcanic contact, and there are some wide vein intercepts to the south of the contact, but these tend to be weakly mineralized. Refer to "Technical Report on the Clavos Project in the Timmins Area, Northeastern Ontario, Canada", RPA, Chester M. Moore P.Eng, David A. Ross P.Geo, October 12, 2012..

9.0 EXPLORATION

Due to the large amount of previous work on the property and accrued knowledge of the geology and mineralization, Sage have concentrated the exploration activities on diamond drilling as described within Section 10.

The other exploration initiative as completed by Sage was a litho-geochemical study of the host rock units at Clavos (Barrett 2012) towards producing a chemically based classification system to allow consistent identification of the precursor rocks in the DL zone, many of which are strongly altered and/or sheared. Identification of specific units is considered to be useful in assisting lateral correlations on sections and along strike. Such units are identified on the basis of immobile elementratios together with the composition of least-altered samples. Identification of such units, which can be volcanic, sub-volcanic, and even sedimentary, also aid in structural interpretations (e.g., definition of large-scale folds or thrust repetitions).

Another objective of the above study was to determine if the gold mineralized zones and flanking host rocks show chemical changes due to hydrothermal alteration. The chemical classification of the host rocks of the Clavos gold deposit is based on 243 whole-rock analyses of drill core assay pulps. The sampled rocks extend up to 200m to the north of the east-west-striking Pipestone Fault and include four main units: komatiites, mafic porphyries, felsic porphyries, and, furthest to the north, rhyolites.

The komatiites and rhyolites, which are tholeiitic, probably belong to the Kidd-Munro Assemblage (2719 to 2710Ma) based on regional correlation and the rhyolite chemistry. The mafic and felsic porphyries are alkaline and probably of Timiskaming age (2680 to 2670 Ma) as based on structural position and chemistry, both similar to porphyries in the Timmins to Kirkland Lake gold belt.

Three different felsic porphyries and at least two mafic porphyries are present at Clavos, although komatiites make up the bulk of the drilled sequence. The porphyries typically range from one metre to twenty metres in drilling thickness.

Gold enrichments occur mainly in the porphyries or within a few metres of their margins, although a few zones of moderate gold mineralization occurs in the komatiites, probably along fault splays. Gold enrichments are accompanied by anomalous values of total sulphur, arsenic, and antimony, with the antimony anomaly extending up to 10m from the porphyries. A notableaddition of potassium is present in only two of the mineralized mafic porphyry intervals.

Moderate gold and antimony enrichments can occur in the komatiites even where total sulphur contents are rather low (<0.6 %). The general relations between metals and sulphur suggest that two end-member assemblages are present: one being higher in sulphur and

arsenic, while the other being higher in antimony, although both can carry gold mineralization. The first assemblage, which is associated with the mafic porphyries, contains more arsenopyrite, while the second assemblage, which appears to be associated with the komatiites, may contain traces of nickel-bearing phases such as gersdorffite (NiAsS) and ullmannite (NiSbS) due to the higher primary nickel content of komatiites.

Refer to "Technical Report on the Clavos Project in the Timmins Area, Northeastern Ontario, Canada", RPA, Chester M. Moore P.Eng, David A. Ross P.Geo, October 12, 2012.

10.0 DRILLING

Sage drilled a total of 31 surface diamond drill holes totalling 9,539m on the Clavos property from 2010 to 2012. All but one of these drill holes were oriented along north – south section lines, primarily drilled in a northerly direction and at angles between 50º and 65º. All of the drill holes are included in the database used for the resource estimate.

Sage's 2010 to 2012 diamond drill programs were contracted to Denis Crites Drilling Ltd. or North Star Drilling Ltd., which drilled NQ core (47.6 mm diameter) size in all drill holes.

The surface diamond drill rigs were positioned on prepared drill sites over a pegged collar location marked by a land surveyor (Talbot Surveys Ltd.) or a technician using a GPS instrument. Alignment was assured using one front sight and two back sights. The drill head was then set to the desired inclination and the entire set-up checked by the drill foreman and the Sage geological technician.

Upon completion of the drill hole, it was plugged and the steel casing was extracted unless it was stuck in the hole or badly worn. Wooden stakes tagged with the hole number were used to mark the hole location. Drill collar locations were surveyed by a qualified land surveyor using total station and/or differential GPS survey instruments. Downhole orientation surveys for each drill hole were collected at 40m to 60m intervals during diamond drilling utilizing a Reflex EZTRAK instrument.

Diamond drill core was placed in core trays at the drill site by the drill helper. The filled core trays were transported to the core logging area at the end of each drill shift by the drill team. The core was placed in a locked core facility if no authorized personnel were present to receive it.

The diamond drill core was logged by the project geologists who recorded geological observations including major and minor lithologies, alteration, mineralization, and structural features. Structural measurements included mineral foliations, banding, lithologic contacts, dykes, and veins.

Overall, drill hole core recoveries were found to average greater than 95%. Lower core recoveries were occasionally noted in localized areas of faulted and broken core. Prior to core sampling, digital core photos were taken of each core tray for future reference.

The author is of the opinion that the logging and recording procedures are comparable with industry standards.

Selected intersections from the SGX drilling are listed in Table 10-1. The intersections represent core lengths and are not true widths.

TABLE 10-1 SELECTED DRILL INTERSECTIONS

Sage Gold Inc. – Clavos Project

Drill Hole	From (m)	To (m)	Core Length (m)	Gold (g/t)
CL 11-15	436.6	437.6	1.0	6.74
	450.0	451.0	1.0	13.6
CL 11-16	436.0	436.8	0.8	18.5
CL 11-21	210.8	213.0	2.2	3.66
	229.4	232.5	3.1	2.92
CL 11-22	124.4	132.7	8.3	2.16
Incl.	132.0	132.7	0.7	8.3
CL 11-25*	126.4	131.0	4.6	14.53
Incl.*	128.3	129.4	1.1	52.96
CL 11-28	205.5	207.8	2.3	3.47
	228.8	230.9	2.1	7.68
	344.5	345.1	0.6	15.03
CL 11-29	170.6	172.6	2.0	5.48
	176.5	178.6	2.1	1.78
	198.5	202.7	4.2	6.38
	242.0	244.0	2.0	12.11

* Cut to 60 g/t Au

Reference page 10-2 – Refer to "Technical Report on the Clavos Project in the Timmins Area, Northeastern Ontario, Canada", RPA, Chester M. Moore P.Eng, David A. Ross P.Geo, October 12, 2012.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

Sampling Methods

Prior to Sage acquiring the Clavos JV property, all of the samples at Clavos were from drill core taken during previous diamond drill programs. For the most part, the samples were collected on5.0 ft (earlier programs), 1.5m, or 1.0m intervals, and depending on the program, split with a hand splitter, a hydraulic splitter, or a diamond saw.

The samples were analyzed via fire assay with a gravimetric finish, and, more recently, fire assay with an atomic absorption (AA) finish. A relatively modest number of samples were subject to pulp metallics assay.

Samples collected by SAS between 2004 to 2007 included surface and underground core samples as well as underground chip samples and muck samples.

Drill core samples were collected at intervals of 1.5m or less (lithology dependent) with the drill core from all surface diamond drill holes sawn with a diamond saw and half of the core sent for assay. The remainder of the surface drill hole core was stored at the SAS Stock Mine site, whereas the underground drill core samples were whole-ground, with pulps and rejects stored at the SAS Stock Mill complex. All holes were photographed prior to sampling.

Rock chip samples were collected on sill drift development faces every one or two rounds. Chip sample lengths were 1.5m or less in size and lithology specific. As back-up to chip sampling, two to three muck samples were also collected per development round.

Sage Drill Program

For the 2010-2012 surface diamond drill program, the drill core was delivered by the drill contractor to the logging facility located inside the Clavos JV fenced mine site. The core was logged and Sage collected samples over a 1.0m interval adjusted to lithological contacts. The minimum sample length was 0.3m.

The entire DL zone was sampled with 3.0m to 5.0m bracket samples above and below the contacts. All core was sawn with a diamond saw and half of the core was sent for assay. Blanks, certified reference standards, and reject duplicates were included with the sample shipments to the assay laboratory for quality control purposes.

All samples were submitted to the ALS Chemex Labs Ltd. (ALS) sample preparation facility in Timmins, Ontario. Samples were delivered to the preparation laboratory by Sage representatives in rice bags that had been sealed with security tags to ensure no tampering of the samples could occur.

Sample Preparation

The vast majority of samples collected by SAS (including muck samples, chip samples, and underground drill core samples) were processed at the in-house laboratory located at the SAS Stock Mill complex. The underground core samples were whole core samples and the core was photographed prior to sampling.

Sage Samples

Standard drill core sample preparation procedures consisted of crushing the samples to 70% minus 9 mesh (2 mm), pulverizing a 500 gram sub-sample to 85% minus 200 mesh (75 μm), then splitting a 30 gram sub-sample for analysis. At the suggestion of the laboratory, the procedure was modified in May 2011 to include pulverization of a 1,000 gram sub-sample, rather than a 500 gram sub-sample.

For mineralized samples containing visible gold, each sample was put through the initial jaw crusher and blank material was crushed between these samples. When these types of samples were pulverized in the puck mill, silica sand was used to clean the pulverizer twice prior to pulverizing the next sample.

Metallic screen assay sample preparation procedures consisted of crushing the entire sample to 70% minus 9 mesh (2 mm), pulverizing the entire samples to 85% minus 200 mesh (75 μm), then splitting a 1,000 gram sub-sample of the pulp. The pulp was washed through a 200 mesh (75 μm) screen to separate any coarse (+75 μm) material. Any +75 μm material remaining on the screen was dried, weighed, and sent for analysis in its entirety. The -75 μm fraction was dried and homogenized.

Analytical Procedures

SAS samples were analyzed via fire assay with an AA finish. A relatively modest number of Samples including assay check samples were processed at Swastika Laboratories, Ontario. The protocols observed in the SAS laboratory were as follows:

- A 1 assay-ton sample was treated by fire assay
- The bead was dissolved and gold was determined by AA
- High grade samples were retreated using a gravimetric finish

The SAS laboratory was not certified, but the author is of the opinion that the sample preparation and analysis for the core and chip samples were generally completed to industry standards and are acceptable for resource estimation.

Sage Samples

Pulp sub-samples were forwarded to the ALS facility in Val d'Or until April 29, 2011, when all sample analysis was moved to the ALS Vancouver facility at the request of Sage. Both the ALS Val d'Or and Vancouver analytical facilities are certified to ISO 9001. Sage has no relationship with the ALS labs save that of a customer – supplier.

Analyses were completed to an accuracy of 0.001 g/t gold, for samples assaying less than 5 g/t gold. Analyses of all samples assaying greater than 5 g/t gold by the first method were routinely repeated from the remaining pulp, using a fire assay method with a gravimetric finish.

The metallic screen assay protocol required duplicate sub-samples to be analyzed using the standard fire assay procedures. The gold values for both +75 μm and -75 μm fractions were reported together with the weight of each fraction, as well as the calculated total gold content of the sample.

Quality Control and Quality Assurance

Sage retained Denise Saunders, P. Geo., to compile and review the procedures followed, and the results obtained for the quality control and quality assurance (QA/QC) of samples during the 2011 diamond drill program. A total of 4,680 samples (276 batches) were submitted to ALS in 2011 for routine fire assay analysis with another 61 samples (12 batches) submitted for metallic screen assay analysis.

Quality control (QC) measures utilized in the 2011 program to validate the assay results included insertion and monitoring of blind certified standards to evaluate accuracy, blind blank reference samples to evaluate contamination, as well as pulp and reject duplicate analysis to evaluate precision or sampling error. In addition, 5% of the samples were sent to Activation Laboratories (Actlabs) in Timmins, Ontario, for independent check assay analysis. Actlabs in Timmins is certified to ISO 9001. Sage has no relationship with Actlabs save that of a customer-supplier.

Summary

The 2008 Saunders (2012) report is summarized below.

The blind QC program detected a high bias on the results being returned from the ALS Val d'Or laboratory in early 2011. The standard results from the Val d'Or facility exhibited a high percentage of failures (13%) and warnings (33%) from the 69 batches that were analyzed. The laboratory means ranged between 3% and 7.5% higher than the certified means for standards having more than five results. A decision was taken by Sage in late April2011 to move all subsequent analyses to the ALS Vancouver facility. This decision was further supported by the later independent check assaying analyses. A marked improvement was noted in the accuracy of the results from the ALS Vancouver laboratory.

Sage and RPA note that the drill holes sampled in 2010 and early 2011 contained relatively few values above the resource cut-off grade. In order to compensate for the bias, all assay values received from the Val d'Or facility were cut by 10% before being placed in the resource database. A total of 45 assays within the block modelled volume required this corrective action, out of which 17 values were above the cut-off grade.

Evaluation of results from the blind and internal reference standards and from independent check assaying indicates that the results from ALS Vancouver analytical facility fall within reasonable tolerance limits and are deemed to be acceptable for resource estimation. Evaluation of other QC measures on the program indicated that there did not appear to be any significant sample contamination issues at the ALS Timmins preparation facility at the time that these samples were processed.

Precision on the pulp and reject duplicate samples were within expected tolerances for both ALS analytical facilities, although the Thompson-Howarth precision on the reject samples as analyzed at the Vancouver laboratory did tend to be significantly lower than expected. This phenomenon warrants further investigation but could reflect the nugget nature of the gold mineralization.

Collectively, precision analysis of the various sets of duplicate samples did not indicate any glaring problems or biases in the results. From this, one could conclude that there do not appear to be any problems with the sampling protocols utilized on the 2011 Clavos surface diamond drill program.

2012 QA/QC Program

Peter Hubacheck, P. Geo. of W.A. Hubacheck Consultants Ltd., was retained by Sage in 2012 to complete the logging and sampling of five diamond drill holes maintaining the QC program as established by David Gliddon,P.Geo. and Pat Pope, P.Geo. during the previous year.

A total of 836 half core samples were collected from diamond drill holes CL-11-21, 26, 27, 28, and 29 for submission of fire assay. The sample intervals represent 10% of the core recovered from a total of 2,107m.

In 2012, 461 samples were analyzed by the ALS Vancouver facility and a second shipment totalling 515 samples was analyzed by Cattarello Assayers Inc. ("Cattarello"), located in Timmins. Cattarello is a non-accredited facility.

Drill core samples submitted for fire assay were submitted to the Cattarello laboratory in batches of 20 with each batch containing one blind standard, on reject duplicate, and one blank core

sample. Routine sample batches contained 17 regular samples, plus the three quality control samples.

Cattarello followed the same sample preparation procedures as ALS. At the request of RPA, a batch of 51 coarse rejects were submitted to the Cattarello laboratory and re-run as checks. In addition,25 pulps were submitted to Goldcorp's Porcupine Gold Mine (PGM) Lab facility in Timmins and re-run as checks. These measures were taken to provide further assurance of quality control. A total of 10% of the coarse rejects was selected for re-check analysis by the Cattarello laboratory including representative blanks, standards, and gravimetric analyses.

Comparisons of analytical results for the reject samples as well as the standards, checks, and blanks show excellent reproducibility. It is observed that all the check analyses compared to the gravimetric analyses report slightly lower values, which is to be expected.

A total of 5% of the pulp samples was selected for analysis at Goldcorp's PGM Lab in Timmins including representative blanks, standards, and gravimetric analyses. Comparisons of analytical results for the pulp samples as well as the standards, checks, and blanks show excellent reproducibility.

Conclusion

In the author's opinion, the sample preparation, sample security, analytical procedures QA/QC programs are completed to industry standards and the data from the 2010 to 2012 surface diamond drill program are suitable for use in resource estimation. The author is not disclaiming responsibility for this section.

12.0 DATA VERIFICATION

RPA carried out a data validation and verification study on the Clavos diamond drill database aspart of its 2003 Mineral Resource estimate (Rennie 2003) and for the October 2006 Technical Report (Roscoe and Gow 2006). It was concluded from this study that the quality of the database was quite good, and that very few transcription errors existed. In RPA'sopinion, the database appeared to be of acceptable quality for mineral resource estimation.

RPA (then Scott Wilson RPA) reviewed the project database again in 2006 and it was noted that all Clavos underground drill core, chip samples, and muck samples were assayed at the SAS laboratory at the Stock Mill. This laboratory at the Stock Mill was not certified. Therefore, the laboratory submitted samples to Swastika Laboratories as a form of external quality control. Internally, a blank, a reference sample, and a duplicate were included in each sheet of assays (25 samples/page).Clavos project staff inserted a standard sample into the stream of underground core samples at the rate of one per diamond drill hole. Blanks were inserted on an irregular basis. Duplicates were not inserted by the project staff. For the 2006 Technical Report, Scott Wilson RPA reviewed the laboratory internal QC assays results with the following comments.

- SAS Stock laboratory internal checks:
    - Lab pulp duplicates – there is some scatter, but in general most duplicates are within acceptable limits.
    - Lab blank samples – approximately 7% of the blanks had assays greater than 0.05 g/t gold, with less than 1% with values greater than 0.5 g/t gold. These results suggest suitable sample preparation with only occasional excessive sample contamination.
    - Lab Standard samples - assays of standard samples are reasonably good for standards less than 8 g/t gold. For standards over 8 g/t gold, the Stock lab assays are generally low.
    - Lab coarse reject duplicates - Of the 31 samples, about two-thirds of the check assays gave reasonable reproducibility, and one-third gave poor reproducibility. The scatter in the results is expected for the style of mineralization at Clavos.

- SAS Stock laboratory external pulp checks at Swastika Laboratories:
    - Only a small number of external pulp checks were completed at an outside lab.
    - The results show the Stock lab is generally returning higher values for samples over a wide range of gold values, but more analyses are needed to form a reliable judgement.

Overall, it was Scott Wilson RPA's opinion that the SAS surface and underground diamond drill hole and underground chip sample results were acceptable for mineral resource estimation, although some possible problem areas, such as the number of external pulp checks, needed to be addressed.

The current resource database was reviewed by RPA for accuracy of transcription from the assay certificates. Approximately 70% of the assays from the Sage 2010-2012 diamond drill program contained within the block modelled volumes were compared to the original assay certificates without finding an error. No extreme length samples or excessive assay values were found.

Visual confirmation of diamond drill hole positions revealed no significant errors. The standard number of samples were subject to "pulp metallics" (metallic screen) assay. The resampling procedure involved sampling the remaining half core (BQ or NQ) in its entirety, to ensure that the re-sample size was comparable to the historical sample. From the 16 mineralized zones sampled, a total of 204 regular samples and 16 metallic screen samples, accompanied by an additional 44 QA/QC samples, were submitted to the ALS for analysis.

The samples were prepared at the ALS Timmins facility, and pulps were shipped to the ALS Vancouver analytical facility. When reasonable, samples were analyzed using the same analytical method used for the historical samples, i.e., a 30 gram fire assay with an AA finish. Samples returning results greater than 5 g/t gold were analyzed again using a 30 gram fire assay with a gravimetric finish. When it could be determined that the original samples were analyzed using "pulp metallics" assay, the core duplicate samples were submitted for a metallic screen assay. Of the 15 batches submitted, one had to be re-assayed because of a standard failure. The entire batch was re-analyzed and the original results for that batch were replaced by the re-assay analyses.

GEMCOM validations for overlapping intervals, hole lengths, etc. also returned no errors.

While on site in 2011, RPA checked the positions of diamond drill hole collars for several new holes drilled to that point in time. As well, drill logs for seven drill holes were compared to the core on site. It was determined that the logging and sampling were completed to industry standards.

Resampling of Historic Core

A program of re-logging and re-sampling of selected intersections of historical core was implemented to validate historical assay results for inclusion into the NI 43-101 resource estimate. Clavos project geology staff selected mineralized zones from the project's historical drilling for re-logging and re-sampling. Selection criteria were designed to include diamond drill core from historical drill campaigns carried out by three different companies: Canamax (1987, BQ), UTX (1996-97, BQ), and Kinross (1999-2000, NQ). The intersections selected for resampling included intersections from six different mineralized zones, including the Sediment Zone (2),the Contact Zone (4), the HW Zone (3), the Porphyry Zone (1), the FW Zone (5), and the 960 Zone FW (1).All historical assaying was completed at Swastika Laboratories, where samples were analyzed using a standard 30 gram fire assay with a gravimetric finish or AA

finish. A small number of samples were subject to "pulp metallics" (metallic screen) assay. This re-sampling procedure involved sampling the remaining half core (BQ or NQ) in its entirety, toensure that the re-sample size was comparable to the historical sample.

From the 16 mineralized zones sampled, a total of 204 regular samples and 16 metallic screen samples, accompanied by an additional 44 QA/QC samples, were submitted to the ALS for analysis. These samples were prepared at the ALS Timmins facility, and pulps were shipped to the ALS Vancouver analytical facility. When reasonable, samples were analyzed using the same analytical method applied to the historical samples, i.e., a 30 gram fire assay with an AA finish. Samples returning results greater than 5 g/t gold were analyzed again using a 30 gram fire assay with a gravimetric finish. When it could be determined that the original samples were analyzed using "pulp metallics" assay, the core duplicate samples were submitted for a metallic screen assay.

Of the 15 batches submitted, one had to be re-assayed because of a standard failure. The entire batch was re-analyzed and the original results for that batch were replaced by the re-assay analyses. The finalized assay results of the duplicate sampling program were analyzed by Denise Saunders, P. Geo.

The Saunders (2012b) Report is summarized in the following paragraphs:

- The database of core duplicate results was broken down into several subsets for analysis to try to identify any potential issues related to different analytical methods or individual company results. Insufficient data was available to warrant analysis of core duplicates from individual mineralized zones. The following datasets were examined:
    - All data
    - Samples analyzed by fire assay
    - Samples analyzed by metallic screen assay
    - Samples from 1986 Canamax diamond drilling
    - Samples from 1996-1997 UTX diamond drilling
    - Samples from Kinross diamond drilling
- Each subset of data was reviewed on a series of statistical charts to assess the results, including scatter plots, quantile-quantile (Q-Q) plots, box plots, relative difference plots, mean of pairs vs. difference plots, and Thompson-Howarth precision plots. Descriptive statistics were summarized on each plot, and Sign test and T-test analyses were performed for each dataset.

All Data

- After removal of one very erratic outlier, the results show a broad scattering of data about an unbiased regression line, suggesting that overall, no significant bias is present in the results.

- The descriptive statistics for the datasets are very similar with comparable means, and interquartile ranges.

- The variability in the results is also illustrated on the relative difference plots, where the percent difference in the results is seen to range between -175% and+175%, but more commonly is in the ± 25% range.
- Both Sign test and T-test analyses indicate that no significant bias was detected on the overall results.
- Thompson-Howarth precision analysis indicates that the precision for the complete dataset is 38% and practical detection limit is 0.410 g/t gold.
- These values are within expected ranges for core duplicate Samples from coarse gold deposits in the Timmins area.

Samples Analyzed by Fire Assay

- No major differences were noted in the correlation for this dataset.
- After removal of one erratic outlier, the linear correlation is better than that for the entire dataset (0.85), although it is not visually apparent from broad scattering of the data about the regression line.

Samples Analyzed by Metallic Screen Assay

- The metallic screen results was the smallest dataset and showed the greatest variability in results, as would be expected, for high grade assays. On the log scale Q-Q plot and the relative difference plots, the results below 10 g/t gold (and certainly below 6 g/t) indicate that the historical assays tend to be higher than the re-sample assays. The dataset is too small to state this with any degree of certainty, but this could indicate a sampling bias in the historical data. Because of the small number of assays and variable nature of high grade gold occurrences at Clavos, RPA does not consider any potential bias to be significant.

Samples From 1986 Canamax Drill Program

- Samples from the Canamax drill program tend to exhibit higher values for the historica samples in the 0.5 g/t gold to 2 g/t gold range. The mean of the datasets is notably different, with the historical samples at 1.05 g/t gold and the core duplicates at 0.88 g/t gold - The relative difference plots indicate that the historical assays in this range tend to be 75% to 125%higher than the re-sample values.
- Note that the Sign test and T-test analyses both indicate that there is no systematic bias in this dataset.

Samples From the 1996-1997 United Tex-Sol Drill Program

- Means of these data are very similar. Q-Q plots and relative difference plots indicate that between 10 g/t gold and 20 g/t gold, there are three samples that assayed higher for the resamples than for the historical samples. Below 10 g/t gold, the historical samples tended to run marginally higher than the re-samples.

Samples from the Kinross Drill Program

- After removal of one erratic outlier, the means of these data are comparable, although on scatter plots, Q-Q plots, and relative difference plots for samples assaying more than 3 g/t gold, the historical samples tend to be marginally higher than the re-assay samples.

Conclusions

Analysis of the core duplicate sample assay database shows that overall there is a good correlation between the historical sample results and the core duplicate re-samples analyzed in this study. Although there is a fairly broad scattering of assay results about an unbiased regression line, indicating that the inherent variability in the samples is fairly high, the means and interquartile ranges for the data pairs are very similar. The Thompson-Howarth precision for the dataset was 38%, which is within expected ranges for core duplicate samples from a coarse gold deposit.

Analysis of the entire dataset did not detect any overall sampling bias in the historical results. However, when individual drill campaigns were scrutinized separately, some grade ranges did appear to exhibit a possible sampling bias in the historical data (e.g., Canamax 0.5 g/t gold to 2.0 g/t gold), however, it is unclear as to whether this phenomenon represents a true sampling bias, or if it is merely the result of insufficient data to give the full picture. Further re-sampling, targeting specific historical drill campaigns, along with compilation of any previous re-sampling data would more definitively answer questions of bias.

The author concurs with the good correlation between the original and resampled core duplicate results and does not recommend further re-sampling of historical core.

The author is of the opinion that the scope and magnitude of previous data verification tests of assaying and sampling procedures attests to the adequacy of the data for the purposes used in this technical report.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

In 1987, Canamax Ltd. commissioned two metallurgical test programs on Clavos mineralized material for completion by Lakefield Research:

- The first test was conducted in July, 1987 and consisted of both a 24 hour and a 48 hour bottle roll testing on a composite sample from 20 reject samples collected from Hole #072-01-175. These samples represented the Existing Clavos DL alteration zone and included mineralization from a HW quartz feldspar porphyry structure. This hole was located on patent claim #P29600 within the Existing Clavos deposit. Visible gold was noted in sample #B56764 in a quartz ankerite vein located within the HW Zone. This composite sample was tested under varying grind parameters of 82.2% to 96.3% passing 200 mesh. The gold recovery rate was found to vary from 81.4% to 92.7% with gold recovery increasing with finer grinding.
- The second test was conducted in December, 1987 and entailed a combined gravity separation test followed by flotation testing to yield a combined concentrate of 2.77% (by weight), containing 179.0 g/t gold at 91.8% gold recovery.

Kinross Ltd. in September, 2001 also conducted preliminary metallurgical testing on mineralized material provided from diamond drill hole composites as part of their on-going study of the Clavos property from 1999 to 2000. A series of bottle roll testing on selected samples from their 1999 through 2000 diamond drilling program was performed by the Kinross Bell Creek Assay Lab with results from six HW Zone samples tested over a 24 hour bottle roll test indicating:

- Gold recoveries averaged 82.8% while varying between 47.3% to 95.0%
- Four FW Zone samples were tested and gold recoveries found to average 71.7% while varying between 45.8% to 91.4%
- Three quartz-feldspar porphyry test samples were tested, with gold recoveries found to average 70.1% while varying between 57.3% to 80.6%

Cogema (Brisset 1991) prepared a petrographic study on the Clavos mineralized material which included both a lithological and a mineralogical analysis. Brisset examined 16 diamond drill core samples and provided the following commentary on the presence and occurrence of gold metal deposition. Visible gold at Clavos was found to occur:

- As 1 to 30 micron size inclusions (rare to frequent) within pyrite crystals. These sub-rounded to anhedral inclusions occurred at the interstitial pyrite boundaries within the joints or micro-fractures within the pyrite
- Rarely found within arsenopyrite crystals and gersdorffite
- Within open fractures or as fracture filling of the available pyrite
- Along pyrite boundaries (especially pyrite-gangue boundaries containing chlorite)
- Within gangue minerals surrounding the pyrite (generally chlorite, occasionally white mica fuchsite carbonates with all located within and at a mineral grain boundary)

- Gold particle sizes of 1 to 100 microns (commonly 10 to 50 microns) found to occur as fracture filling or along the grain boundaries of pyrite, however rarely with arsenopyrite or gersdorffite
- Within quartz carbonate veins, with this occurrence hosting the greatest population of specks of gold noted having a gold size varying from 10's to 100's of microns to 1 to 5mm in size. Frequently occurred as inclusions within quartz or carbonate with the most common occurrence being as interstitial or joint fracture filling with quartz and/or carbonates
- Occurring as micro-inclusions within pyrite (rarely arsenopyrite or gersdorffite), in fractures within the pyrite, commonly in association with chalcopyrite, less frequently in association with galena, tetrahedrite or sphalerite
- Inclusions within chalcopyrite banding in the quartz carbonate veinlets, but not attached to the sulphides
- In summary, much of the gold was found to occur as:
    - Inclusions in/or associated with pyrite
    - In association with the development of chlorite or chlorite-carbonate pervading wall rock
    - In association with the development of quartz carbonate vein prevailing wall rock
    - Visible gold in associated with quartz carbonate veining which would indicate remobilization and may be late stage

13.1 St. Andrew Goldfields Testing (October 2003 To March 2004)

SGS Minerals Services undertook a scoping level metallurgical test program on a number of mineralized material samples from the Clavos deposit. This test work included head analysis, Bond Work indices determinations and cyanide leaching. A large cyanide leach pulp sample was prepared for environmental characterisation and is summarized from excerpts as taken from a report entitled "An investigation of the extraction of gold from Clavos Samples" detailed below.

"A set of 52 samples was received in October, 2003 and given our sample receipt number 2303009. Each sample was prepared with samples removed at the appropriate crush size for Bond Abrasion and Bond Ball Index testing. The sample was crushed to 100% minus 10 mesh before samples were removed for head analysis. Each sample was assayed for gold.

The samples were grouped into one of three sets, as designated by the client; "Mill Sample A", "Mill Sample B", and "Mill Sample C". Detailed head analysis of each sample and, at the request of the client, two composites were prepared, Composite B and Composite C, using all of the interval samples from the corresponding "Mill Samples". Detailed head analyses of these composites were performed with no work completed on the "A" samples."

13.1.1 Comminution Testing

Each of the composite samples was subjected to standard laboratory protocols to determine their Bond Abrasion Index, and Bond Ball Index values.

13.1.2 Cyanide Leaching

The responses of Composite B and Composite C samples to cyanide leaching were examined in a series of 7 tests on each sample. A standard rolling-bottle technique was employed where the sample was ground in a laboratory ball mill, placed in a bottle, and then leached with sodium cyanide (1.0 g/L) under controlled pH conditions (pH 10.5 to 11). The effect of fineness of grind, leach time and activated carbon addition on the extent of gold extraction was examined for the two samples.

The results indicate that Composite B responds more favourably to cyanide leaching then Composite C. The addition of activated carbon in the test did not significantly alter the gold extraction, thus indicating that the gold mineralization did not contain any potential preg-robbing compounds. The leach kinetic tests indicate that the samples leached within 30 hours. Shorter retention times were not tested.

There was a fair scatter in the assayed gold head for Composite B and Composite C. This is normally indicative of the presence of free gold in the sample. It was recommended that these samples be tested using gravity separation methods, to establish the quantity of free gold present in the mineralized material.

The calculated gold head assays for the Composite B sample also showed a wide variation, this makes interpretation of the results more difficult. However, the data suggests that gold extractions in the range of 93% to 97% should be expected for the Composite B sample. The Composite C sample gave significantly lower gold extractions, in the range of 56% to 64%.

Reagent consumptions in all of the cyanide leach tests were low.

Figure 13.1 – Gold Leach Kinetics

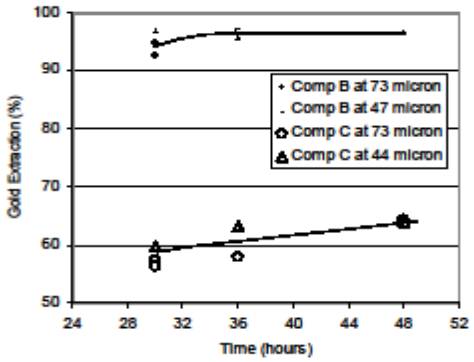


Figure 2 – Gold Leach Kinetics in Cyanide Solution

SAS continued metallurgical testing of the Composite B and Composite C samples with the samples yielding recoveries below 95.65% outlined below:

Composite B - Sample 49260 – Gold Recovery 47.50% - grade 3.81 g/t
Sample 49261 – Gold Recovery 74.60% - grade 5.09 g/t
Sample 49262 – Gold Recovery 79.86% - grade 3.09g/t

These consecutive samples were from one interval (126.0 to 129.0 meters) of diamond drill hole 072-01-27 in the FWZone within Existing Clavos. The log describes this interval as quartz ankerite veining within an intermediate tuff containing 1 to 5% pyrite, trace5% arsenopyrite, specks of visible gold and chalcopyrite.

Composite C - Sample 49287 - Gold Recovery 16.19% - grade 7.63 g/t

From diamond drill hole KC-00-175 (275.73-276.73 m) HW Zone - fragmented ultramafic with sericite ankerite alteration containing 3 to 5% pyrite and trace 2% arsenopyrite.

Sample 49277 – Gold Recovery 67.94% - grade 16.0 g/t

From diamond drill hole CN 97-22 (383-384m) - HW Zone - described as mafic tuff with60% quartz veining containing 5% pyrite, 2% arsenopyrite.

13.1.3 Conclusion

Out of 36 individual samples between Composite B and C, there were 5 samples with gold recovery below 95.65% with samples having relatively high amounts of pyrite and arsenopyrite being in the "low recovery sample category".

13.3 Clavos JV Metallurgical Testing (December 2012 To January 2013)

During August, 2012 Clavos JV prepared a number of metallurgical test samples based upon a recommended program defined by Mr. Peter Hubacheck, P.Geo., and Mr. Robert Ritchie, P.Eng**.**

On August 17th, Bob Ritchie and I reviewed the optimum procedure to collecting batch material for metallurgical bulk sampling of the Clavos Deposit. The most accessible material is the split-half core composites and rejects from the Sage Gold, 2011 diamond drilling program.

A spreadsheet was prepared by Bob Ritchie and reviewed by myself selecting appropriate composites from several zones, i.e. Hanging Wall/Footwall/Contact/etc., all located in the Existing Clavos and 960 Zone structures.

A procedure was prepared to collect the batch composites identified by:

a) Diamond drill hole number

b) Assay tag number

c) Composite interval "From and To"

d) Calculated weighted average grade for composite

The composite intervals were selected according to economic gold grades with boundary samples grading ~ 0.5 to 1.0 g/t on the HW and FW Zones with additional core length to simulate dilution due to over break and sloughage/caving.

Bottle Roll tests were conducted at RPC (Fredericton, NB) in January, 2013 on the following samples:

- Existing Clavos Zone Structure:
  - 2.03 g/t, 2.61 g/t, 4.11 g/t, 4.24 g/t, 4.83 g/t, 11.05 g/t, 13.60 g/t, 17.55 g/t gold
- Sediment Zone Structure:
  - 2.05 g/t, 3.04 g/t, 5.58 g/t, 9.34 g/t, 13.55 g/t gold
- 960 Zone Structure:
  - 2.02 g/t, 3.00 g/t, 4.25 g/t, 5.27 g/t, 3.69 g/t, 11.52 g/t, 28.20 g/t gold

Table 13.1 – Bottle Roll Test Results

TEST ID: (g/t) Au	ZONE	GOLD SOLUTION ASSAY (mg/L) Au AFTER 24 HOURS	RESIDUE (g/t) Au	CALC. HEAD (g/t) Au	EXTRACTION After 24 Hrs (%)
2.01	960	0.68	0.96	1.98	51.5%
2.03	Existing Clavos	0.96	0.44 Check 0.419	1.88	76.6%
2.05	Sediments	0.75	1.20	2.37	49.4%
2.61	Existing Clavos	2.57	0.82 Check 0.796	4.68	82.5%
3.00	960	0.27	2.21	2.62	15.6%
3.04	Sediments	1.75	0.61	3.24	81.2%
3.57	Existing Clavos	0.65	0.98 Check 0.918	1.97	50.3%
4.24	Sediments	0.49	2.99	3.73	19.8%
4.25	960	1.46	2.01	4.20	52.1%
4.91	Existing Clavos	1.84	2.26 Check	5.05	55.2%

K694214	Existing Clavos	11.60	1.88 Check	19.36	90.3%
11.52	960	0.35	2.93	3.46	15.3%
13.55	Sediments	0.80	9.56	10.77	11.3%
11.05	Existing Clavos	6.70	1.17 Check 5.196	11.24	89.6%
14.15	Existing Clavos	9.30	0.26 Check 0.252	14.26	98.2%
20.94	Existing Clavos	15.70	2.06 Check 1.774	25.75	92.0%
28.20	960	15.50	1.54	24.79	93.8%

13.3.1 Observations

1. Existing Clavos (2.03 g/t / gold recovery 76.6%)
    - Sample extracted from eight sub samples all located within FW Zone
    - Two sub samples occurred within intermediate to mafic intrusions
    - Samples represent sericitized ultramafic material with variable amounts of quartz ankerite veining
    - Pyrite and arsenopyrite present in amounts varying from trace to 3.0%

2. Existing Clavos (2.61g/t / gold recovery 82.5%)
    - Sample derived from two sub samples logged as FW Zone
    - Sub sample identified as intermediate to mafic intrusion with up to 3.0% to 5.0% pyrite and 1.0% to 2.0% arsenopyrite
    - Second sample represents sericitic ultramafic with quartz ankerite veining and 1% pyrite.

3. Existing Clavos (3.57g/t / gold recovery 50.3%)
    - Sample derived from diamond drill hole CL-11-02 from FW Zone
    - Sample comprised intermediate to mafic intrusive material with 3.0% pyrite and 2.0% arsenopyrite
    - Core log referenced potential carbon associated with mineralization

4. Existing Clavos (4.91g/t / gold recovery 55.2%)
    - Sample extracted from diamond drill hole CL 11-20 down dip from Existing Clavos deposit
    - Assay results not included in the RPA resource study of October 2012
    - Sample comprised of sericitic ultramafic with 3.0% pyrite and 2.0% arsenopyrite.

Existing Clavos sample 69214 reported a gold recovery of 90.3% from drill hole CL 11-20 (see above)

5. Existing Clavos (14.15 g/t / gold recovery 98.2%)
    - Sample from diamond drill hole CL 10-05 in FW Zone, quartz feldspar porphyry containing 3.0% pyrite and 1.0% arsenopyrite.

6. Existing Clavos (20.94 g/t / gold recovery 92.0%)
    - From diamond drill hole CL 11-01 containing FW mineralization of quartz veining in ultra-mafics, 1.0% to 3.0% pyrite, 1.0% to 2.0% arsenopyrite with visible gold

13.4 Further Laboratory Testing At RPC

RPC also prepared a number of blended samples which included rejects and pulps from assaying completed on drill core associated with the Sage diamond drill programs completed during 2010 through 2012. The blended samples were differentiated by grade and included material from the 960 Zone, the Sediment Zone, the Existing Clavos Down Plunge Zone, the HW Zone, and the FW Zone.

These samples were tested by bottle roll leach testing for 1.0 hrs, 6.0 hrs, and 24 hrs. The composition and percent extraction of gold (over 24 hours) is detailed below:

- 2.01 g/t / 960 Zone / 46.0% gold extraction
- 3.00 g/t / 67% 960 Zone & 33% Sediment Zone / 15.7% gold extraction
- 4.85 g/t / 75% 960 Zone & 25% Sediment Zone / 19.9% gold extraction
- 6.00 g/t / 67% 960 Zone & 33% Sediment Zone / 66.9% gold extraction
- 9.00 g/t / 75% 960 Zone & 25% Sediment Zone / 65.1% goldextraction
- 12.00 g/t / 25% Sediment, 25% 960, 50% Existing Clavos / 80.5% gold extraction
- 15.00 g/t / 100% 960 Zone / 96.0% gold extraction

In the above analysis, the individual composite grade samples were composed of a hybrid of material from the Sediment Zone, 960 Zone, Existing Clavos JV Down Plunge Zone and Existing Clavos JV Zone structures.

This PEA relates to the study of the mineralized material gold extraction of the Existing Clavos JV Contact Zone, HW Zone, and FW Zone within the footprint of the existing mine development envelope. The 6.0 g/t, 9.0 g/t and 12.0 g/t gold composite grade samples are the samples most representative of this type of mineralized material.

RPC also conducted a bulk sulphide flotation test on the 4.85 g/t gold Sediment Zone and 960 Zone structure mineralized material and reported a gold recovery of 84.0% in the rougher

concentrate at a mass loss of 88.0%. RPC believes that higher recoveries may be achievable with a finer grind size.

Table 13.2

Sulphide Rougher Flotation Test Conditition on Composite Sample

TEST NO.	TARGET	GRIND SIZE	STAGE	COND. TIME (min)	REAGENT DOSAGE (g/t)				FLOAT TIME (min)
					$CuSO_4$	3418A	KAX	MIBC	
1875-SF1	Sulphides/ Gold	P80 75 µm	Rougher	1	75	50	50	35	10

Note: Flotation pH (Neutral) and RPM @ 1050 rpm.

Table 13.3

Flotation Test Results

TEST NO.	CONC. / TAIL	MASS (g)	MASS DIST. (%)	FIRE ASSAY	DISTRIBUTION RATIO
				Au (g/t)	Au (%)
1875-SF1	Rghr Con	59.3	11.9	35.34	84.4
	Rghr Tail	439.3	88.1	0.88	15.6
	Calc. Head	498.6	100.0	4.98	100.0

13.5 Recommendations

The author of this PEA recommends that additional metallurgical test work be completed on fresh mineralized material from the Existing Clavos structures towards determination that it could be feasible to introduce changes and/or modifications in the standard flow sheet process at the selected custom milling facility towards recovering a portion or all of the missing gold recovery percentage between 89.0% and the expected industry standard of 94.5% for operating mines in this general area.

This study should include implementation of detail tracking and control procedure implementation to ensure timely notification to the custom milling facility as to the presence of preg-robbing minerals such as graphite and/or talc so that depressant chemicals can be added at the custom mill to suppress this activity.

13.6 Summary Of Metallurgical Testing At Existing Clavos

Canamax 1987	gold recovery	81.1% to 92.7% (20 samples)
Kinross 2001	gold recovery	45.8% to 95.0% (13 samples)
SAS 2003	gold recovery	56.0% to 97.0% (36 samples)
Stock Mill 2005 to 2007	gold recovery	82.9% to 89.0% (96,887 tonnes)
Clavos JV 2012	gold recovery	56.3% to 98.6% (7 samples)

14.0 MINERAL RESOURCE ESTIMATES

An updated Mineral Resource estimate was completed on the Clavos Project based on surface and underground diamond drill and chip sampling results by previous owners. The Sage surface drill results from 2010 to 2012 were also included in the following estimation data. Summarized from "Technical Report on the Clavos Project in the Timmins Area, Northeastern Ontario, Canada", Chester M. Moore P.Eng; David A. Ross P.Geo; October 12, 2012.

Table 14.1 Mineral Resources - Clavos JV

Sage Gold Inc. – Clavos Project

Category	Cut-off Grade (g/t Au)	Tonnage	Grade (g/t Au)	Contained Metal (oz Au)
Indicated				
	4.0	635,500	6.25	127,700
	3.0	1,115,300	5.06	181,400
	2.75	**1,258,400**	**4.81**	**194,600**
	2.5	1,399,100	4.59	206,500
	2.0	1,618,100	4.28	222,500
Inferred				
	4.0	394,000	6.2	78,000
	3.0	674,000	5.0	109,000
	2.75	**796,000**	**4.7**	**120,000**
	2.5	866,000	4.5	126,000
	2.0	994,000	4.2	136,000

Notes:
1. CIM definitions were followed for Mineral Resources.
2. RPA recommends that a cut-off grade of 2.75 g/t Au is used for economic evaluations.
3. Mineral Resources are estimated using a long-term gold price of US$1,600 per ounce and a US$/C$ exchange rate of 1:1.
4. A minimum mining width of 1.5 m was used.
5. Bulk density is 2.76 t/m^3.
6. Numbers may not add due to rounding.

The sample preparation, security, and assay procedures utilized at the Clavos project were completed to industry standards and the data from the 2010 to 2012 drill program is considered to be suitable for use in the above mineral resource estimation.

Data collection, entry, and database verification procedures for the Clavos project comply with industry standards and the compiled database is suitable for estimating Mineral Resources.

Resource Database

RPA received header, survey, assay, and lithology digital data from SGX. This data comprised 551 surface diamond drill holes for all of the Clavos area drilling totalling 124,021 m for an average drill hole length of 225 m. A total of 837 underground drill holes with a combined length of 64,225 m and an average length of 77 m were also provided. As well, 2,525 underground chip samples taken over a total length of 2,530 m and an average length of 1.0 m were also available. Analytical results were available for 48,489 samples. For the area comprising the estimation, 842 of the drill holes and 2,525 chip samples intersected the 3D solids, containing 5,891 samples.

Geological Database and 3D Solids

Drill hole data, including all lithological and assay data, provided the basis for the interpretation of the mineralized zones and estimation of grades into resource blocks.
Strings were constructed, at 30 m spaced north-south cross sections, around mineralization grouping assay data greater than approximately 2.0 g/t Au. Length-weighted compositing of the gold assays was employed to determine inclusion of assay intervals in the various grade groupings. Some lower grade material was included on occasion to provide geological continuity to the solids. These strings were then swept together to create 3D solids, using Gemcom software.

Data Analysis

Table 14.2 - Gold Assay Statistics

Zone	Number	Mean	Standard Deviation	Minimum	Maximum	Coefficient of Variation
Main						
Hangingwall	3,589	5.51	38.73	0.00	2,015.0	7.02
Footwall	1,090	4.16	10.91	0.00	156.5	2.62
Contact	766	7.08	36.71	0.00	656.8	5.18
Sediment	122	4.71	6.69	0.00	45.4	1.42
Other	117	4.81	7.11	0.00	42.6	1.48
All Zones	5,684	5.43	33.97	0.00	2,015.0	6.25
960						
Hangingwall	95	4.36	6.21	0.00	44.01	1.42
Footwall	71	3.27	3.59	0.00	18.72	1.10
Sediment	15	4.39	5.46	0.02	18.11	1.24
All Zones	181	3.93	5.27	0.00	44.01	1.34

Grade Capping

The grade distribution of the gold assays from the drill core samples and the chip samples were reviewed and found to be highly skewed. Grade capping was considered necessary. RPA used a percentile analysis to determine the capping level for the samples. The amount of gold represented in the highest grade samples is examined and those assays are cut until no more than 10% of the gold is carried by the 99th percentile of the assay population. This analysis determined that a 60 g/t Au cap was appropriate for both the core samples and the chip samples.

Composite Length

It was decided to composite each drill hole and set of chip samples into single composites because of the narrow and erratic nature of the gold mineralization. After studying the mineralization in the underground exposures at Clavos, D. Rhys (2005) recommended the same procedures for grade control practices.

Capped and Composited Assay Statistics

The effects of capping higher gold grades across the various zones are seen in Tables 14-3 and 14-4. After capping and compositing, most of the coefficients of variation are in a reasonable range considering the type of mineralization at Clavos.

Table 14.3 – Assay Statistics

Zone	Number	Mean	Standard Deviation	Minimum	Maximum	Coefficient of Variation
Main						
Hangingwall	3,589	4.27	9.11	0.00	60.0	2.13
Footwall	1,090	3.85	8.18	0.00	60.0	2.12
Contact	766	4.74	9.92	0.00	60.0	2.09
Sediment	122	4.71	6.69	0.00	45.4	1.42
Other	117	4.81	7.11	0.00	42.6	1.48
All Zones	5,684	4.28	8.97	0.00	60.0	2.10
960						
Hangingwall	95	4.36	6.21	0.00	44.0	1.42
Footwall	71	3.27	3.59	0.00	18.7	1.10
Sediment	15	4.39	5.46	0.02	18.1	1.24
All Zones	181	3.93	5.27	0.00	44.0	1.34

Table 14.4 – Composited Assay Statistics

Zone	Number	Mean	Standard Deviation	Minimum	Maximum	Coefficient of Variation
Main						
Hangingwall	936	4.02	5.38	0.00	60.0	1.34
Footwall	317	3.47	4.85	0.00	60.0	1.40
Contact	224	5.35	8.52	0.00	60.0	1.59
Sediment	34	4.36	2.56	0.00	10.4	0.59
Other	44	4.09	4.73	0.00	22.5	1.16
All Zones	1,555	4.11	5.80	0.00	60.0	1.41
960						
Hangingwall	14	4.14	1.83	1.62	7.64	0.44
Footwall	10	3.15	1.58	1.37	6.47	0.50
Sediment	4	4.78	2.23	3.30	8.10	0.47
All Zones	28	3.88	1.83	1.37	8.10	0.47

In order to determine the effect of the uncapped assays versus capped assays on the amount of gold in the resource estimate, estimates were run using uncapped and capped values. At a 3.0 g/t Au cut-off grade, the uncapped resource contained approximately 26,800, or 8.5%, more ounces of gold.

Bulk Density

The tonnage factor of 2.76 t/m3 is based on density determinations made by Kinross when it held an option on the Clavos property. More recent test work by SAS supports this figure. RPA considers the tonnage factor of 2.76 t/m3 to be reasonable.

Variography, Interpolation Parameters and Block Models

The assays in a subset of drill holes covering the mineralized zones in the Clavos Project were selected from the property-wide database. Attempts to create reliable variograms were not successful due to the spread of information over a large distance. Instead, a search strategy based on drill hole spacing was used and the search ellipsoid was manually fitted to the main strike, dip, and plunge directions in the deposit.

All grades were estimated using a three-dimensional model with a block size of 10 m x 2 m x 10 m for each zone. The grade estimates were bounded by three-dimensional wireframes. The grade estimation was carried out in four passes, with each successive pass using more liberal composite selection parameters than the previous one. The first pass was done using a search ellipsoid measuring 40 m along strike, 20 m along dip, and 20 m across strike, oriented parallel to the principal axes of the zones. The second pass was done using a search ellipsoid measuring 80 m along strike, 40 m along dip, and 40 m across strike, oriented parallel to the principal axes of the zones. For the third pass, the search ellipsoid was increased to 120 m x 60 m x 60 m and for the final pass, the search ellipsoid was increased to 200 m x 100 m x 100 m. A minimum of two composites (intersections) and a maximum of 12 composites per block were set for the first three passes. In the fourth pass, the minimum number of composites is set to one. Approximately 55% of the blocks were filled in the first pass and 32% in the second pass. Interpolation of variables into the blocks was completed using ID3. An estimate was also generated using nearest neighbour (NN) methodologies as a check on the ID3 totals. Results were as expected, with the NN method returning less tonnes and slightly higher grade.

Cut-Off Grade

A cut-off grade of 2.75 g/t Au was chosen for inclusion of mineralized lenses in the resource estimate. The 2.75 g/t Au threshold appears to be close to natural cut-off that defines the mineralized lenses and separates them from much lower grade material. A 2.75 g/t Au cutoff grade is also derived using the following assumptions:

- Operating cost of C$125 per tonne
- Metallurgical recovery of 88%
- Gold price of US$1,600 per ounce
- Exchange rate of US$1.00 = C$1.00

Metal prices used for reserves are based on consensus, long term forecasts from banks, financial institutions, and other sources. For resources, metal prices used are slightly higher than those for reserves.

Classification of Mineral Resources

Mineral Resources have been classified as Indicated and Inferred. The classification is based on the following criteria:

- Indicated Mineral Resources are those parts of a mineralized lens defined by at least two drill hole or chip sample intersections within 30 m of a block.
- Inferred Mineral Resources are all or parts of a mineralized lens defined by at least two drill hole or chip sample intersections within 60 m of a block.

Due to the uncertain survey positions of the mined areas and incomplete records from the previous operation, no resources are classified as Measured.

15.0 MINERAL RESERVE ESTIMATES

The author would like to emphasize that there are no known Mineral Reserves on the Clavos JV property nor are there any known Mineral Reserves included within the body of this PEA Report.

16.0 MINING METHODS

This PEA is to be considered as preliminary in nature, and has been prepared using inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral resources. Mineral resources that are not mineral reserves do not have demonstrated economic viability. There is no certainty that the PEA will be realized.

16.1 Existing Mine Development

The previous owners of the Clavos property carried out considerable underground primary access ramp decline and lateral sill drift development work at the following locations:

- Ramp decline (2,773m of 5m x 4m x -16%) developed to a depth of 315m below surface
- Mine lateral development, diamond drilling and mineralized material extraction within the existing Clavos HW Zone
- Established underground working levels at 20m vertical intervals as follows,
    - 500m on the 100m level
    - 851m on the 150m level
    - 294m on the 200m level
    - 168m on the 220m level
    - 311m on the 225m level
    - 238m on the 240m level
    - 276m on the 250m level
    - 259m on the 259m level
    - 363m on the 261m level
    - 197m on the 280m level
    - 461m of others
- Excavated and equipped a 2nd egress raise from the 150m level to surface
- Transported mineralized material produced from sill drift lateral development and stoping blocks over 10 km to the Stock Mill facility
- Processed the mineralized material at the Stock Milling facility

16.3 Forecasted Clavos JV Stope Production Schedule

Mine dewatering and mine rehabilitation to the 150m level, would need to occur before the required definition/delineation diamond drilling on close spacing and detail mine planning could occur.

The pre-stope development for the initial cut & fill stoping complexes could be scheduled such that sufficient time be included to progressively increase the daily mineralized material extraction rate from a single cut & fill stoping block operating at 40 tonnes per day, to adding an additional

cut & fill stoping block each 4 weeks until a maximum of 7 to 8 cut & fill stoping blocks could operate at 40 tonnes per day each.

This could be tentatively designed such at a 22% ratio of long hole tonnage to cut & fill tonnage is maintained until possibly 600 tonnes per day is achieved. Following this, the ratio of long hole tonnage to cut & fill tonnage could be increased to 46% for the remainder of the life of mine.

The variability in the mineralized material grade/thickness long section is considered to be characteristic of the Clavos JV mineralized structures and also quite similar to that of other operations within this general area. This variability suggests that Clavos JV could be designed to constantly maintain the availability of a number of working stope blocks and stoping complexes for flexibility.

Allowances could be included in the mine planning exercise for those less well defined mineralized structures that will require additional lateral mine development, diamond drill station excavation and definition diamond drilling for proper grade determinations.

The following exploratory primary lateral mine development and exploratory diamond drilling to the east (Sediment Zone and 960 Zone structures) could commence during Year 2 assuming the initial work program outlined above was complete and successful:

- Excavate a 250m x 3.0m x 4.0m exploration drive to the east collared at the east face of the 250m level
- Diamond drill the mineralized structures within the Sediment Zone and the Existing Clavos Down Plunge Extension Zone
- Excavate a bulk sample for metallurgical sampling
- Complete personnel training and equipment familiarization work programs

The proposed Clavos JV mineralized material extraction scheduling outlined within this PEA could be scheduled in a manner that accesses the most readily accessible Existing Clavos JV mineralized structures and workings containing the higher grade cut & fill stoping block complexes early within the mine life. The objective could be to increase the economic value and revenue generation parameters from Clavos JV.

16.3 Geotechnical Evaluation and Ground Support

16.3.1 Faulting and Talc Chlorite Schist

The Pipestone Fault passes through the underground Clavos JV workings and is associated with minor cross faulting that has been evidenced throughout the underground workings. This, in combination with the presence of a weak talc chlorite schist host rock at certain locations underground, is not considered to be pervasive by the author provided proper attention is paid to these conditions when they are intersected and/or encountered.

16.3.2 Rock Stress Conditions

In-situ rock stress at Clavos JV is considered as being of low magnitude. This has been substantiated as based upon data obtained by the author during conversations with personally known past operating personnel previously employed at Clavos during the period of 2004 through 2007. Their recollection of the historical workings from surface to the 315m level, plus past pictures studied of the rock conditions underground, support the above hypothesis.

16.3.3 Rock Mass Classification (RQD)

To the knowledge of the author, no rock mass classification (RQD) studies have been performed regarding the mineground conditions at the Clavos JV property. This type of study would be beneficial, however the author does not consider this as mandatory prior to mine dewatering, mine rehabilitation and inspection of the historic underground workings, given the shallow depth of the current mine workings.

Increased ground support in the vicinity of any fault and/or cross fault zone structure could be required if conditions dictate, but this increased support is not considered to be a significant cost item for the underground excavations.

16.3.4 Ground Support Recommendations

As a direct result of poor ground conditions associated with the talc chlorite schist present in close proximity with the Clavos JV mineralized structures, all underground workings are located in the hanging wall (H/W) of the Clavos JV mineralized structures.

Based upon historical ground support information, adequate H/W ground stability could be achieved through the application of conventional bolting procedures, by ensuring accuracy in drilling patterns, through exercising control in blasting, and designing control into the stoping block geometry.

For the purposes of this PEA, it has been assumed that the following bolting and screening practices could be employed:

- 6 ft resin rebar bolting to within 4 ft of the floor for all primary and secondary development headings

- 4" x 4" welded screen mesh secured with 4 ft expansion shell bolts in the backs of all primary and secondary development headings
- cemented cable bolting in the wall of the long hole stoping block
- conventional 4" x 4" welded screen and 5 ft mechanical bolts in the backs and 5 ft split set bolts in the walls of the cut & fill stoping complexes

16.3.5 Mine Planning and Sequencing

Stope extraction planning and sequencing is not expected to be adversely affected by geotechnical conditions.

16.4 Mine Design

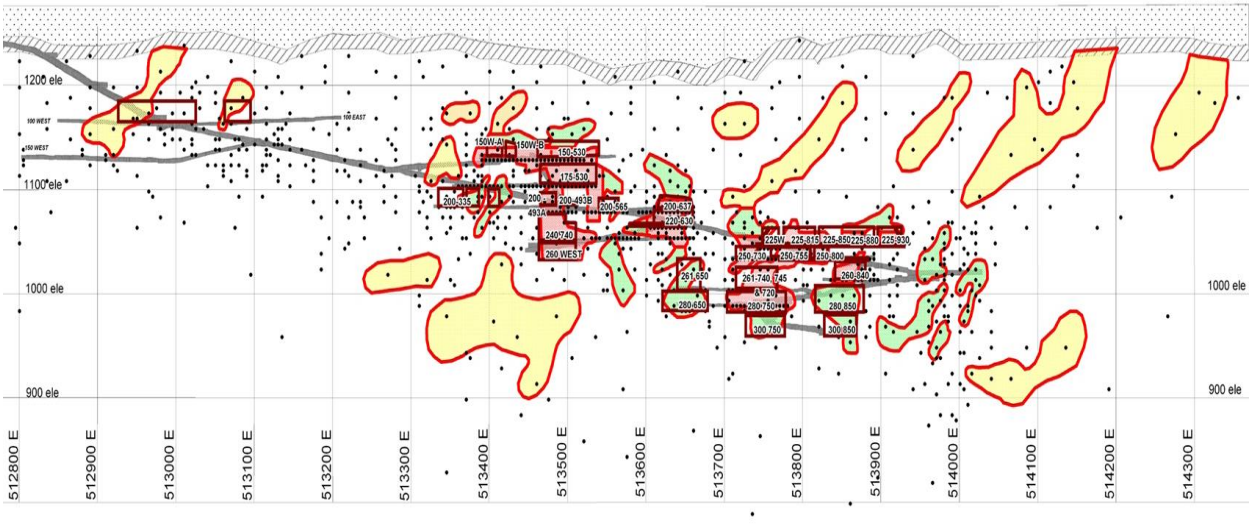
16.4.1 Mine Production Rate & Mine Life

It is proposed that the Clavos JV mine could be commissioned over a two (2) year period to a steady state 600 tonnes per day. This daily rate was selected as being optimum as based upon the mineral resource estimate for a 2.75 gms/t gold cut-off grade.

This could result in a mine life of just under 7 years for the published mineral resource estimated indicated and inferred resources. However, this PEA does not indicate the economic viability of the mineral resource. The PEA is preliminary in nature, includes inferred mineral resources that are too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as a mineral reserve and there is no certainty that the PEA will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

16.4.2 Illustrations

The longitudinal section shown below illustrates the shallow easterly rake of the mineralization in the eastern portion of the Clavos JV property and the westerly rate in the western portion. A number of cross cutting structures have been identified to assist in guiding future grassroots drilling. Each grid block measures 100m x 100m.



16.4.3 Mine Planning & Layouts

Mine planning and layout details could be influenced by the configuration of the mineralized structure present above the 315m level at Existing Clavos, and it is expected that the configuration of the other mineralized structures to the east post delineated and evaluation could contribute their own unique physical differences.

At Existing Clavos JV, the stope blocks and complexes could be influenced by the presence of historical underground mine workings with possible residual material remaining to be extracted from the floors, backs and/or walls.
A benefit available from the previously mined out underground workings could be that the existing openings are readily available for personnel and equipment access, to provide ventilation routes, and to provide an exploration base for diamond drilling, with a possible drawback being that the geotechnical conditions could dictate the installation of additional ground support and/or filling.

16.4.4 Mine Access

Stope mineralized material extraction could utilize the surface decline production ramp for transportation of material and as a return ventilation exhaust route. In addition, the decline ramp could be utilized for waste rock transport, materials delivery, services routing, and personnel travel between surface and the underground mine workings.

16.4.5 Exploration and Definition Diamond Drilling

Continued underground exploration and stope definition/delineation diamond drilling could become an important part of the mining operation, as detail mine planning and layouts are dependent upon the availability of factual information on the grade and configuration of the mineralized structures encountered.

Stoping block definition/delineation diamond drilling could commence once the mine dewatering and rehabilitation has advanced sufficiently to accommodate this work program. Underground exploration diamond drilling could commence as soon as the 250m level east heading has advanced 75 meters, with the intermediate diamond drill stations established and equipped initially at each 60 meter interval.

16.4.6 Grade Control

Grade determination and control could become an important part of the mine planning exercise at Clavos JV, given the potential variability in grade and configuration of the mineralized structures anticipated. Grade control by face channel sampling could become important thus day shift grade control samplers should be included in the cost estimate.

Visual grade control could also become a key part of assessing the production stoping block face, backs and walls in the Clavos JV mineralized structures. Historically, a visual inspection of the

rock face assists in determining the percentage of pyrite and arsenopyrite which could be considered as an excellent indicator of the possible presence of gold mineralization

16.5 Mining Method

Two types of differing stope block mining methods are considered in this PEA for mineralized material extraction at the Clavos JV project as outlined below.

16.5.1 Cut & Fill Stoping

- Selected as being safe while allowing a high percentage of mineralized material extraction with selective extraction methods possible
- Highly flexible permitting selective mining to be performed through alternate production faces within a single mining area
- Most efficient should the mineralized material grade or configuration of the mineralized structure be variable
- With two or more cut & fill stoping complexes in close proximity with each other, the same stope mining gear can be employed by traversing a connecting sub drift
- Could utilize steel mill holes and galvanized man ways in conjunction with cemented fill floors
- Could make use of hand held pneumatic drilling machines
- Mucking could utilize 1.25 mechanically driven diesel scoop trams and/or Cavo type muckers.

16.5.2 Bulk Long Hole Stoping

- Allows utilization of similar equipment throughout the mine workings
- Incorporates longitudinal retreat stoping methods
- Utilizes 2 ½" to 3" diameter holes drilled from a pneumatic drill wagon
- Utilizes 3.5 yd. remote diesel scooptram operating from a draw point

16.6 Mine Development

16.6.1 Primary Development

It is expected that primary development could provide access to both the Sediment Zone and Existing Clavos JV Down Plunge Zone mineralized structures for exploratory diamond drilling

on close spacing to the east of the 250m level. This may also be utilized to provide access to potential new mining areas to replace the active stoping complexes as they are depleted.

This primary development could also provide a main haulage drift (initially driven trackless then outfitted for rail loci haulage) to collar the stope access cross cut, and pre-stope development between the main access haulage drift and possible future stoping blocks or complexes.

16.6.2 Pre-Stope Development

Pre-stope development could commence immediately after mine rehabilitation and definition diamond drilling is completed. The initial areas for pre-stope development could be those cut & fill stoping complexes to be placed into stope extraction of mineralized material during the early part of the proposed mine schedule.

16.6.3 Mineralized Material & Waste Haulage

Extracted mineralized material/waste rock could be loaded into 15 ton or 20 ton underground diesel haulage trucks by 3.5 yd and 2.5 yd diesel scoop trams, by either loading directly from the working face, re-muck station, and/or stoping area chute, as required.

Older, redundant workings and depleted long hole stoping complexes could be utilized for inventorying waste rock material for filling the cut & fill stoping block sill cut or for other back fill requirements.

The haul distance underground for the mineralized material/waste rock could be restricted to only the 100m level, where the surface articulated diesel trucks (equipped for underground use) could load from the 100m level chute for mineralized material transport to the custom milling facility.

16.6.4 Primary Ventilation

During Phase 1 of the mine dewatering program, the required ventilation could be supplied by a surface fan exhausting down through collapsible ducting installed in the vent raise as the crews advance the pumping equipment.

A surface fan house and mine air heater structure could be constructed to service the underground mine stopes and development. This could force air down the ventilation raise to the 150m level and exhaust up the decline ramp to surface. Ventilation doors could be established on the 150m level and force the fresh air down the 200m level internal fresh air raise.

16.6.5 Secondary Auxiliary Ventilation

Secondary ventilation could be provided using positive pressure vane-axial fans and ridged or collapsible ventilation ducting.

16.7 Mine Services

The following is a summary of the proposed mine services to be provided to the underground. Depending on further study, the details of these services may need to be revised.

16.7.1 Mine Process Water Supply

Mine water could be required for drilling, dust suppression, and fire-fighting duties. This water could be provided from the 100m level where a concrete dam could be constructed to collect and contain mine process water supplied by normal water inflow into the Clavos JV underground workings. Excess water could be pumped back to surface for process water storage and/or directed to the settling pond.

This process water could be delivered to the remainder of the underground workings through a steel pipeline with the development crew extending this pipeline as the ramp and/or lateral level development advances.

16.7.2 Mine Water Discharge

Mine dewatering could be provided via a dirty water sump located below the 250m level which overflows into a clear water sump also located below the 250m level. This sump could be equipped with high head electric dewatering pumps that transfer this clear water directly to the settling pond on surface.

Initially, mine water discharge could be provided through electric submersible Flyght type pumps operating through a series of sumps located in abandon re-muck bays after the floor has been lifted. This could suffice until the above mentioned clear and dirty water sump and pumping station can be commissioned in the lower levels of the Clavos JV mine.

As the mine dewatering system underground gets streamlined, drainage holes could be located at key locations and efficient drainage ditches could be constructed to direct the mine water away from heavily traveled areas.

16.7.3 Underground Power Distribution

Electrical power could be provided underground to energize the drilling machines, water pumps, lighting, repair depots, axial ventilation fans, and construction job sites. This power could be delivered to the underground via high voltage armoured Teck power cables rated at 5 kilo volts, which can be strung down the egress raise opening and along the back of the lateral level development headings. Portable skid mounted transformer stations could provide power centers to step this high voltage down to suit the requirements of the machinery operating needs underground.

Underground equipment voltages could be typically 600 volt for drilling machines, axial flow ventilation fans, and heavy tools for the repair shop, whereas 220 volt and 115 volt can be made available for small items such as portable power tools and lighting.

All underground power supplies could be ground fault protected and active power centers could be equipped with safety switches and breakers.

16.7.4 Material, Supplies & Personnel Travel

Mine personnel and mobile equipment could access the underground workings at Clavos JV via the main surface portal and ramp decline. A flatbed type mobile diesel powered truck equipped with a hydraulic boom could be utilized to transport the general mine supplies and materials, drill supplies, spare parts, explosives, and other consumables from the surface storage area to the underground active tool crib areas.

Miners could be transported underground in diesel powered man carriers, whereas the supervisors, engineers, and geologists could make use of Kawasaki type diesel powered mule type vehicles suited for underground transportation. Surveyors, mechanics, and electricians could make use of specialized light vehicles equipped with light crane arms or x-lifts.

All surface roads travelled via mobile equipment could be equipped with proper safety berms and all underground roadways could be graded.

Bulky mine supplies not requiring weather protection could be stored on wooden racks in the surface storage. Smaller and more expensive supplies, such as drill bits, equipment spare parts, and small tools,could be stored in a heated secure area.Heavy or bulky mine supplies could be handled on surface by forklift, front end loader equipped with forks, or by flatbed boom truck.

16.7.5 Compressed Air Distribution

Compressed air could be provided by three 750 cubic feet per minute (cfm) electrical compressors installed in the compressor house on surface. This compressed air could be distributed throughout the Clavos JV underground workings at a nominal pressure of 100 pounds per square inch (psi).

16.7.6 Explosives and Detonator Handling and Storage

The delivery of explosives, packaged product and detonators could be made to the surface ramp portal and transported immediately underground to the various explosive storage areas. The site does not plan to maintain explosive or detonator magazines on surface.

16.7.7 Diesel Fuel Supply

Diesel fuel for underground mobile equipment could be low sulphur #2 diesel. Low-sulphur bio-diesel can be evaluated in regard to meeting the emission standards for underground diesel engine operation.

Diesel fuel for the underground mobile equipment fleet of haulage trucks, scoop trams, and service vehicles could be stored on the 100m level with fueling occurring daily between shifts. Any underground mine equipment which does not normally report to the 100m level, such as drill jumbos, bolters, etc., could be serviced daily by a mobile diesel maintenance vehicle.

16.7.8 Underground Construction and Maintenance

Construction crews could perform routine mine maintenance and construction work, maintenance ground support activities, general scaling, underground compressed air and process water services maintenance, construction of ventilation barricades and dampers, bulkheads, concrete work, mine water dewatering, and safety works.

Underground road maintenance could be performed by general labourers on the production waste development crews. An underground diesel articulated grader could be utilized to maintain the decline ramp and lateral development headings and active work areas.

16.7.9 Mobile Equipment Surface Repair Shop & Underground Repair Depot

Surface and underground mobile equipment could be maintained in the surface mobile shop facility located in close proximity to the surface ramp portal. This surface shop could provide a well-lit and well-equipped central maintenance facility for the Clavos JV operation. The location of this surface shop allows for the efficient supply of parts from the warehouse and is in close proximity to the main offices and the dry facility.

The result of improved availability and reduced repair costs is a higher quality of servicing. This surface mobile maintenance shop and the underground repair depot could be equipped with a wash bay, lube station, tire bay, welding bay and a maintenance bay, and could include facilities to contain waste lubricants until their removal in accordance environmental regulations.

An important feature could be the inclusion of a mobile equipment wash station bay for regular equipment high pressure cleaning, a proven element in enhancing the quality of maintenance and, hence, equipment availability.

The master mobile equipment mechanic could provide a daily maintenance work schedule, ensure the availability of spare parts and supplies, provide management and supervision of maintenance crews. He could also provide training of the maintenance force. A maintenance planner could schedule maintenance and repair work, and provide statistics of equipment availability,

utilization, equipment life cycle, mine efficiency, and manpower utilization. A computerized system using proprietary software could facilitate preventative maintenance (PM) planning.

The equipment operators could provide equipment inspections at the beginning of each shift and could assist with minor maintenance and repairs as required. A mechanical department service vehicle could be available to perform emergency repairs at the work place underground.

Lubricants could be delivered to the site in 45 gallon and 10 gallon drums, which could be stored in a secure area adjacent to the surface mobile equipment shop. Major mobile equipment rebuilds could be contracted to suitable rebuild shops off site.

16.7.10 Fire Protection and Fire Fighting

Minimum 20 lb. fire extinguishers could be provided in accordance with regulations and best practices at all underground repair depot stations, transformers, MCC electrical installations, mine water discharge pump stations, fuelling stations, and wherever else a fire hazard could exist.

A suitable number of fire extinguishers could be proved and maintained at each stationary diesel motor, transformer sub-station, and any splitter panel. All diesel powered mobile equipment could carry at least one fire extinguisher of adequate size and of the proper type. Underground mobile vehicles could be equipped with automatic fire suppression systems, in addition to a 20 lb. hand held fire extinguisher.

The 100m level clear water recharge area is expected to provide an adequate capacity of water for underground firefighting purposes. This water supply could be reticulated throughout the mine operation, and provided with sufficient valve tees and fire hoses.

An underground mine-wide stench gas warning system could be installed at both the fresh air raise on surface and the underground compressor feed air line in the surface compressor house to alert underground workers of a fire.

16.7.11 Mine Rescue

Due to Clavos JV commencing with a relatively small workforce initially, meeting the legal and practical requirements for mine rescue teams could be a combination of creating a local on-site mine rescue team capability comprised of mine employees, and arranging the availability of mine rescue coverage from mine rescue teams at other mining operations in close proximity. As the Clavos JV workforce grows, a fully equipped on-site mine rescue team could be available.

A Clavos JV mine rescue Emergency Response Plan could be developed, kept up-to-date and followed in the event of an emergency. A mine rescue base and training room could be provided as part of the surface facilities and mine rescue equipment, including a foam generator,could be

located on-site. The mine rescue teams could be trained for both surface and underground emergencies.

16.7.12 Underground Refuge Stations

Both permanent type and mobile type refuge stations could provide a safe environment by isolating its occupants from mine ventilation air, and by providing a supply of oxygen, communication, and compressed air supply within. The permanent type refuge stations could be constructed at key locations throughout the underground workings at Clavos JV, whereas the mobile type refuge station could follow the mine development crews when they are working in a semi isolated part of the underground workings.

16.7.13 Emergency 2nd Egress

The surface main decline ramp could provide access to the underground plus be the primary travel way to exit the Clavos JV operation. Secondary egress could be provided by the internal fresh air raise located between the 200m level and the 150m level followed by the 150m level to surface egress fresh air raise.

Blind type headings having no immediate secondary escape way, and within a limited distance of 3,000 feet, could be equipped with either a mobile or permanent type refuge station for safe harbour.

16.7.14 Underground Dust Control Management

Broken rock and muck piles, whether ore or waste, could be wetted down with the face, back and walls dressed after blasting and routinely during underground loading operations.

In addition, high traffic underground road ways and fresh air ventilation intake air routes which tend to dry out in winter when the propane mine air heater is functioning, could be regularly sprayed with water to ensure the underground mobile equipment does not create airborne dusty conditions.

16.8 Security & Safety

Clavos JV could establish formal property security procedures, plus an employee safety and training program prior to implementing the work programs outlined in this PEA Report. It is planned to review, revise, improve, ensure that current standard levels be maintained, and implement each program and procedure prior to the commencement of any mining activities on site.

The Clavos JV property security program could consist of components ranging from general security, product storage, shipping, employee screening, and provide the basis upon which to develop an effective security program for the new operation.

A formal employee safety and training program could be established to ensure that adequate employee training and safety procedures are in effect at the mine operation, both on surface and underground.

A Safety and Security Director could be in place, and possess the required experience and training in safety, EMT and plant security areas to be effective.

Mine rescue arrangements and medical evacuation arrangements could be established and be in compliance with industry standard practice and regulatory requirements.

The existing fire protection system for the surface and underground facilities could be inspected on a routine basis and upgraded as required to meet code. Fire drill procedures could be established with key employees trained in effective firefighting procedures, and underground stench gas testing could be in place.

17.0 RECOVERY METHODS

17.1 Historical Metallurgical Test Work Programs

The Clavos project operated intermittently between 2005 and 2007, during which time a number of metallurgical laboratory test programs had been performed to investigate gold recoveries. These include gravity concentration, flotation, cyanide and alternate leaching procedures.

Previous metallurgical test work results were reviewed by the author and it was concluded that both gravity concentration and flotation yielded low gold recoveries, and consequently were not a viable process for the beneficiation of gold mineralization from Clavos JV.

Based on these studies, the selected processing flow sheet for the Clavos JV project is for whole ore cyanidation with recovery of soluble gold by CIP process.

In selecting a suitable custom mill facility, the laboratory test work performed on the various samples was taken into account and emphasis on the historical metallurgical performance at Clavos JV during past production.

Studies indicate that optimum retention times vary between 24 hours to 36 hours with a leach time of24 hours, a grind size of 60% passing 74 microns (200 mesh), and an expected average leach recovery of 90.6% expected.

The author recommends that further evaluation of the economics consider gravity separation as a supplementary process to aid in increasing gold recoveries, especially for higher grade feeds, or where gold is not amenable to extraction by cyanide.

Details of the historic test work can be found in the Metallurgy Section 13 of this PEA which also contains the most recent laboratory studies as completed by the Clavos JV under the direction of the Research and Productivity Council (RPC LTD) Ltd.

Custom Mill Facility:

There are a number of milling facilities within the general area which, subject to suitable commercial arrangements, are considered to be acceptable.

Table 17-1 – MILL FACILITY PROCESSING DESIGN CRITERIA

CUSTOM MILL FACILITY	DESIGN CRITERIA
Annual Tonnage Processed	250,000 tonnes
Crushing Production Rate	200 tonnes per hour
Crushing Operation	10 hours per shift, 1 shift per day, 5 days per week
Crusher Availability	85.0 %
Milling Production Rate	75 tonnes per hour
Mill Operation	12 hours per shift, 2 shifts per day, 7 days per week, 350 days per year
Mill Availability	95.0 %
Grinding Product Size (P80)	60.0 % passing 74Um (200 mesh)
Leaching Retention Time	24 hours
Leach % Solids	45.0 % solids
Gold Leach Efficiency	90.6 %
Gold Soluble Losses	1.6 %
Net Gold Recovery	89.0 %

The custom milling and processing facility design parameters preferred for gold recovery are summarized below:

- Combination of primary and secondary comminution crushing circuits
- Two stage ball mill grinding through utilization of a single primary grinding mill and a secondary grinding mill locked in closed circuit through a set of hydro-cyclones
- Pre leach circuit thickener
- Carbon columns
- 24 hour retention time period in the leaching and carbon in leaching circuit
- carbon in pulp circuit

- Carbon stripping and regeneration circuit
- Electro-winning cell
- Bullion furnace

17.2 Custom Mill Facility Process Toll Rate

Unit milling cost estimates have been based upon ore tonnage treated in the plant at the rate of 600 tonnes per day, 350 days per year. Staffing based upon 2 x 12 hour shifts per day, seven days per week. Mill liner and reagent costs based upon quotations, and consumption based upon metallurgical test work and vendor-supplied data.

Tailings management and disposal were included in the process plant operating costs.

Table 17-2 – HISTORICAL PLANT OPERATING DATA (2005 – 2007)

Mth	Total Ore	Daily Ore	Head Grade		Actual		Mth	Total Ore	Daily Ore	Head Grade		Actual	
2005	(tonnes)	(t/day)	(gms/t)	(oz/t)	Rec.	Ozs	2006	(tonnes)	(t/day)	(gms/t)	(oz/t)	Rec.	Ozs
							2006						
July	4,226	136.3	4.12	0.132	82.6%	462.2	July	3,342	107.8	5.11	0.164	87.6%	480.5
August	4,830	155.8	6.02	0.193	88.0%	821.9	August	9,189	296.4	5.29	0.170	86.7%	1,354.7
September	2,993	99.8	8.08	0.260	91.5%	711.8	September	6,442	214.7	4.21	0.135	87.8%	765.6
October	2,356	76.0	8.04	0.259	89.8%	547.2	October	1,189	38.3	3.81	0.123	84.7%	123.5
November	8,466	282.2	3.13	0.101	76.4%	650.9	November	7,976	265.9	3.03	0.097	80.5%	625.8
December	9,471	305.5	9.01	0.290	89.8%	2,463.4	December	7,452	240.4	2.00	0.064	82.7%	396.1
Sub Total	32,341	175.8	6.23	0.200	87.4%	5,657.3	Sub Total	35,590	193.4	3.83	0.123	85.4%	3,746.1
2006							P.T.D.	86,724	189.8	5.13	0.165	85.7%	12,263.1
January	7,465	240.8	6.28	0.201954	79.2%	1,193.4							
February	3,841	137.2	2.49	0.080	69.3%	213.0							
March													
April							2007						
May							January	4,569	147.4	1.79	0.058	83.8%	220.5
June	7,487	249.6	6.78	0.218	89.0%	1,453.2	February	5,595	199.8	5.10	0.163954	90.5%	830.1
Sub Total	18,793	211.2	5.71	0.183	82.9%	2,859.7	Sub Total	10,164	172.3	3.61	0.116	89.0%	1,050.6
P.T.D.	51,134	187.3	6.04	0.194	85.8%	8,517.0	P.T.D.	96,887	187.8	4.97	0.160	86.0%	13,313.7

18.0 PROJECT INFRASTRUCTURE

18.1 Clavos JV Surface Site Infrastructure

The Clavos JV property is well served with existing infrastructure, which includes:

- Finn Road which connects Hwy 672 with the Clavos JV property
- Hwy 672 which connects Finn Road with Hwy 101
- Hwy 101 which connects with Hwy 11
- Regional 115 kilo volt Hydro One transmission line which runs through the Clavos JV property in close proximity to the Clavos JV surface site infrastructure
- Canada wide natural gas pipeline which runs through the Clavos JV property within 2 km of the Clavos JV surface site infrastructure
- Northern Telephone land based communications
- Explornet internet service
- Abundant ground water for mine process water demands
- Moderate non-challenging terrain for construction of additional surface site infrastructure required to support the Clavos JV underground operations
- Local towns (Timmins, Matheson, Iroquois Falls, Val Gagne) for accommodations, general supplies and support services.

Figure 18.1 outlines the surface layout of the Clavos JV infrastructure including the surface decline portal, mine water discharge settling pond, polishing pond, surface fresh air ventilation fan house, and mine air heater.

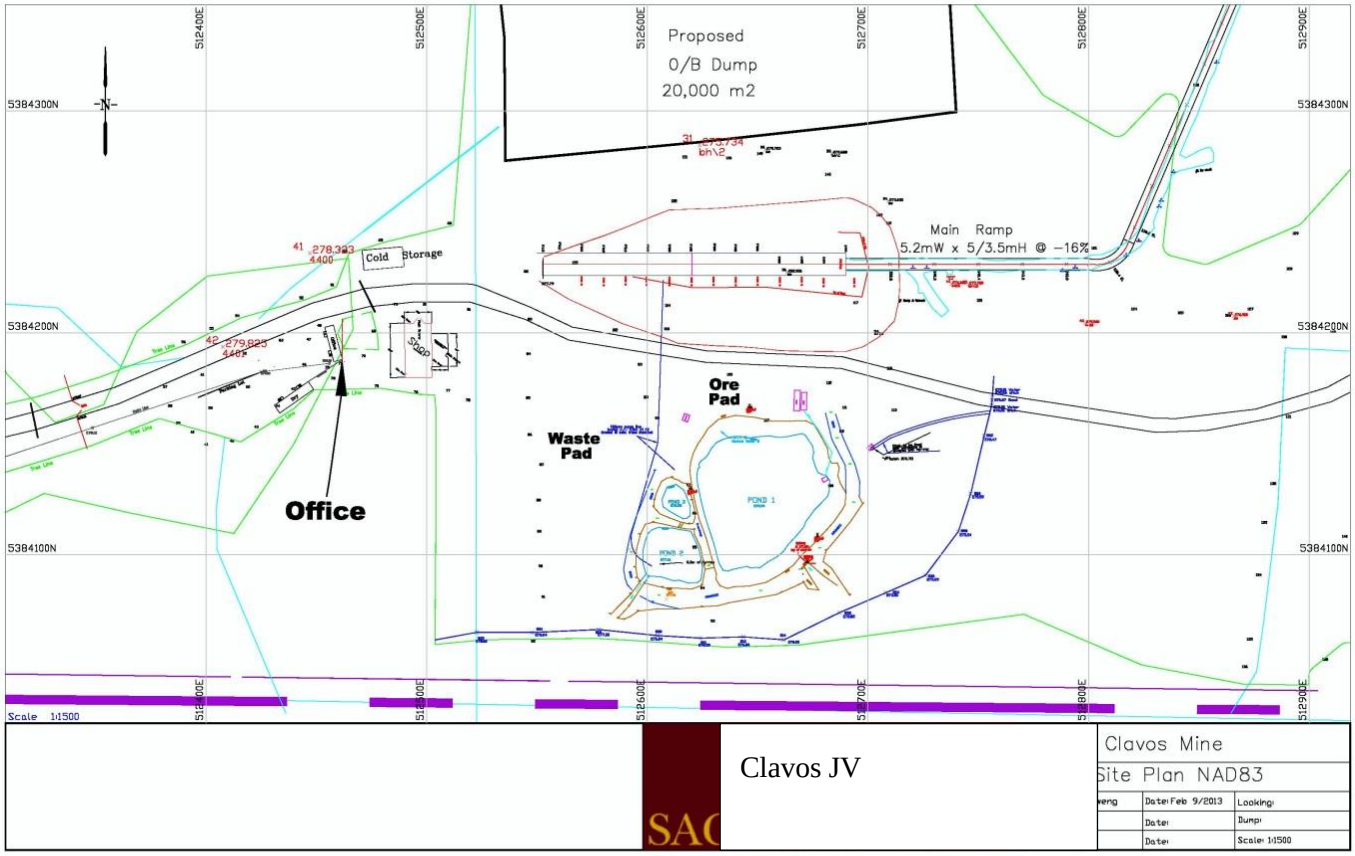


FIG 18-1 - CLAVOS JV SITE PLAN

18.1.1 Site Roads:

The Clavos JV existing mine site roads connect with all the Clavos JV surface facilities. These roadways are constructed as all-weather; typically 15' wide and surfaced with 8" of Granular B screened waste rock material. The site roads could be maintained by the on-site equipment consisting of a grader, haul truck, and front end loader.

18.1.2 Administration Building:

The administration office is expected to be constructed from two existing portable office trailers and equipped with offices for the general management and administrative personnel. These trailers could be re-located beside the proposed permanent mine dry facility, blocked up, skirted, and be provided with an elevated outside veranda for access.

18.1.3 Supervision Offices and Permanent Dry Facility:

This is a 30 ft x 30 ft existing pre-fab steel enclosure type building shell that could be equipped to support the underground operations. It is presently located in close proximity to the surface mobile equipment shop, the surface ramp portal and the general administrative offices.

Inside the structure, general offices for the underground supervision, the safety office, the dirty clothes baskets, the clean clothes lockers and the shower, toilet and wash basins could be located.

18.1.4 Surface Mobile Equipment Shop Facility:

This building structure is a metal steel framed pre-fab type building with a concrete poured floor and concrete pony walls approximately 2½ ft high. This facility is presently equipped with standard shop type equipment for maintaining mobile, stationary and portable equipment; however, it is not equipped with an overhead crane. Heavy lifting could be done by the front end loader equipped with forks or by a 5 ton capacity portable jib equipped with a chain fall.

18.1.5 Electrical Shop Facility:

Along the side wall of the existing surface mobile equipment shop, an independent free standing shed-type-roof steel enclosure extension could be constructed and equipped as an electrical shop. Along the opposite side wall of the surface mobile equipment shop an independent free standing shed-type-roof steel enclosure extension could be constructed with a poured concrete slab floor for maintenance use.

18.1.6 Mine Warehouse:

Along the side wall of the existing surface mobile equipment shop, an independent free standing shed-type-roof steel enclosure extension could be constructed and equipped as the storage warehouse having a poured concrete slab floor.

18.1.7 Surface Sand Fill Plant:

A surface classified tails sand plant could be constructed and be outfitted with a 12 ft diameter x 10 ft high steel agitation tank, a portable sand feed load-out stacking conveyor, a 60 ton cement silo and a reserve water balance tank.

This plant could be fed directly by the front end loader into the hopper feeding the stacking conveyor way with sand foll deposited into the agitator tank with water mix, and at 60% solids (by weight) this plant could continuously operate in full fluid state. As required, cement could be added to the mix tank and sent underground for pouring a mix ratio of 1 part cement to 4 parts sand for back fill floors.

18.1.8 Electrical Power Supply & Distribution:

Electric power to supply the Clavos JV mine site could be provided from one or any one of the three following available sources:

- The Barber Bay single phase 110 volt/220 volt rural line is located along Finn Road which accesses the mine site. There is available a maximum of 800 amps with a 400 amp service already installed and energized

- TheClavos JV owned 10 km overhead power line is already installed between the Brigus Stock Mill facility and the Clavos JV mine site. This overhead power line provides 27.6 kilo volt power at 600 amps to pole mounted step down transformers which further reduce the voltage to 4160 volt for distribution to the underground, to the fresh air fan house and the surface installations.

The Clavos JV diesel generator house is equipped with 2 only Ruston 1.15 meg generators which were in working condition when de-commissioned in 2007.

The 4160 volt power supply could be further stepped down to 2300 volt, 600 volt, 220 volt, and 110 volt as required with a substantial portion of the surface distribution network in place and commissioned already. For the underground electrical power requirements, the main electrical power feed could be installed down the surface egress ventilation raise to the 150m level where it could be distributed to a 4160 volt to 600 volt underground transformer station yet to be purchased and located as required.

The high-voltage distribution network at the Clavos JV site could require distribution network upgrading to meet the needs of this project and these costs have been included.

Table 18.1 – CONNECTED ELECTRICAL LOAD

SAGE GOLD INC - CLAVOS MINE PROJECT								
ELECTRICAL LOAD								
Equipment	Connected Load (kW)	Qty	Nameplate Connected Load (kW)	Diversity Factor	Actual Connected Load (kW)	Annual Power Draw (MWhr)		Year - 1 Connected Load (kW)
Surface Plant								
Office Complex	10	2	20	30%	6	50		6
Shop Facility	50	1	50	40%	20	168		20
Dry Facility	15	1	15	40%	6	50		6
Electrical Shop	5	1	5	25%	1	11		1
Cold Warehouse	5	1	5	10%	1	4		1
Parking Lot	20	1	20	20%	4	34		4
Compressor House	250	1	250	40%	100	840		50
Fresh Air Raise	150	2	300	75%	225	1,890		113
Settling Pond	10	1	10	60%	6	50		
Underground Equipment								
2 Boom Jumbo		Air		67%	0	0		0
Mobile Bolter		Air		33%	0	0		0
Hyd Rock Breaker	40	2	80	15%	12	101		12
Underground Support Equipment								
Fresh Air Booster Fans	150	2	300	75%	225	1,890		75
Return Air Fans & Drill	75	4	300	75%	225	1,890		75
Aux Ventilation Fans	50	6	300	75%	225	1,890		75
Mine Dewatering Pumps	150	2	300	35%	105	882		105
Sundry Power Draw	10%		196	50%	98	821		33
Overall			2,151		1,259	10,571		575

18.1.9 Combustible Fuels:

Diesel fuel could be delivered to site by local tanker truck and delivered to the underground 100m level diesel fuel storage tank via double walled pipeline installed in the surface decline ramp. It is expected that these underground tanks could be stored in accordance with the appropriate regulations in self-contained receptacles. Gasoline will not be stored at site as service stations are in close proximity to the Clavos JV mine site.

Propane fuel could be stored in above-ground tanks or a tank farm at two locations: behind the diesel mobile equipment shop for providing fuel to the shop interior heaters and at the surface ventilation fan house to fuel the underground fresh air propane mine air heater.

18.1.10 Surface Fan House and Mine Air Heater:

A surface fan house could be constructed at the egress fresh air ventilation raise to enclose two 150 Hp vane-axial surface fans. These fans could produce over 220,000 cfm of positive pressure

fresh air for the underground mine air ventilation supply. A propane fired mine air heater and propane tank farm could be installed to heat the mine air during the winter months.

18.1.11 Communications:

Primary external communications could be land based hard wired connections to the regional telephone and internet service. A secondary external communication system could be cell phone service.

Internal communications within the Clavos JV surface property could be by an Ethernet system which provides voice, video, and data communication throughout the mine site. Hand held radios could be used for communication with the surface mobile equipment.

A leaky feeder or hard wired sound powered telephone system and a hard wired central blasting set up could provide underground operating communications, emergency communications, ventilation monitoring, and central blast initiation.

18.1.12 Sewage Disposal:

Domestic sewage collected from the surface dry facility and the administration office could be treated in the existing septic field facility. This sewage system is permitted to meet the requirements of production phase workers.

18.1.13 Mine Process Water Demand:

Two separate and distinct phases in the water management plan are envisaged as follows:

- The 1st phase involves mine dewatering (estimated at 14.5 million gallons to the 200m level), mine rehabilitation, and definition/delineation stoping block diamond drilling during which time the mine could experience a mine inflow of 180 USgpm. During this phase, the mine operations could be a small net consumer of water mostly as diamond drill water supply only.
- The 2nd phase involves dewatering the remainder of the mine workings (estimated at 7.5 million gallons) as contained between the 200m level to the 285m level, stope extraction, easterly exploratory drift excavation on the 250m level. This could consume a portion of the existing 180 gpm ground water inflow with the excess ground water reporting to the surface settling pond to be treated for arsenic removal, clarified in the polishing pond and finally discharged into the North Driftwood River.

There is sufficient ground water inflow (180 USgpm) into the underground workings, especially from the crown pillar area into the 100m level where this water could be trapped and contained for use as mine process make up water.

18.1.14 Potable Water

Potable water could be supplied in bottled form and surface sanitary shower, wash and toilet facility water could be supplied as potable water from the existing water well adjacent to Finn Road and the Clavos JV mine access road. This supply well is within an area unaffected by any mine activity with the potable water drawn tested routinely prior to use.

18.1.15 Fire Protection

Sprinkler systems, smoke sensors, fire alarm bells, and distributed firefighting resource equipment including proper operator training and mine rescue/emergency response team support could provide for fire protection on the Clavos JV property. Firefighting equipment could be comprised of a fire extinguisher to be placed at all stationary fire critical points, on all surface mobile equipment, key buildings could be equipped with water sprinklers and hydrants/hoses could be located outside buildings on surface.

Fire water could be distributed to all surface buildings and hydrants as a dry system with firefighting water stored in a reservoir to provide uninterrupted firefighting water sufficient for a minimum of 1.5 hours operation.

The underground mine could use the service process water distribution system to supplement the fire water supply as required. All underground mining equipment could be equipped with automatic and manually activated fire suppression systems and fire extinguishers.

The underground could be equipped with both portal skid mounted self-contained and permanent type refuge stations kept in close proximity to the active work places. A stench gas warning system could be installed in the fresh air ventilation system and the compressed air supply for emergency notification of underground personnel.

18.1.16 Mine Rescue Facility & Equipment

The mine rescue/emergency response team could be provided with a separate dedicated training and equipment storage facility for proper maintenance and training for their rescue breathing apparatus equipment.

There could also be available a trailer mounted foam generator to extinguish mobile and stationary equipment and/or vehicle fires underground or surface.

18.1.17 Explosives & Detonator Storage

There will not be any surface explosives or detonator magazines located on surface. Explosives and detonators can be delivered directly to the surface ramp portal, at a predetermined time, and delivered directly to the underground explosive and detonator magazines on the 100m level.

19.0 MARKET STUDIES AND CONTRACTS:

Markets for dore are readily available as gold markets are considered to be mature, with reputable smelters and refineries located throughout the world.

In addition to the preliminary nature of this PEA, the market for refined gold is considered to be large relative to the production from Clavos JV, and thus no research has been performed to enquire into specific potential purchasers of produced gold or gold bullion.

Traditionally, two year historical price averages are often taken as the basis for economic analyses. A long term gold price of US$1,500/ounce was used in the current PEA analysis.

The following is a summary of the industry forecasts:

- JP Morgan Commodity Research long term gold price USD$ 1500 – April 15, 2013
- For the fourth quarter of 2013, analysts surveyed by Bloomberg in November 2012 forecasted a level of US$1,925 per ounce of gold
- The bullion bank Scotia Mocatta forecasts a rising gold price in 2013 and would not be surprised to see a gold price above US$2,200/ounce
- The French Bank BNP Paribas estimated in November 2012 gold to reach US$1,675/ounce in 2012 and US$1,865 per ounce in 2013
- In November 2012, members of the London Bullion Market Association forecast a gold price of US$1,843 by September 2013
- The global bank HSBC predicts a very similar gold price of US$1,850 per ounce of gold in 2013
- In November 2012, Deutsche Bank updated its forecast on the gold price to US$2,000 by next year

An exchange rate of US$1.00 /CAD was utilized where currency conversions were required.

The transport of dore bars from the custom milling facility to the refinery of Johnson Matthey Limited, via armoured transportation rates (2009) are stated to be $850 per call for the first $500,000 plus $0.65 per $1,000 from $500,001 to $2,000,000 plus $0.47 per $1,000 from $2,000000,001 to $4,000,000. These rates are subject to an annual 4% escalation.

The smelting and refining of dore bars in accordance with Johnson Matthey Limited will be conducted at a cost of $0.55 per total ounce received with payable gold establish as 99.91%.

The author has reviewed these studies and acknowledges that the results support the assumptions in the PEA.

19.1 Contracts

Sage has assigned a gold supply contract which is summarized below.

This Gold Supply Agreement referenced as the Waterton Global Value dated August 19, 2012 is outlined below and applicable only to Sage's interest in the Clavos JV property.

Gold Purchase Right

- Seller hereby agrees to sell and the Buyer hereby has the option to purchase the Refined Gold during the Term subject to the terms and conditions of this Agreement ("Gold Purchase Right").

Terms of Purchase

- Purchase price per ounce for the Refined Gold shall be the lesser of (i) the average settlement price of gold on the LBMA, PM Fix (Bloomberg: Go1dLNPM Index) for the 30 trading day period immediately preceding the relevant Pricing Date, and (ii) the prior trading day settlement price of gold on the LBMA, PM Fix (Bloomberg: GoId LNPM Index) on the relevant Pricing Date, in each case, less the Applicable Gold Discount and less the applicable Transaction Cost (the "Purchase Price").

The Seller will ensure that any Refined Gold purchased by the Buyer from time to time shall be promptly credited to the Buyer's metals account at Johnson Matthey in Salt Lake City, Utah (or any other metals account otherwise designated by the Buyer from time to time, the "Buyer's Account"); for purposes of certainty, such Refined Gold shall be credited to the Buyer's Account no later than one (1) Business Day after the Buyer delivers the Purchase Notice to the Seller.

The Buyer will pay for the Refined Gold credited to the Buyer's Account at the Purchase Price from time to time on the Business Day after the Buyer's Account has been credited.

All payments under this Agreement shall be made in Dollars via wire transfer to the Seller's Account.

Term and Termination

- Agreement shall remain in full force and effect from its date of execution and shall continue to and until the later of (i) the date that is five (5) years after the Effective Date, and (ii) the date on which the Seller has sold or has offered to sell at least 120,000 ounces of Refined Gold to the Buyer pursuant to this Agreement (the "Term")

The author is unaware of any other known material contracts in place with the exception of the royalty agreements already discussed. The author acknowledges that contracts may be required and are not in place for; contract mining (if required), surface truck haulage, custom milling and long hole contract drilling.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT:

The general Clavos JV property area is characterized by swampy ground with patchy black spruce forest.

Land use in the area to the west of the deposit is predominantly residential with some hobby farming using Finn Road for access. Local forest companies manage the crown timber on the land south of the Clavos JV project with Timmins Forest Products having the harvesting rights in the area through their ownership of patented ground 2.5 km to the south of the Clavos JV deposit.

There exist residences on McIntosh Lake (located 2.1 km to the west) and also on Finn Road. The closest residence is located on Finn Road, immediately west of the project site. There is also a residence on the east side of Finn Road where it crosses North Driftwood Creek approximately 1.0 km upstream from the Clavos deposit. The Brigus Stock Mill is the closest downstream water user on North Driftwood Creek.

Outdoor recreation in the area is centered on Kettle Lakes Provincial Park, 4.0 km to the southwest, and on the Barbers Bay/Frederick House Lake watershed, 5.0 km to the northwest. Recreational activities also occur on Reid Lake, which is approximately 1.0 km south of the southern extent of the proposed haul road between the Clavos Property and the Stock Mill. The only recreation activity proximal to the project is seasonal hunting. No other recreational use has been documented or noted on or near to the Clavos JV site.

20.1 Terrestrial Features:

Clavos JV lies in a relatively flat area bounded to the north and east by the North Driftwood Creek and to the west by Finn Road. The landscape in this area alternates between a dry upland mixed forest and a wetter, conifer-dominated forest. To the west and south of Finn Road, the large Frederick House sandy esker runs in a generally north-south direction. This esker contains many kettle lakes (including Kettle Lakes Provincial Park) and upland forests dominated by jack pine (Pinusbanksiana).

The landscape around the Clavos JV site supports a variety of wildlife. No provincially rare, threatened or endangered species were reported nor observed on the Clavos JV property.

20.2 Fisheries Information:

The regional Ministry of Natural Resources biologist (Golder, 2004) indicated that North Driftwood Creek is a cool water fishery containing walleye, northern pike, yellow perch, suckers and a variety of minnows.

20.3 Surface Drainage Conditions:

Clavos JV is located within the North Driftwood Creek watershed, which is situated southeast of Frederick House Lake. McIntosh Lake is the largest of a series of lakes in the headwaters of the

watershed. Eskers and esker lakes in the headwaters of the watersheds affect the flow conditions in the creek, especially in its upper and middle portions. The presence of lakes in the headwaters of the watershed results in flow regulation, (attenuation of peak flows and augmentation of dry season flows).

20.4 Flow Conditions

The average annual flow in the North Driftwood Creek at the mine water effluent discharge location was estimated to be 0.39 m3 *Is,* and the 7Q20 flow in North Driftwood Creek at the mine water effluent discharge location was estimated to be 0.04 m3/s (Golder 2004).

20.5 Groundwater

Nine groundwater piezometers have been installed on site, six of which are still being actively monitored. Generally, with the exception of iron, all parameter concentrations measured were below the Ontario Drinking Water Quality Objectives (ODWQOs). Similarly parameter concentrations are below the Provincial Water Quality Objective (PWQOs) with the exception of iron, and occasionally copper and arsenic.

Monitoring results from underground mine water sampled from the surface of the ventilation raise, show elevated arsenic levels approaching the discharge limits of the environmental permit.

Impacts from mine water discharge are controlled by treatment with ferric sulfate to precipitate arsenic prior to discharge.

20.6 Domestic Water Wells

An inventory of domestic water wells in the vicinity of Clavos JV was completed as based on a review of MOE water well records and on a drive-by survey of houses and cottages on Finn Road (Golder 2004). The nearest well is located approximately 750m up-gradient (west), of the project site. Past discussions with the residents indicated that there have been no complaints regarding groundwater supply or quality. There are no drinking water wells located immediately north-east, and down-gradient, of the Clavos JV site.

20.7 Surface Water Quality

Surface water quality data upstream and downstream of Clavos JV has been collected since 2002. The water is calcium-magnesium-carbonate water with high hardness (> 116 mg/L as CaC03). All parameter concentrations measured were less than the existing Provincial Water Quality Objectives (PWQOs).

20.8 Potential Surface Water Impacts

Historic discharge from the Clavos JV mine site has generally been in compliance with existing regulations and environmental permit requirements. Occasional exceedances have been noted in

terms of total suspended solids (TSS), un-ionized ammonia and pH. The effluent has not been toxic to rainbow trout or *Daphnia* magna during discharges. Two receiving water studies have been completed under the Environment Canada Environmental Effects Monitoring (EEM) program. To date, these studies have not indicated any impact of mine discharge to the receiving waters.

20.9 Present Environmental Management Program:

Clavos JV is subject to federal and provincial environmental regulations for mines. Discharge is required to be monitored and reported under the federal Mineral Mine Effluent Regulations (MMER), Ontario Regulation 560/94 (MISA), as well as Environmental Compliance Approval (ECA) No. 0122-6U7MU6.

Environmental effects monitoring (EEM) is required under the MMER. These monitoring requirements are meant to identify effects, if any, on fish or fish habitat which may be caused by mine effluents. Clavos JV has submitted a Terms of Reference for a third study to be conducted in 2013.

20.10 Mine Effluent:

No tailings have been nor are planned to be produced on site. All previous production was processed at the Stock Mill, and all future processing is yet to be determined, therefore the water requiring treatment is limited to site run-off and mine water. The Clavos Mine began discharging treated effluent to the North Driftwood Creek in 2004. The mine effluent discharge is subject to the MMER, as well as Certificate-of-Approval (No. 0122-6U7MU6) issued by the Ministry of Environment.

Ditches surrounding the ore pad and waste rock dump collect seepage and runoff water. This water, combined with the mine water, is managed through the Mine Water Treatment System (MWTS) consisting of a sedimentation pond with ferric sulphate addition to control pH and precipitate metals and includes a polishing pond for final clarification of the effluent prior to discharge.

Release of effluent into North Driftwood Creek is non-point with simple overland flow. The regulatory final discharge point located upstream of the polishing area is referred to as Station C5. The polishing pond is located between the sedimentation pond and North Driftwood Creek and consists of a vegetated 15.5 ha wetland. A new water control structure (Flume) and measuring/recording station has received approval from the Ministry of Environment. The environmental approval provides for the use of CO2 for pH control if needed.

Below is the total volume of treated effluent discharged over the period 2004 to 2012. In 2012, approximately 27,862 m^3 of treated effluent were discharged from the site, all over a nine-day period in late March.

Table 20.1 - CLAVOS MINE YEARLY WATER DISCHARGE VOLUMES - 2004 To 2012

Year	Total Volume (m^3) of Effluent Discharged
2004	95,911
2005	299,588
2006	526,937
2007	199,340
2008	No Discharge
2009	No Discharge
2010	No Discharge
2011	No Discharge
2012	27,862

20.11 Mine Effluent Chemistry:

Key mine effluent data for the period of March 2004 to 2007 are summarized in Table 20.1, along with appropriate regulatory guidelines. The effluent characterization of the brief discharge period in March 2012 is provided in Table 20.2. Data specific to EEM effluent characterization studies required by the *MMER* are reported to Environment Canada.

A small number of exceedances of Certificate of Approval (C-of-A) and MMER guidelines occurred during the 2004 to 2007 operational discharge period. The pH was recorded below the guideline of 6.0 on seven occasions and TSS exceeded the grab limit of 30 mg/L on two occasions (Golder 2008, Appendix A). Generally, all other parameters have been within the C-of-A and MMER guidelines.

Mine effluent has not been acutely toxic to Rainbow Trout or *Daphnia magna* for any of the testing that has been completed to date.

Table 20.2 - MINE WATER DISCHARGE RESULTS FROM 2004 TO 2007

				2004				2005				2006				2007			
Parameter	**Units**	**PWQO**	**MMER**	**Mean**	**Min**	**Max**	**S.D.**	**Mean**	**Min**	**Max**	**S.D.**	**Mean**	**Min**	**Max**	**S.D.**	**Mean**	**Min**	**Max**	**S.D.**
Physiochemical																			
Temperature	ºC	--	--	4.33	1.00	15.60	4.56	7.72	0.00	24.00	7.38	9.25	0.00	25.00	7.92	0.89	0.18	8.02	1.29
pH	pH	--	>6.0 - <9.5	6.08	5.60	6.49	--	7.08	6.40	7.72	0.35	7.60	6.50	8.35	0.27	7.61	5.63	8.59	0.34
Alkalinity	mg/L	--	--	--	--	--	0.02	--	--	--	--	222.75	122.00	287.00	43.63	235.33	118.00	285.00	47.31
Total Hardness	mg/L	--	--	--	--	--	--	--	--	--	--	281.85	71.60	437.00	83.88	268.49	148.00	346.00	58.02
Conductivity	µS/cm	--	--	--	--	--	--	--	--	--	--	559.27	378.00	637.00	73.73	555.95	316.00	699.00	120.77
Total Suspended Solids	mg/L	--	15	2.57	1.10	10.80	0.25	11.67	<1	164.00	29.38	3.38	<1	19.70	2.89	3.22	1.10	9.50	2.29
Major Ions																			
Dissolved Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	6.71	6.60	6.91	0.18	5.97	0.43	8.47	1.97
Dissolved Sulphate	mg/L	--	--	--	--	--	--	--	--	--	--	27.33	21.00	34.20	6.62	19.47	11.10	29.30	4.82
Nutrients																			
Dissolved nitrite	mg/L	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	N/A	0.04	<0.01	0.04	N/A
Dissolved nitrate	mg/L	--	--	--	--	--	--	--	--	--	--	15.57	14.10	17.10	1.50	9.18	0.04	15.60	4.63
Total Ammonia	mg/L	--	--	14.04	2.67	27.10	0.10	4.27	<0.07	18.20	5.45	1.43	<0.07	3.22	0.97	0.31	<0.07	0.65	0.23
Dissolved Ammonia	mg/L	20	--	0.00	0.00	0.01	8.03	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
Total Phosphorus	µg/L	--	--	--	--	--	--	--	--	--	--	0.07	<0.02	0.07	0.00	0.15	0.04	0.74	0.15
Total Kjeldahl Nitrogen	µg/L	--	--	--	--	--	--	--	--	--	--	0.97	0.80	1.30	0.29	1.00	0.30	2.50	0.55
Metals																			
Total Arsenic	µg/L	100 (5)	500	0.02	<0.005	0.06	--	0.08	0.02	0.21	0.03	0.21	0.11	0.39	0.05	0.24	0.08	0.42	0.11
Total Cadmium	µg/L	(0.1-0.5)[a]	--	<0.002	<0.002	<0.002	0.02	0.00	<0.0001	0.00	0.00	0.00	<0.001	0.00	0.00	0.00	<0.0005	0.00	0.00
Total Copper	µg/L	(1-5)[b]	--	0.01	<0.005	0.01	--	0.01	<0.005	0.01	0.00	0.03	<0.005	0.10	0.04	0.00	<0.0005	0.01	0.00
Total Iron	µg/L	300	--	0.10	0.04	0.44	0.00	0.07	0.02	0.65	0.10	0.03	0.01	0.10	0.02	0.02	0.01	0.05	0.02
Total Nickel	µg/L	25	500	<0.003	<0.003	<0.003	0.00	0.00	<0.001	0.05	0.01	0.00	<0.001	0.05	0.01	0.00	0.00	0.01	0.00
Total Lead	µg/L	(1-5)[c]	200	0.01	<0.005	0.01	--	0.01	<0.005	0.01	0.00	0.01	<0.005	0.01	0.00	0.01	0.01	0.01	--
Total Zinc	µg/L	30(20)	500	0.05	0.00	0.09	2.94	0.02	0.00	0.05	0.01	0.01	0.00	0.02	0.00	0.01	0.00	0.01	0.00
Radionuclides																			
Radium-226	Bq/L	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	N/A	--	--	--	--
Acute Toxicity																			
96 hr.- Rainbow Trout[d]		--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48 hr.- Daphnia[d]		--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.00	20.00	6.01	0.00	0.00	0.00	0.00

Notes:

PWQO - Provincial Water Quality Objectives

MMER - Metal Mining Effluent Regulations

a - At a hardness of 0 to 100 mg/L ($CaCO_3$) the interim PWQO for cadmium is 0.1 µg/L, at a hardness of > 100 mg/L the interim PWQO is 0.5 µg/L.

b - At a hardness value of 0 to 20 mg/L ($CaCO_3$) the interim PWQO for copper is 1.0 µg/L, at a hardness value of > 20 mg/L the interim PWQO for copper is 5 µg/L.

c - At a hardness value of < 30 mg/L the interim PWQO value for lead is 1.0 µg/L, at a hardness of 30 to 80 mg/L the interim PWQO is 3 µg/L, at a hardness value of > 80 mg/L the interim PWQO is 5 µg/L.

d - Tests are pass/fail based on 50% mortality

Table 20.3 - MARCH 2012 MINE WATER DISCHARGE RESULTS

Parameter	Units	C of A Daily Limit	MMER Daily Limit	19-Mar-12	22-Mar-12	23-Mar-12	27-Mar-12
Physiochemical							
Temperature	°C				0.9		0.3
pH	pH	>6.0 - <9.5	>6.0 - <9.5		7.1		6.9
Dissolved Oxygen	mg/l				9.38		8.66
Alkalinity	mg/L				28.3		60.1
Total Hardness (as CaCO3)	mg/L				61.8		161
Conductivity	µS/cm				153		375
Total Suspended Solids	mg/L	30	30	<1	1	1.5	1
Major Ions							
Chloride	mg/L				0.44		0.96
Sulphate	mg/L				31.2		126
Nutrients							
Nitrite (as N)	mg/L				<0.03		<0.03
Nitrate (as N)	mg/L				0.28		1.5
Ammonia (as N)	mg/L				0.06		0.039
Un-Ionized Ammonia	mg/L	0.11			<0.002		<0.002
Total Phosphorus	mg/L				0.0261		0.0276
Total Kjeldahl Nitrogen	mg/L				1.9		0.97
Dissolved Metals							
Dissolved Aluminum	mg/L				0.0949		0.0412
Dissolved Arsenic	mg/L				0.0192		0.0248
Dissolved Cadmium	mg/L				<0.0001		<0.0001
Dissolved Calcium	mg/L				13.5		35.6
Dissolved Chromium	mg/L				<0.001		0.0011
Dissolved Cobalt	mg/L				<0.0001		0.00011
Dissolved Copper	mg/L				0.0018		0.0013
Dissolved Iron	mg/L				0.07		0.06
Dissolved Lead	mg/L				<0.001		<0.001
Dissolved Mercury	mg/L				<0.0001		<0.0001
Dissolved Molybdenum	mg/L				<0.001		<0.001
Dissolved Nickel	mg/L				0.0023		0.0025
Dissolved Strontium	mg/L						0.266
Dissolved Thallium	mg/L						<0.0001
Dissolved Zinc	mg/L				0.0047		0.006
Total Metals							
Total Aluminum	mg/L				0.156		0.0605
Total Arsenic	mg/L	0.6	1.0		0.0185		0.0228
Total Cadmium	mg/L				<0.0001		<0.0001
Total Calcium	mg/L				13.9		39.4
Total Chromium	mg/L				<0.001		0.0083
Total Cobalt	mg/L				<0.0001		0.00022
Total Copper	mg/L	0.02	0.6		0.0018		0.0025
Total Iron	mg/L				0.091		0.339
Total Lead	mg/L	0.14	0.4		<0.001		<0.001
Total Mercury	mg/L				<0.0001		<0.0001
Total Molybdenum	mg/L				<0.001		0.0035
Total Nickel	mg/L	0.14	1.0		0.0021		0.0032
Total Strontium	mg/L						0.284
Total Thallium	mg/L						<0.0001
Total Zinc	mg/L	0.16	1.0		0.0033		0.0074
Total Zirconium	mg/L						
Radionuclides							
Radium-226	Bq/L				<0.01		<0.01

20.12 Waste Rock Stockpile

At the Clavos JV mine site, there exists a waste rock pile of approximately 180,000m^3. This rock is classified as being non-acid generating, however CAN leach arsenic. The waste pile general area is equipped with a perimeter seepage collection ditch which reports to the sediment settling pond where it is treated and then reports to the polishing pond.

A Waste Rock Management Plan has been developed and implemented at the Clavos JV mine site to monitor and control the use of waste rock from this stockpile.

Twenty four (24) individual rock samples were recently collected from the waste stockpile during October, 2012, at depths reaching to approximately 16 feet vertically, with these samples delivered to an accredited laboratory for arsenic analysis based upon the TCLP (Toxicity Characteristic Leaching Procedure) testing methods. The majority of these samples were found to contain < 20 µg/kg arsenic, however, five (5) of the twenty-four (24) samples reported arsenic levels in the leachate of between 20 to 50 µg/kg arsenic. Although these levels remain very low, monitoring of the waste pile will continue on an on-going basis.

20.13 Reclamation and Closure

In July, 2012, St. Andrew Goldfields submitted an updated Closure Plan to the Ministry of Northern Development and Mines (MNDM), along with a financial assurance (Reclamation Bond) in the amount of $298,246 (Letter of Credit). This amended Closure Plan was accepted by the MNDM Director in October, 2012.

In August, 2012, Clavos JV provided the necessary documentation to the MNDM for transfer of the Closure Plan to Clavos JV. The MNDM Director acknowledged the transfer of the Closure Plan and financial assurance from St. Andrew Goldfields to Clavos JV in October, 2012.

21.0 CAPITAL AND OPERATING COSTS

21.1 Capex Cost Estimate

Capital cost estimates (CAPEX) have been developed for all aspects of the proposed Clavos JV work programs as discussed in this PEA Report, less those items as excluded in the Basis of Estimate summary below. Estimates were for the most part based upon current market prices for major items and/or allowances as based upon the engineering experience and judgment of the author of this PEA.

Capital equipment selection was based upon good used and rebuilt mobile equipment supplemented with new equipment when used/rebuilt was not readily available, and excluded were those pieces of equipment already owned by Clavos JV.

The accuracy of this CAPEX cost estimate is +/- 50% which is considered to be realistic as to whether to proceed to the next phase of construction, exploration, pre-stope development, evaluation and Pre-Feasibility Study**.** All costs presented are current at the time of writing, and no provision has been made for inflation, insurance, duties, nor interest and financing charges.

Currency of the cost estimate is CDN$, unless otherwise stated.

Initial capital costs are estimated at $14,055,617 with $8,240,340 anticipated to be incurred in Year 1, and $3,821,352 anticipated to be incurred in Year 2. Contingencies of $2,549,592 have been included in the capital expenditure estimate.

The PEA includes a large sustaining capital allocation which was incorporated into the model to support underground development, diamond drilling and equipment. These costs could be used to increase the confidence and further define the resource blocks.

Sustaining capital is estimated to be $21,075,471. It is anticipated this capital will be funded from existing cash flow starting in Year 2. A summary of estimated capital costs (CAPEX) is provided below.

Capital Summary		
Initial Capital		
	Mine Rehabilitation	3,007,385
	Underground Mining Equipment	5,531,346
	Surface Infrastructure	2,967,294
	Contingences	2,549,592
		$ 14,055,617
Sustaining Capital (to be funded from existing cash flow)		
	Primary Development	4,891,925
	Exploratory Diamond Drilling	2,445,962
	Additional Exploration	13,737,583
		$ 21,075,470
	Total Capital Expenditures	$ 35,131,087

Below is a summary of the phasing of the capital expenditures:

Capital Summary	Year 1	Year 2	Year 3	Other years	Total
			Millions		
Initial Capital costs per year (including 20% contingencies)	8,204,340	3,821,352	736,372	1,293,553	14,055,617
Sustaining Capital (to be funded through cash flow)	**Year 1**	**Year 2**	**Year 3**	**Other years**	**Total**
			Millions		
Primary Development	-	494,533	552,325	3,845,067	4,891,925
Additional	-	1,730,866	2,670,630	9,336,088	13,737,583
Exploratory Diamond Drilling	-	247,267	420,394	1,778,302	2,445,962
Total Capital including sustaining capital costs	-	2,472,665	3,643,349	14,959,457	21,075,471
				Total	35,131,087

21.1.1 Basis of Cost Estimation

The Basis of Estimate was prepared utilizing either published market pricing for certain major pieces of equipment and/or by allocating an allowance for other major and minor items listed, and included data based upon the author's experience with current cost estimates for similar mining operations.

As stated above, the accuracy of the CAPEX construction cost estimation is +/50% which is considered to be acceptable for this study**.**

More granular Sensitivity analysis has been included in Section 22.

21.1.2 Cost Centres Not Included

The following work program cost centre estimates were excluded from the CAPEX estimates prepared:

- Financing costs other than leasing costs to support capital construction
- Property and/or land acquisition costs
- Debenture and loan repayments due to shareholders and investors
- Escalation, inflation and currency fluctuation
- Expenses for equipment, materials and services due to changes in project schedule
- Labour disputes
- Construction delays (force majeure) outside the control of Clavos JV

21.1.3 Project Indirect Costs

Indirect cost estimates and allowances have been included for each of the items outlined below:

- Mobilization, set up, tear down and demobilization

- Construction related work platforms, electrical power, lighting, potable water, sewage, communications, garbage disposal, laydown area
- Mobile construction cranes, equipment tool rental
- QA/QC, survey control, first aid, and training
- Personnel transportation to/from site, overtime, safety, security and freight

21.1.4 Allowances

The allowances indicated below were included as allowable percentages (%) for related equipment, materials and services as provided on similar construction programs:

- 1st Fills 0.7%
- Freight & Logistics 1.0%
- Capital Spares 1.5%
- Commissioning & Start-up 0.4%
- Project Management 2.5%
- Engineering 4.7%

Allowances have been incorporated into the initial mine schedule plan to accommodate reduced productivity during the initial start-up phase underground. Mine planning has also included sufficient time, early in the mine life, to complete the required definition diamond drilling and pre-stope development.

Table 21.3 - MINE REHABILITATION CAPITAL COST ESTIMATE

CLAVOS JV

DESCRIPTION	MODEL	QTY	UNIT COST	USED	FINAL COST	YEAR-01		YEAR-02		YEAR-03		YEAR-04		YEAR-05		YEAR-06		YEAR-07	
			$	FACTOR	$	QTY	$	QTY	$	QTY	$	QTY	$	QTY	$	QTY	$	QTY	$
UND'G VENTILATION																			
PRIMARY UND'G FRESH AIR VENTILATION CAPEX																			
Surface Fan House																			
Civil Works	Concrete (900 Ft^2)	900	$ 75	New	$ 67,500	1.0	$ 67,500												
Mechanical & Electrical Works	Allowance (Ft2)	1.0	$ 25	New	$ 22,500	1.0	$ 22,500												
Mine Air Propane Heater	??? BTU	1.0	Owned	Used	$ 4,500	1.0	$ 4,500												
48" Dia. Axial Fans & Control/Switchgear	200 Hp	2.0	$ 45,000	New	$ 90,000	2.0	$ 90,000												
Propane Farm	Allowance	1.0	$ 20,000	Contract Out	$ 20,000	1.0	$ 20,000												
QA/QC Engineering & Commissioning Test Work	Allowance	1.0	$ 12,500	New	$ 12,500	1.0	$ 12,500												
SUB TOTAL PRIMARY FRESH AIR VENTILATION					$ 217,000		$ 217,000		$ -		$ -		$ -		$ -		$ -		$ -
UND'G PRIMARY EXHAUST VENTILATION																			
40" Dia. Axial Fans & Control/Switchgear	150 Hp	2.0	$ 15,000	New	$ 30,000	1.0	$ 15,000	1.0	$ 15,000										
Ventilation Control Damper	Construct	2.0	$ 17,500	New	$ 35,000	2.0	$ 35,000												
QA/QC Engineering & Commissioning Test Work	Allowance	1.0	$ 12,500	New	$ 12,500	0.5	$ 6,250	0.5	$ 6,250										
SUB TOTAL PRIMARY EXHAUST VENTILATION					$ 77,500		$ 56,250		$ 21,250		$ -		$ -		$ -		$ -		$ -
UND'G SECONDARY VENTILATION																			
36" Dia. Axial Fans & Control/Switchgear	75 Hp	4.0	$ 6,500	New	$ 26,000	2.0	$ 13,000	2.0	$ 13,000										
SUB TOTAL SECONDARY VENTILATION					$ 26,000		$ 13,000		$ 13,000		$ -		$ -		$ -		$ -		$ -
UND'G AUXILLARY VENTILATION																			
24" Dia. Axial Fans & Control/Switchgear	50 Hp	6.0	$ 4,500	New	$ 27,000	2.0	$ 9,000	2.0	$ 9,000	2.0	$ 9,000								
SUB TOTAL AUXILLARY VENTILATION					$ 27,000		$ 9,000		$ 9,000		$ 9,000		$ -		$ -		$ -		$ -
150mL INTERNAL FRESH AIR RAISE																			
Ventilation Control Damper	Construct	2.0	$ 15,000	New	$ 30,000	2.0	$ 30,000												
Install & Commission Fan	Allowance	1.0	$ 4,500	New	$ 4,500	1.0	$ 4,500												
SUB TOTAL 150mL INTERNAL VENTILATION RSE					34,500		$ 34,500		$ -		$ -		$ -		$ -		$ -		$ -
SUB TOTAL UND'G VENTILATION					$ 382,000		$ 329,750		$ 43,250		$ 9,000		$ -		$ -		$ -		$ -
MINE DEWATERING																			
PHASE 01 (Surface To 150mL)																			
Mobilization	see Table xx-x	1.0	$ 12,742		$ 12,742	1.0	$ 12,742												
Set Up	see Table xx-x	1.0	$ 68,031		$ 68,031	1.0	$ 68,031												
Direct Operational Cost	see Table xx-x	1.0	$ 275,926		$ 275,926	1.0	$ 275,926												
Indirect Operational Cost	see Table xx-x	1.0	$ 104,663		$ 104,663	1.0	$ 104,663												
SUB TOTAL MINE DEWATERING - PHASE 01					$ 461,362		$ 461,362		$ -		$ -		$ -		$ -		$ -		$ -

PHASE 02 (150mL to 285mL)																			
Mobilization	see Table xx-x	1.0	$ 10,226		$ 10,226	1.0	$ 10,226												
Set Up	see Table xx-x	1.0	$ 35,799		$ 35,799	1.0	$ 35,799												
Direct Operational Cost	see Table xx-x	1.0	$ 96,544		$ 96,544	1.0	$ 96,544												
Indirect Operational Cost	see Table xx-x	1.0	$ 50,584		$ 50,584	1.0	$ 50,584												
SUB TOTAL MINE DEWATERING - PHASE 02					$ 193,153		$ 193,153		$ -		$ -		$ -		$ -		$ -		$ -
SUB TOTAL MINE DEWATERING					$ 654,515		$ 654,515		$ -		$ -		$ -		$ -		$ -		$ -
EMERGENCY EGRESS RAISE REHABILITATION																			
Clean, Refurbish, Minor Rock Work, Lighting	Allowance (m)	170	$ 150	Check	$ 25,500	150.0	$ 25,500												
SUBTOTAL EMERGENCY EGRESS RAISE REHAB					$ 25,500		$ 25,500												
UND'G MINE REHABILITATION (SURFACE TO 285mL)																			
Direct Operational Cost	see Table xx-x	1.0	$ 622,727		$ 622,727	1.0	$ 622,727												
Indirect Operational Cost	see Table xx-x	1.0	$ 254,430		$ 254,430	1.0	$ 254,430												
SUB TOTAL MINE REHABILITATION					$ 877,157		$ 877,157		$ -		$ -		$ -		$ -		$ -		$ -
MINE WATER DISCHARGE STATION																			
Conical Settling Sump																			
Excavation	80' Raise & Finger	175 m^3	$ 208		$ 36,400			175 m^3	$ 36,400										
Civil Work	Allowance	1.0	$ 36,400		$ 36,400			1.0	$ 36,400										
Clear Water Sump																			
Excavation	5m x 5m x 20m	625 m^3	$ 208		$ 130,000			625 m^3	$ 130,000										
Civil Work	Allowance	1.0	$ 36,400		$ 36,400			1.0	$ 36,400										
Pump Station																			
Excavation	5m x 5m x 4m	125 m^3	$ 208		$ 26,000	125 m^3	$ 26,000												
Civil Work	Allowance	1.0	$ 18,500		$ 18,500	1.0	$ 18,500												
Piping, Valves, Fittings	Allowance	ea	$ 14,000	New	$ 14,000	1.0	$ 14,000												
Transformer, MCC & Switch Gear	Allowance	300 kVa	$ 25,000	New	$ 25,000	300 kVa	$ 25,000												
SUB TOTAL - MINE WATER DISCHARGE STATION					$ 322,700		$ 83,500		$ 239,200		$ -		$ -		$ -		$ -		$ -
DIRECT CAPITAL COST					$ 2,261,872		$ 1,970,422		$ 282,450		$ 9,000		$ -		$ -		$ -		$ -
DIRECT CAPITAL COST - CUMULATIVE							$ 1,970,422		$ 2,252,872		$ 2,261,872		$ 2,261,872		$ 2,261,872		$ 2,261,872		$ 2,261,872
INDIRECT CAPITAL COSTS																			
CONSTRUCTION INDIRECTS																			
First Fills			0.7%		$ 15,833	0.7%	$ 13,793	0.7%	$ 1,977	0.7%	$ 63	0.7%	$ -	0.7%	$ -	0.7%	$ -	0.7%	$ -
Freight & Logistics			1.0%		$ 22,619	1.0%	$ 19,704	1.0%	$ 2,825	1.0%	$ 90	1.0%	$ -	1.0%	$ -	1.0%	$ -	1.0%	$ -
Capital Spares			1.5%		$ 33,928	1.5%	$ 29,556	1.5%	$ 4,237	1.5%	$ 135	1.5%	$ -	1.5%	$ -	1.5%	$ -	1.5%	$ -
Commissioning & Startup			0.4%		$ 9,047	0.4%	$ 7,882	0.4%	$ 1,130	0.4%	$ 36	0.4%	$ -	0.4%	$ -	0.4%	$ -	0.4%	$ -
Project Mng't G & A			2.5%		$ 56,547	2.5%	$ 49,261	2.5%	$ 7,061	2.5%	$ 225	2.5%	$ -	2.5%	$ -	2.5%	$ -	2.5%	$ -
Engineering			4.7%		$ 106,308	4.7%	$ 92,610	4.7%	$ 13,275	4.7%	$ 423	4.7%	$ -	4.7%	$ -	4.7%	$ -	4.7%	$ -
INDIRECT CAPITAL COST					$ 244,282		$ 212,806		$ 30,505		$ 972		$ -		$ -		$ -		$ -
DIRECT AND INDIRECT CAPITAL COST					$ 2,506,154		$ 2,183,228		$ 312,955		$ 9,972		$ -		$ -		$ -		$ -
CONTINGENCY			20%		$ 501,231		$ 436,646		$ 62,591		$ 1,994		$ -		$ -		$ -		$ -
TOTAL CAPITAL COST					$ 3,007,385		$ 2,619,873		$ 375,546		$ 11,966		$ -		$ -		$ -		$ -
CUMULATIVE							$ 2,619,873		$ 2,995,419		$ 3,007,385		$ 3,007,385		$ 3,007,385		$ 3,007,385		$ 3,007,385

Table 21.4 - UNDERGROUND MINING EQUIPMENT CAPITAL COST ESTIMATE

CLAVOS JV

DESCRIPTION	MODEL	QTY	EQUIPMENT CONDITION	NEW COST $	UNIT COST $	TOTAL COST $	YEAR-01 QTY	YEAR-01 $	YEAR-02 QTY	YEAR-02 $	YEAR-03 QTY	YEAR-03 $	YEAR-04 QTY	YEAR-04 $	YEAR-05 QTY	YEAR-05 $	YEAR-06 QTY	YEAR-06 $	YEAR-07 QTY	YEAR-07 $
MOBILE UND'G EQUIPMENT																				
PRIMARY PRODUCTION EQUIPMENT																				
2 Boom Pneumatic Jumbo	MJM-20-B	1.0	Rebuilt		$ 203,500	$ 203,500	1.0	$ 203,500												
2 Boom E/H Jumbo	Atlas Copco Rocket	1.0	Rebuilt		$ 600,000	$ 600,000	1.0	$ 600,000												
JCI 350 Diesel Scooptram	JCI-350	2.0	Rebuilt		$ 228,000	$ 456,000	1.0	$ 228,000	1.0	$ 228,000										
JCI-250 Diesel Scooptram	JCI-250	1.0	Rebuilt		$ 150,000	$ 150,000	1.0	$ 150,000												
JCI-125 Diesel Scooptram	JCI-125	7.0	Rebuilt		$ 108,000	$ 756,000	2.0	$ 216,000	3.0	$ 324,000	2.0	$ 216,000								
JDT-420 Und'g Diesel Haul Truck	Jarvis Clark	2.0	Rebuilt		$ 210,000	$ 420,000	1.0	$ 210,000	1.0	$ 210,000										
JDT-415 Und'g Diesel Haul Truck	Jarvis Clark	1.0	Rebuilt		$ 186,000	$ 186,000			1.0	$ 186,000										
Mobile Hydraulic Rock Breaker	Walden Eqp't	1.0	New		$ 140,000	$ 140,000			1.0	$ 140,000										
Boart L.H. Drill Buggy	Boart	2.0	Used		$ 75,000	$ 150,000	1.0	$ 75,000	1.0	$ 75,000										
JDT-41SL Mobile X-Lift	Sandvik DS410	2.0	Rebuilt		$ 85,000	$ 170,000	2.0	$ 170,000												
SUB TOTAL - PRIMARY PRODUCTION EQP'T						**$ 3,231,500**		**$ 1,852,500**		**$ 1,163,000**		**$ 216,000**		**$ -**		**$ -**		**$ -**		**$ -**
PRIMARY SUPPORT EQUIPMENT																				
Grader (Rebuilt)	Cat 146-G	1.0	Rebuilt		$ 135,000	$ 135,000	1.0	$ 135,000												
Front End Loader	Cat 950	1.0	Rebuilt		$ 75,000	$ 75,000	1.0	$ 75,000												
Flatbed Truck with Hiab (Used)	M-60	1.0	Used		$ 155,000	$ 155,000	1.0	$ 155,000												
Maintenance Vehicle	Ford Tractor	1.0	Rebuilt		$ 95,000	$ 95,000	1.0	$ 95,000												
Personnel Carrier	Kawasaki Mule	1.0	New		$ 18,000	$ 18,000	1.0	$ 18,000												
Supervisor Vehicle	Kawasaki Mule	5.0	New		$ 18,000	$ 90,000	1.0	$ 18,000	1.0	$ 18,000	1.0	$ 18,000			1.0	$ 18,000	1.0	$ 18,000		
Ambulance (4WD, u/g capable)	Toyota 4WD	1.0	Rebuilt		$ 45,000	$ 45,000	1.0	$ 45,000												
Grout Pump & Mix Tank	Peronni	1.0	Rebuilt		$ 35,000	$ 35,000	1.0	$ 35,000												
Geology	Kawasaki Mule	4.0	New		$ 18,000	$ 72,000	1.0	$ 18,000	1.0	$ 18,000	1.0	$ 18,000			1.0	$ 18,000				
Engineering	Kawasaki Mule	3.0	New		$ 18,000	$ 54,000	1.0	$ 18,000			1.0	$ 18,000					1.0	$ 18,000		
SUB TOTAL - PRIMARY SUPPORT EQP'T						**$ 774,000**		**$ 612,000**		**$ 36,000**		**$ 54,000**		**$ -**		**$ 36,000**		**$ 36,000**		**$ -**
PRIMARY MINING EQUIPMENT																				
Jackleg/Stoper	Secan	30	New		$ 3,500	$ 105,000	20	$ 70,000	10	$ 35,000										
30 Ton Pneumatic Winch	Pikrose	1.0	Used		$ 40,000	$ 40,000	1.0	$ 40,000												
2 Drum 20 Hp Pneumatic Slusher/Scraper	Joy	3.0	Used		$ 25,000	$ 75,000	2.0	$ 50,000	1.0	$ 25,000										
2,000# Pneumatic Tugger	Joy	12	Used		$ 2,500	$ 30,000	6.0	$ 15,000	6.0	$ 15,000										
SUB TOTAL - PRIMARY MINING EQP'T						$ 250,000		$ 175,000		$ 75,000		$ -		$ -		$ -		$ -		$ -
SUB TOTAL - MOBILE UND'G EQUIPMENT						4,255,500		$ 2,639,500		$ 1,274,000		$ 270,000		$ -		$ 36,000		$ 36,000		$ -
CUMULATIVE								$ 2,639,500		$ 3,913,500		$ 4,183,500		$ 4,183,500		$ 4,219,500		$ 4,255,500		$ 4,255,500

SAGE GOLD – CLAVOS "JV"

FIXED UND'G EQUIPMENT																				
COMPRESSED AIR																				
Rotary Screw Compressor (750 cfm)	Sullair	3.0	Lease		$ 108,000	$ 324,000	2.0	$ 108,000	1.0	$ 162,000		$ 54,000		$ -		$ -		$ -		$ -
MINE DEWATERING																				
15 Hp Flyght Submersible Pump	15 BIBO	4.0	New		$ 3,000	$ 12,000	2.0	$ 6,000	1.0	$ 3,000	1.0	$ 3,000								
30 Hp Flyght Submersible Pump	30 BIBO	3.0	New		$ 6,000	$ 18,000	1.0	$ 6,000	1.0	$ 6,000	1.0	$ 6,000								
58 Hp Flyght Submersible Pump	58 BIBO	4.0	New		$ 9,500	$ 38,000	2.0	$ 19,000	1.0	$ 9,500	1.0	$ 9,500								
Valves, Elbows, Fittings & Pipe	allowance	35%	New		$ 23,800	$ 23,800		$ 10,850		$ 6,475		$ 6,475								
SUB TOTAL - MINE DEWATERING						$ 91,800		$ 41,850		$ 24,975		$ 24,975		$ -		$ -		$ -		$ -
SURFACE BACK FILL PLANT																				
Prepare Stockpile Area	allowance	1.0	New		$ 7,500	$ 7,500	1.0	$ 7,500												
Hopper & 30" Load Out Conveyor	30" Trough Conv	60'	Used		$ 12,000	$ 12,000	1.0	$ 12,000												
10' Dia. Agitator Tank	Wood Mill Tank	1.0	Used		$ 8,000	$ 8,000	1.0	$ 8,000												
40 Ton Cement Silo		1.0	Used		$ 25,000	$ 25,000	1.0	$ 25,000												
30 Hp Flyght Submersible Pump	30 BIBO	1.0	New		$ 6,000	$ 6,000	1.0	$ 6,000												
Valves, Elbows, Fittings & Pipe	allowance	35%	New		$ 2,100	$ 2,100	1.0	$ 2,100												
Civil Works	allowance	1.0			$ 10,500	$ 10,500	1.0	$ 10,500												
Mechanical Works	allowance	1.0			$ 8,500	$ 8,500	1.0	$ 8,500												
Electrical	allowance	1.0			$ 12,500	$ 12,500	1.0	$ 12,500												
SUB TOTAL - MINE DEWATERING					$ 92,100	$ 92,100		$ 92,100		$ -		$ -		$ -		$ -		$ -		$ -
PROCESS WATER																				
Process Water Pump	Flyght 15 Hp	2.0	New		$ 3,000	$ 6,000	2.0	$ 6,000												
Valves, Elbows, Fittings & Pipe	Allowance	35%	New		$ 6,928	$ 2,100		$ 2,100												
SUB TOTAL - PROCESS WATER						$ 8,100		$ 8,100		$ -		$ -		$ -		$ -		$ -		$ -
EXPLOSIVES STORAGE																				
Und'g Powder & Cap Magazine	Construct	2.0	New		$ 16,500	$ 33,000	2.0	$ 33,000												
Central Blast Switch	C.I.L	1.0	New		$ 3,500	$ 3,500	1.0	$ 3,500												
Red Blast Wire Installation	2 Cond Cab Tire	3,000 m	New		$ 8.20	$ 24,611	3,000 m	$ 24,611												
Explosives Boxes	Wooden	12.0	New		$ 900	$ 10,800	3.0	$ 2,700	3.0	$ 2,700					3.0	$ 2,700	3	$ 2,700		
SUB TOTAL - EXPLOSIVES STORAGE						$ 71,911		$ 63,811		$ 2,700		$ -		$ -		$ 2,700		$ 2,700		$ -
UND'G ELECTRICAL EQUIPMENT																				
Portable Power Center (4160V/600V)	1500 kVa Tx	3.0	Used		$ 65,000	$ 195,000	1.0	$ 65,000	1.0	$ 65,000			1.0	$ 65,000						
Power Distribution System	Allowance	50%	New		$ 32,500	$ 97,500	1.0	$ 32,500	1.0	$ 32,500			1.0	$ 32,500						
Und'g Electrical Sub Station	Construct	3.0	New		$ 35,000	$ 105,000	1.0	$ 35,000	1.0	$ 35,000			1.0	$ 35,000						
SUB TOTAL - UND'G ELECTRICAL EQP'T						$ 397,500		$ 132,500		$ 132,500		$ -		$ 132,500		$ -		$ -		$ -
UNDERGROUND COMMUNICATIONS																				
Sound Powered Telephone System	FEMCO	15.0	New		$ 175	$ 2,625	15.0	$ 2,625												
Duplex Cab Tire Cable	2 Cond Cab Tire	3,000 m	New		$ 8.20	$ 24,611	3,000 m	$ 24,611												
Walkie Talkie	Motorola	6.0	New		$ 225	$ 1,350	6.0	$ 1,350												
Stench Gas System	Vent & Comp Air	2.0	New		$ 3,500	$ 7,000	2.0	$ 7,000												
SUB TOTAL - UND'G COMMUNICATIONS						$ 35,586		$ 35,586		$ -		$ -		$ -		$ -		$ -		$ -
SAFETY																				
Refuge Station	Construct	3.0	New		$ 35,000	$ 105,000	1.0	$ 35,000	1.0	$ 35,000	1.0	$ 35,000								
Mine Rescue Equipment	Mine Rescue	12.0	Lease		$ 2,500	$ 30,000	12.0	$ 30,000												
Cap Lamps	MSA	60.0	New		$ 275	$ 16,500	30.0	$ 8,250	30.0	$ 8,250										
Cap Lamp Charger	MSA	2.0	New		$ 3,500	$ 7,000	1.0	$ 3,500	1.0	$ 3,500										
Respirators/Self Rescuer	MSA	12.0	New		$ 500	$ 6,000	6.0	$ 3,000	6.0	$ 3,000										
SUB TOTAL - SAFETY						$ 164,500		$ 79,750		$ 49,750		$ 35,000		$ -		$ -		$ -		$ -
SURVEY EQUIPMENT	Theodolite	1.0	Used		$ 45,000	$ 45,000	1.0	$ 45,000												
	Data Recorder	1.0	Used		$ 18,000	$ 18,000	1.0	$ 18,000												
SUB TOTAL - SURVEY EQUIPMENT						$ 63,000		$ 63,000		$ -		$ -		$ -		$ -		$ -		$ -
ENG & VENT CONTROL TOOLS																				
	Velometer	1.0	New		$ 1,750	$ 1,750	1.0	$ 1,750												
	Annometer	1.0	New		$ 600	$ 600	1.0	$ 600												
	Cavity Monitor	1.0	New		$ 4,500	$ 4,500			1.0	$ 4,500										
	Rock Mechanics	1.0	New		$ 5,500	$ 5,500	0.5	$ 2,750	0.5	$ 2,750										
SUB TOTAL - ENG & VENT CONTROL TOOLS						$ 12,350		$ 5,100		$ 7,250		$ -		$ -		$ -		$ -		$ -
BIT GRINDER	Atlas Copco	1.0	Used		$ 15,000	$ 15,000	1.0	$ 15,000		$ -		$ -		$ -		$ -		$ -		$ -
SUBTOTAL - FIXED UNG'D EQUIPMENT						**$ 1,275,846**		**$ 552,696**		**$ 379,175**		**$ 113,975**		**$ 132,500**		**$ 2,700**		**$ 2,700**		**$ -**
SUBTOTAL - CUMULATIVE								$ 552,696		$ 931,871		$ 1,045,846		$ 1,178,346		$ 1,181,046		$ 1,183,746		$ 1,183,746
DIRECT CAPITAL COST						**$ 5,531,346**		$ 3,192,196		$ 1,653,175		$ 383,975		$ 132,500		$ 38,700		$ 38,700		$ -
CUMULATIVE								$ 3,192,196		$ 4,845,371		$ 5,229,346		$ 5,361,846		$ 5,400,546		$ 5,439,246		$ 5,439,246

SAGE GOLD – CLAVOS "JV"

Table 21.5 - SURFACE INFRASTRUCTURE CAPITAL COST ESTIMATE

CLAVOS JV

DESCRIPTION	MODEL	QTY	UNIT COST	USED	FINAL COST	YEAR-01		YEAR-02		YEAR-03		YEAR-04		YEAR-05		YEAR-06		YEAR-07	
			$	FACTOR	$	QTY	$	QTY	$	QTY	$	QTY	$	QTY	$	QTY	$	QTY	$
DIRECT CAPITAL OPERATIONAL COSTS																			
HST			13.0%																
BUILDING CONSTRUCTION																			
Office Facility Upgrade																			
Building & Services	Mobile Trailers	2.0	$ 19,815	Existing	$ 39,630	1.0	$ 19,815	1.0	$ 19,815										
Furnishings		1.0	$ 10,825	Used	$ 10,825	0.5	$ 5,413	0.50	$ 5,413										
Temporary Dry Facility Upgrade	Mobile Trailers	1.0	$ 18,000	Existing	$ 18,000	1.0	$ 18,000												
Permanent Dry Facility																			
Building & Services	30' x 30' Building	1.0	$ 67,005	Existing	$ 67,005			1.0	$ 67,005										
Lockers, Baskets, Furnishings		1.0	$ 27,063	Used	$ 27,063			1.0	$ 27,063										
Shop Facility Upgrade																			
Building	40' x 120' ATCO	1.0	$ 71,500	Existing	$ 71,500	0.5	$ 35,750	0.5	$ 35,750										
Furnishings	Tools, Etc.	1.0	$ 55,000	Used	$ 55,000	0.5	$ 27,500	0.5	$ 27,500										
Electrical Shop																			
Building & Services	20' x 30'	1.0	$ 24,000	New	$ 24,000			1.0	$ 24,000										
Electrical Test Equipment & Furnishings		1.0	$ 27,063	Used	$ 27,063			1.0	$ 27,063										
Mine Warehouse																			
Building	20' x 60'	1.0	$ 48,000	New	$ 48,000			1.0	$ 48,000										
Outfit With Shelving		1.0	$ 21,650	Used	$ 21,650			1.0	$ 21,650										
Compressor House																			
Building	30' x 30'	1.0	$ 7,500	Existing	$ 7,500	1.0	$ 7,500												
Outfit With Services		1.0	$ 18,000	Existing	$ 18,000	1.0	$ 18,000												
Gate House																			
Building	20' x 20'	1.0	$ 16,000	New	$ 16,000	1.0	$ 16,000												
Furnishings		1.0	$ 5,184	Used	$ 5,184	1.0	$ 5,184												
Core Facility																			
Building	30' x 30'	1.0	$ -	Existing	$ -	1.0	$ -												
Furnishings		1.0	$ 15,000	Existing	$ 15,000	1.0	$ 15,000												
House Trailer	12' x 72'	1.0	$ 36,050	Used	$ 36,050			1.0	$ 36,050										
Building Permits		4.0	$ 1,250		$ 5,000	2.0	$ 2,500	2.0	$ 2,500										
SUB TOTAL - BUILDING CONSTRUCTION					$ 512,470		$ 170,662		$ 341,809		$ -		$ -		$ -		$ -		$ -
SAFETY																			
Safety & Training Room																			
Building	10' x 14' Room	140	$ 150	New	$ 21,000	140	$ 21,000												
Furnishings	Outfit	1.0	$ 10,825	Used	$ 10,825	1.0	$ 10,825												
Fire Protection																			
Firewater Line	Piping	200 m	$ 4,266	New	$ 4,266	0.5	$ 2,133	0.5	$ 2,133										
Firewater Pump, diesel	Pump	1.0	$ 8,500	Used	$ 8,500	0.5	$ 4,250	0.5	$ 4,250										
1st Aid Station	Allowance	1.0	$ 25,060	New	$ 25,060	1.0	$ 25,060												
SUB TOTAL - SAFETY					$ 69,651		$ 63,268		$ 6,383		$ -		$ -		$ -		$ -		$ -

SAGE GOLD – CLAVOS "JV"

GOVERNMENTAL REQUIREMENTS																			
Closure Plan			$ -		$ -														
MOL Submission		1.0	$ 29,100		$ 29,100	0.5	$ 14,550	0.5	$ 14,550										
P.Eng Report		1.0	$ 29,000		$ 29,000	0.5	$ 14,500	0.5	$ 14,500										
Ground Control Submission		1.0	$ 50,600		$ 50,600	0.5	$ 25,300	0.5	$ 25,300										
1st Nations Consultation		1.0	$ 6,400		$ 6,400	1.0	$ 6,400												
Public Meetings		1.0	$ 10,000		$ 10,000	0.5	$ 5,000	0.5	$ 5,000										
Vegetation & Wildlife			$ -		$ -														
Fisheries & Aquatic			$ -		$ -														
Soils & Revegetation			$ -		$ -														
SUB TOTAL - GOVERNMENTAL REQUIREMENTS					$ 125,100		$ 65,750		$ 59,350		$ -		$ -		$ -		$ -		$ -
ENVIRONMENTAL																			
Settling Pond Upgrade	Upgrade	1.0	$ 15,000		$ 15,000	1.0	$ 15,000												
Ground Water Monitoring	Schedule (Qtr)	4.0	$ 9,000		$ 252,000	4.0	$ 36,000	4.0	$ 36,000	4.0	$ 36,000	4.0	$ 36,000	4.0	$ 36,000	4.0	$ 36,000	4.0	$ 36,000
Gabage Disposal	Contract (Qtr)	4.0	$ 6,000		$ 168,000	4.0	$ 24,000	4.0	$ 24,000	4.0	$ 24,000	4.0	$ 24,000	4.0	$ 24,000	4.0	$ 24,000	4.0	$ 24,000
Waste Rock Leaching Testing	Schedule (Year)	1.0	$ 3,000		$ 21,000	1.0	$ 3,000	1.0	$ 3,000	1.0	$ 3,000	1.0	$ 3,000	1.0	$ 3,000	1.0	$ 3,000	1.0	$ 3,000
SUB TOTAL - ENVIRONMENTAL					$ 456,000		$ 78,000		$ 63,000		$ 63,000		$ 63,000		$ 63,000		$ 63,000		$ 63,000
SERVICES																			
Electrical Power																			
Barber Bay Upgrade		1.0	$ 10,140	Existing	$ 10,140	1.0	$ 10,140												
Stock Transmission Line Re-Energize		1.0	$ 125,000	Existing	$ 125,000	0.5	$ 62,500	0.5	$ 62,500										
Diesel Gen Set Upgrade		2.0	$ 25,000	Existing	$ 50,000	1.0	$ 25,000	1.0	$ 25,000										
Sewage Facility		1.0	$ 4,000	Existing	$ 4,000	1.0	$ 4,000												
Potable Water Supply		1.0	$ 12,407	Existing	$ 12,407	1.0	$ 12,407												
Waste Management																			
Hazardous & Solid Wastes																			
Concrete Slab	20' x 20' Conc Slab	160 $^{-3}$	$ 175	New	$ 1,193	6.8	$ 1,193												
Enclosure	Construct	1.0	$ 10,000	New	$ 10,000			1.0	$ 10,000										
Diesel Fuel Storage																			
Concrete Slab	10' x 20' Conc Slab	90 $^{-3}$	$ 175	New	$ 671	3.8	$ 671												
Diesel Fuel Tank	5,000 gal	1.0	N/C	Contract	$ -	1.0	$ -												
Lube Storage																			
Concrete Slab	10' 20' Conc Slab	90 $^{-3}$	$ 175	New	$ 671	3.8	$ 671												
Enclosure	Construct	1.0	$ 5,000	New	$ 5,000	1.0	$ 5,000												
SUB TOTAL - SERVICES					$ 219,081		$ 121,581		$ 97,500		$ -		$ -		$ -		$ -		$ -
ROADS & ACCESS																			
Install Company Signage		1.0	$ 3,630	New	$ 3,630	1.0	$ 3,630												
Post Safety Signage		1.0	$ 5,831	New	$ 5,831	1.0	$ 5,831												
Access Road Upgrade		1.0	$ 9,000	Existing	$ 9,000	1.0	$ 9,000												
Stock Haulage Road Rebuild		10 km	$ 85,000	Existing	$ 85,000	0.5	$ 42,500	0.5	$ 42,500										
Parking Lot Upgrade		1.0	$ 9,976	Existing	$ 9,976	1.0	$ 9,976												
Yard Lighting		1.0	$ 16,248	Existing	$ 16,248	1.0	$ 16,248												
Fencing	6' High Galvanized	500'	$ 22.50	Existing	$ 11,250			1.0	$ 11,250										
Snow Removal	Schedule (year)	7.0	$ 54,310		$ 380,170	1.0	$ 54,310	1.0	$ 54,310	1.0	$ 54,310	1.0	$ 54,310	1.0	$ 54,310	1.0	$ 54,310	1.0	$ 54,310
SUB TOTAL - ROADS & ACCESS					$ 521,105		$ 141,495		$ 108,060		$ 54,310		$ 54,310		$ 54,310		$ 54,310		$ 54,310
LIGHT SURFACE VEHICLES																			
General Manager	Vehicle	1.0	$ 25,000	Used	$ 25,000	1.0	$ 25,000												
Mine Superintendent	Pickup	1.0	$ 25,000	Used	$ 25,000	1.0	$ 25,000												
Mine Engineer/Geologist/Surveyor	Pickup	1.0	$ 25,000	Used	$ 25,000			1.0	$ 25,000										
Environmental Manager	Pickup	1.0	$ 25,000	Used	$ 25,000			1.0	$ 25,000										
Security	Pickup	1.0	$ 25,000	Used	$ 25,000	1.0	$ 25,000												
SUB TOTAL - LIGHT SURFACE VEHICLES					$ 125,000		$ 75,000		$ 50,000		$ -		$ -		$ -		$ -		$ -
WINTERIZATION		1.0	$ 33,747		$ 33,747	1.0	$ 33,747												
SUB TOTAL - WINTERIZATION					$ 33,747		$ 33,747		$ -		$ -		$ -		$ -		$ -		$ -
COMPUTERS & ACCESSORIES																			
Computers	IT	8.0	$ 2,500	New	$ 20,000	4.0	$ 10,000	4.0	$ 10,000										
A-Mine	Software (years)	7.0	$ 5,000	Lease	$ 35,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000
Accounting	Software	1.0	$ 1,500	New	$ 1,500	1.0	$ 1,500												
Payroll	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												
Warehouse	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												

SAGE GOLD – CLAVOS "JV"

LIGHT SURFACE VEHICLES																			
General Manager	Vehicle	1.0	$ 25,000	Used	$ 25,000	1.0	$ 25,000												
Mine Superintendent	Pickup	1.0	$ 25,000	Used	$ 25,000	1.0	$ 25,000												
Mine Engineer/Geologist/Surveyor	Pickup	1.0	$ 25,000	Used	$ 25,000			1.0	$ 25,000										
Environmental Manager	Pickup	1.0	$ 25,000	Used	$ 25,000			1.0	$ 25,000										
Security	Pickup	1.0	$ 25,000	Used	$ 25,000	1.0	$ 25,000												
SUB TOTAL - LIGHT SURFACE VEHICLES					$ 125,000		$ 75,000		$ 50,000		$ -		$ -		$ -		$ -		$ -
WINTERIZATION		1.0	$ 33,747		$ 33,747	1.0	$ 33,747												
SUB TOTAL - WINTERIZATION					$ 33,747		$ 33,747		$ -		$ -		$ -		$ -		$ -		$ -
COMPUTERS & ACCESSORIES																			
Computers	IT	8.0	$ 2,500	New	$ 20,000	4.0	$ 10,000	4.0	$ 10,000										
A-Mine	Software (years)	7.0	$ 5,000	Lease	$ 35,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000
Accounting	Software	1.0	$ 1,500	New	$ 1,500	1.0	$ 1,500												
Payroll	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												
Warehouse	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												
Planned Maintenance	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												
Environmental	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												
Safety	Software	1.0	$ 1,000	New	$ 1,000	1.0	$ 1,000												
Auto-Cad	Software (years)	4.0	$ 2,000	Lease	$ 56,000	1.0	$ 8,000	1.0	$ 8,000	1.0	$ 8,000	1.0	$ 8,000	1.0	$ 8,000	1.0	$ 8,000	1.0	$ 8,000
Printers	IT	5.0	$ 1,083	New	$ 5,415	4.0	$ 4,332	1.0	$ 1,083										
Server	IT	1.0	$ 21,650	New	$ 21,650	1.0	$ 21,650												
SUB TOTAL - COMPUTERS & ACCESSORIES					$ 144,565		$ 55,482		$ 24,083		$ 13,000		$ 13,000		$ 13,000		$ 13,000		$ 13,000
COMMUNICATIONS																			
On Site (Land Based)		1.0	$ 20,000	1.0	$ 20,000	1.0	$ 20,000												
Off Site (Cellular)		1.0	$ 5,000	1.0	$ 5,000	1.0	$ 5,000												
SUB TOTAL - COMMUNICATIONS					$ 25,000		$ 25,000		$ -		$ -		$ -		$ -		$ -		$ -
ASSAY LABORATORY	Contract Out	1.0	$ -	Contract	$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
DIRECT CAPITAL COST					$ 2,231,719		$ 829,985		$ 750,184		$ 130,310		$ 130,310		$ 130,310		$ 130,310		$ 130,310
CUMULATIVE							$ 829,985		$ 1,580,169		$ 1,710,479		$ 1,840,789		$ 1,971,099		$ 2,101,409		$ 2,231,719
INDIRECT CAPITAL COST																			
CONSTRUCTION INDIRECTS																			
First Fills			0.7%		$ 15,622		$ 5,810		$ 5,251		$ 912		$ 912		$ 912		$ 912		$ 912
Freight & Logistics			1.0%		$ 22,317		$ 8,300		$ 7,502		$ 1,303		$ 1,303		$ 1,303		$ 1,303		$ 1,303
Capital Spares			1.5%		$ 33,476		$ 12,450		$ 11,253		$ 1,955		$ 1,955		$ 1,955		$ 1,955		$ 1,955
Commissioning & Startup			0.4%		$ 8,927		$ 3,320		$ 3,001		$ 521		$ 521		$ 521		$ 521		$ 521
Project Mng't G & A			2.5%		$ 55,793		$ 20,750		$ 18,755		$ 3,258		$ 3,258		$ 3,258		$ 3,258		$ 3,258
Engineering			4.7%		$ 104,891		$ 39,009		$ 35,259		$ 6,125		$ 6,125		$ 6,125		$ 6,125		$ 6,125
INDIRECT CAPITAL COST					$ 241,026		$ 89,638		$ 81,020		$ 14,073		$ 14,073		$ 14,073		$ 14,073		$ 14,073
DIRECT AND INDIRECT CAPITAL COST					$ 2,472,745		$ 919,623		$ 831,204		$ 144,383		$ 144,383		$ 144,383		$ 144,383		$ 144,383
CONTINGENCY	20%				$ 494,549		$ 183,925		$ 166,241		$ 28,877		$ 28,877		$ 28,877		$ 28,877		$ 28,877
TOTAL CAPITAL COST					$ 2,967,294		$ 1,103,548		$ 997,445		$ 173,260		$ 173,260		$ 173,260		$ 173,260		$ 173,260
CUMULATIVE							$ 1,103,548		$ 2,100,993		$ 2,274,253		$ 2,447,513		$ 2,620,773		$ 2,794,034		$ 2,967,294

21.2 OPEX Cost Estimate

21.2.1 Basis For OPEX Cost Estimation

The zero basis of estimate was the methodology applied to developing the operating cost estimate (OPEX) with an accuracy of estimate considered to be +/- 50%, which is considered to be suitable to base a decision to proceed to the next phase of Clavos JV project construction, mine dewatering, mine rehabilitation and stope definition/delineation diamond drilling.

No contingency has been included in the operating cost estimation (OPEX) due to the detail of the cost estimate preparation for which the accuracy of estimate percentage was considered to be sufficient for the purposes of this PEA.

Sources for labour rates and salaries were derived from opinions and knowledge of persons familiar with wage rates in the local vicinity and from the operator of a metal mine within the region of Timmins, Matheson, and Kirkland Lake, Ontario.

21.2.2 OPEX Cost Estimation

Work cycle productivities, equipment operating hours, manpower loading, material, supplies and maintenance allowances were prepared for each type of mining activity as based upon a scheduled 10.0 hour work man shift.

In many cases, the underground equipment operating cost estimate was based upon hourly equipment operating costs provided by OEM equipment suppliers, local related mine operational data bases, and the personal experience of the author of this PEA Report.

Some quotations for the supply of major mining supplies and materials, i.e. explosives, drilling supplies, ground support, ventilation fans, vent tubing, pipe, piping accessories, and electrical materials were obtained from suppliers and/or the personal knowledge of the author of this PEA Report. Allowances were included for material wastage as required.

The following assumptions were followed while preparing these mine operating cost estimates:

- 350 scheduled working days per year
- Mine operation activities, i.e. mine development, stope production, and mine services to be provided utilizing in-house contracting personnel
- A scheduled working man shift of 2 x 10 hour shifts per day, seven days per week.

A cost per meter for lateral level development cost estimation has been prepared for each type of development heading for mineralized material /waste heading type, cross section size, type of mobile equipment utilized, type of materials consumed, and labour productivity/efficiency estimates.

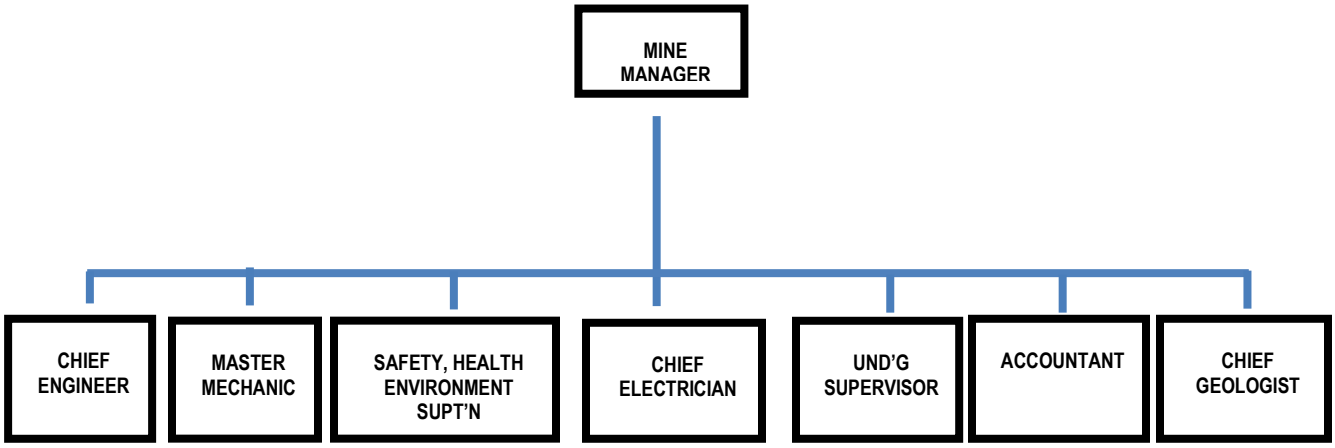
Stope production operating costs have been estimated for a nominal 1.5m wide by 2.5m high opening. The variation in mineralized structure extraction thickness varied from 1.5m to 8.0m. This study only took into consideration the average productivity, which was considered to be a reasonable and conservative average representing a variety of excavation heights likely to be encountered.

Underground diesel haulage truck productivities, maintenance cost allowances, and mine service cost estimateshave been prepared and applied to the mine schedule to reflect the changing haul distances and haul methods as the mine continues to develop.

21.2.3 Labour & Staffing Levels:

Manpower staffing levels are indicated in the following organization chart Figure 21.1 – Clavos JV Mine Management Structure.

Figure 21.1 – CLAVOS JV MINE MANAGEMENT STRUCTURE



Supervisory, management and skilled underground mine operators could be recruited locally within Ontario and from within the general area. These personnel could form the nucleus ofthe workforce and be trained with skill upgrading during the pre-production phase of the Clavos JV project.

An experienced and skilled underground mine work force is available within the local region, as there are many operating mines which provide for a large labour resource locally. The mine employees could typically reside in the towns of Timmins, Matheson, Cochrane, and Kirkland Lake, Ontario, and Noranda, La Sarre and Val'D'Or, Quebec.

The Clavos JV manpower loading requirements have been scheduled for the various work functions to determine the number of employees required for the operation. The scheduled work day could be 10 hours per day, seven days per week with overtime pay calculated for hours worked over 8 hours per day and over 40 hours per week on a 2 week in and 1 week out schedule utilizing time averaging payroll methods.

Critical to the efficient operation is the employment and retention of qualified, experienced and skilled employees. Careful screening of applicants and adequate training could be provided for all employee positions.

Detailed manpower loading levels and cost estimates are indicated in Table 21.6 – Manpower Estimated Cost by Skill Level - below.

TABLE 21.6- MANPOWER ESTIMATED COST BY SKILL LEVEL

CLAVOS JV

DESCRIPTION	CLASS	HRS/SHIFT		REGULAR RATE	O/T RATE	BONUS		ALLOWANCES					PAYROLL BURDENS	$/MS	$/MTH	$/MTH AVERAGED	$/YEAR
		REGULAR	O/T			$/HR	SHARE	SAFETY $/MS	CLOTHING $/MS	TOOLS $/MS	LIVING $/MS	TRAVEL $/MS					
STAFF																	
Mine Supervision																	
Mine Manager	Mgr	8.0	2.0	$ 50.00	$ 75.00	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 1,189.60	$ 26,171	$ 13,486	$ 314,054
Mine Superintendent	Supt'n	8.0	2.0	$ 40.00	$ 60.00	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 1,044.40	$ 22,977	$ 11,066	$ 275,722
Shiftboss	Supv	8.0	2.0	$ 38.00	$ 57.00	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 1,015.36	$ 22,338	$ 10,582	$ 268,055
Master Merchanic	M'Mech	8.0	2.0	$ 38.00	$ 57.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 906.46	$ 19,942	$ 10,390	$ 239,305
Maintenance Planner	Tech	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	25%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 572.50	$ 12,595	$ 8,069	$ 151,140
Chief Electrician	Ch Elect	8.0	2.0	$ 38.00	$ 57.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 906.46	$ 19,942	$ 10,390	$ 239,305
ADMINISTRATION																	
Admin Assistance	Clerk	8.0	2.0	$ 25.00	$ 37.50	$ -	0%	$ 5.00	$ -	$ -	$ -	$ 10.00	32.0%	$ 408.00	$ 8,976	$ 7,040	$ 107,712
QA/QC Engineer	Eng	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	25%	$ 5.00	$ 8.00	$ -	$ -	$ 10.00	32.0%	$ 597.50	$ 13,145	$ 8,619	$ 157,740
Environmental Engineer	Eng	8.0	2.0	$ 35.00	$ 52.50	$ 33.00	25%	$ 5.00	$ 8.00	$ -	$ -	$ 10.00	32.0%	$ 670.10	$ 14,742	$ 9,829	$ 176,906
Senior Accountant	SR Acc't	8.0	2.0	$ 40.00	$ 60.00	$ -	0%	$ 5.00	$ -	$ -	$ -	$ 10.00	32.0%	$ 625.80	$ 13,768	$ 10,670	$ 165,211
Payroll Clerk	Clerk	8.0	2.0	$ 25.00	$ 37.50	$ -	0%	$ 5.00	$ -	$ -	$ -	$ 10.00	32.0%	$ 408.00	$ 8,976	$ 7,040	$ 107,712
Cost Accountant	JR Acc't	8.0	2.0	$ 32.00	$ 48.00	$ -	0%	$ 5.00	$ -	$ -	$ -	$ 10.00	32.0%	$ 509.64	$ 11,212	$ 8,734	$ 134,545
Purchasing	Agent	8.0	2.0	$ 32.00	$ 48.00	$ -	0%	$ 5.00	$ 8.00	$ -	$ -	$ 10.00	32.0%	$ 517.64	$ 11,388	$ 8,910	$ 136,657
Safety/Training Officer	Safety	8.0	2.0	$ 35.00	$ 52.50	$ -	0%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 566.20	$ 12,456	$ 9,746	$ 149,477
Security	Officer	8.0	2.0	$ 25.00	$ 37.50	$ -	0%	$ 5.00	$ 8.00	$ -	$ -	$ 10.00	32.0%	$ 416.00	$ 9,152	$ 7,216	$ 109,824
MINE TECHNICAL																	
Mining Engineer	Eng	8.0	2.0	$ 38.00	$ 57.00	$ 33.00	50%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 797.56	$ 17,546	$ 10,197	$ 210,556
Surveyor	Tech	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	25%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 572.50	$ 12,595	$ 8,069	$ 151,140
Survey Helper	Tech	8.0	2.0	$ 26.00	$ 39.00	$ 33.00	15%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 470.86	$ 10,359	$ 7,024	$ 124,307
Geologist	Geo	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	25%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 572.50	$ 12,595	$ 8,069	$ 151,140
Geological Sampler	Tech	8.0	2.0	$ 26.00	$ 39.00	$ 33.00	15%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 470.86	$ 10,359	$ 7,024	$ 124,307
Safety/Training Officer	Safety	8.0	2.0	$ 20.00	$ 30.00	$ 33.00	25%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 427.30	$ 9,401	$ 5,649	$ 112,807
Clerk	Clerk	8.0	2.0	$ 24.00	$ 36.00	$ 33.00	10%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 420.04	$ 9,241	$ 6,501	$ 110,891
Dryman/Lampman	Labour 01	8.0	2.0	$ 24.00	$ 36.00	$ 33.00	10%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 420.04	$ 9,241	$ 6,501	$ 110,891
DEVELOPMENT CREW																	
Jumpo Operator	Miner 01	8.0	2.0	$ 32.00	$ 48.00	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 928.24	$ 20,421	$ 9,130	$ 245,055
Scoop Operator	Miner 02	8.0	2.0	$ 31.00	$ 46.50	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 913.72	$ 20,102	$ 8,888	$ 241,222
Bolter	Miner 03	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 790.30	$ 17,387	$ 8,454	$ 208,639
PRODUCTION CREW																	
Stope Miner	Miner 01	8.0	2.0	$ 32.00	$ 48.00	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 928.24	$ 20,421	$ 9,130	$ 245,055
Scoop Operator	Miner 02	8.0	2.0	$ 31.00	$ 46.50	$ 33.00	100%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 913.72	$ 20,102	$ 8,888	$ 241,222
Bolter	Miner 03	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 790.30	$ 17,387	$ 8,454	$ 208,639
BLASTING CREW																	
Loader	Miner 02	8.0	2.0	$ 31.00	$ 46.50	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 804.82	$ 17,706	$ 8,696	$ 212,472
Helper	Miner 03	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 790.30	$ 17,387	$ 8,454	$ 208,639
MINE SERVICES CREW																	
Diamond driller		Contract															
DD Helper		Contract															
Fill Plant Operator	Miner 02	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	60%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 724.96	$ 15,949	$ 8,338	$ 191,389
Und'g Fill Operator	Miner 03	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	60%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 724.96	$ 15,949	$ 8,338	$ 191,389
TRUCK HAULAGE CREW																	
Surface Truck Driver	Miner 04	8.0	2.0	$ 29.00	$ 43.50	$ 33.00	50%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 666.88	$ 14,671	$ 8,019	$ 176,056
Und'g Truck Driver	Miner 04	8.0	2.0	$ 29.00	$ 43.50	$ 33.00	50%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 666.88	$ 14,671	$ 8,019	$ 176,056
Grader Operator	Miner 03	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	50%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 681.40	$ 14,991	$ 8,261	$ 179,890
MAINTENANCE CREW																	
Lead Mechanic	Mech 01	8.0	2.0	$ 31.00	$ 46.50	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 804.82	$ 17,706	$ 8,696	$ 212,472
Mechanic	Mech 02	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 790.30	$ 17,387	$ 8,454	$ 208,639
Drill Doctor	Mech 02	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 790.30	$ 17,387	$ 8,454	$ 208,639
Lead Electrician	Elect 01	8.0	2.0	$ 31.00	$ 46.50	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 804.82	$ 17,706	$ 8,696	$ 212,472
Electrician	Elect 02	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	75%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 790.30	$ 17,387	$ 8,454	$ 208,639
Tireman	Mech 03	8.0	2.0	$ 29.00	$ 43.50	$ 33.00	50%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 666.88	$ 14,671	$ 8,019	$ 176,056
Welder	Mech 02	8.0	2.0	$ 30.00	$ 45.00	$ 33.00	60%	$ 5.00	$ 8.00	$ 5.00	$ -	$ 10.00	32.0%	$ 724.96	$ 15,949	$ 8,338	$ 191,389

Table 21.7 - UNDERGROUND MINE MANPOWER OPERATING COST ESTIMATE

CLAVOS JV

DESCRIPTION	MANSHIFT			YEAR-01			YEAR-02			YEAR-03			YEAR-04			YEAR-05			YEAR-06			YEAR-07		YEAR-08	
				MS	$ / Yr	$/t (Ore)	MS	$ / Yr	$/t (Ore)	MS	$ / Yr	$/t (Ore)	MS	$ / Yr	$/t (Ore)	MS	$ / Yr	$/t (Ore)	MS	$ / Yr	$/t (Ore)	MS	$ / Yr	MS	$ / Yr
	hrs/ms	Qty	$/ms		175	17,500		350	113,750		350	183,750		350	210,000		350	210,000		350	112,133				
MINE SUPERVISION																									
Supervisor	10.0	2.0	$ 1,015.36	87.5	$ 88,844		350	$ 710,752		350	$ 710,752		350	$ 710,752		350	$ 710,752		350	$ 710,752		350	$ 710,752	175	$ 355,376
Master Mechanic	10.0	1.0	$ 906.46	62.5	$ 56,654		250	$ 226,615		250	$ 226,615		250	$ 226,615		250	$ 226,615		250	$ 226,615		250	$ 226,615		
SUB TOTAL - MINE SUPERVISION					$ 145,498	$ 8.31		$ 937,367	$ 8.24		$ 937,367	$ 5.10		$ 937,367	$ 4.46		$ 937,367	$ 4.46		$ 937,367	$ 8.36		$ 937,367		$ 355,376
TECHNICAL SERVICES																									
Mining Engineer	10.0	1.0	$ 797.56	125.0	$ 99,695		250	$ 199,390		250	$ 199,390		250	$ 199,390		250	$ 199,390		250	$ 199,390		250	$ 199,390	87.5	$ 69,787
Surveyor	10.0	1.0	$ 572.50	125.0	$ 71,563		250	$ 143,125		250	$ 143,125		250	$ 143,125		250	$ 143,125		250	$ 143,125		250	$ 143,125		
Geologist	10.0	1.0	$ 572.50	125.0	$ 71,563		250	$ 143,125		250	$ 143,125		250	$ 143,125		250	$ 143,125		250	$ 143,125		250	$ 143,125	43.7	$ 25,018
Sampler	10.0	1.0	$ 470.86				350	$ 82,401		350	$ 164,801		350	$ 164,801		350	$ 164,801		350	$ 164,801		350	$ 164,801	125	$ 58,858
SUB TOTAL - TECHNICAL SERVICES					$ 242,820	$ 13.88		$ 568,041	$ 4.99		$ 650,441	$ 3.54		$ 650,441	$ 3.10		$ 650,441	$ 3.10		$ 650,441	$ 5.80		$ 650,441		$ 153,662
MINE SERVICES																									
Diamond driller	CONTRACT OUT																								
DD Helper	CONTRACT OUT																								
Loader Operator	10.0	1.0	$ 666.88	87.5	$ 58,352		250	$ 166,720		250	$ 166,720		250	$ 166,720		250	$ 166,720		250	$ 166,720		250	$ 166,720		
Surface Truck Driver	CONTRACT OUT																								
Labourer	10.0	1.0	$ 420.04	87.5	$ 36,754		250	$ 105,010		250	$ 105,010		250	$ 105,010		250	$ 105,010		250	$ 105,010		250	$ 105,010	175	$ 73,507
SUB TOTAL - MINE SERVICES					$ 95,106	$ 5.43		$ 271,730	$ 2.39		$ 271,730	$ 1.48		$ 271,730	$ 1.29		$ 271,730	$ 1.29		$ 271,730	$ 2.42		$ 271,730		$ 73,507
TOTAL UG MINE EMPLOYMENT		9.0		700	$ 483,423	$ 27.62	2,200	$ 1,777,138	$ 15.62	2,200	$ 1,859,538	$ 10.12	2,200	$ 1,859,538	$ 8.85	2,200	$ 1,859,538	$ 8.85	2,200	$ 1,859,538	$ 16.58	2,200	$ 1,859,538	606	$ 582,545
					$ 483,423			$ 2,260,561			$ 4,120,099			$ 5,979,637			$ 7,839,175			$ 9,698,713			$ 11,558,251		$ 12,140,796

Table 21.8 - UNDERGROUND SERVICES OPERATING COST ESTIMATE

CLAVOS JV

ITEM	DESCRIPTION	QTY	OPERATING	YEAR-01	YEAR-05		YEAR-06		YEAR-07		YEAR-08	
			$/HR	HRS	HRS	$	HRS	$	HRS	$	HRS	$
UND'G MOBILE SERVICE VEHICLES												
Mobile Rock Breaker	M-60	1.0	$ 73.48		700	$ 51,433	700	$ 51,433	700	$ 51,433	350	$ 12,858
JDT-41SL X-Lift	JDT-41-SL	2.0	$ 49.44	180	787.5	$ 38,930	787.5	$ 38,930	787.5	$ 38,930	394	$ 19,465
Flatbed c/w Hiab	M-60	1.0	$ 59.38	450	1050	$ 62,344	1050	$ 62,344	1050	$ 62,344	525	$ 31,172
Front End Loader	CAT 950	1.0	$ 66.33	540	1050	$ 69,641	1050	$ 69,641	1050	$ 69,641	525	$ 34,821
Grader	Cat 146-G	1.0	$ 61.05	360	1050	$ 64,103	1050	$ 64,103	1050	$ 64,103	525	$ 32,051
UND'G PERSONNNEL SUPPORT VEHICLES												
Maintenance	Ford 4WD	1.0	$ 47.69	360	700	$ 33,380	700	$ 33,380	700	$ 33,380	350	$ 8,345
Personnel Carrier	Mule	1.0	$ 47.69		700	$ 33,380	700	$ 33,380	700	$ 33,380	350	$ 8,345
Supervisor	Mule	5.0	$ 25.86	180	2800	$ 72,417	2800	$ 72,417	2800	$ 72,417	1400	$ 18,104
Toyota Ambulance	Toyota 4WD	1.0	$ 31.42	15	35	$ 1,100	35	$ 1,100	35	$ 1,100	18	$ 550
Geology Mule	Mule	4.0	$ 25.86	360	2450	$ 63,365	2450	$ 63,365	2450	$ 63,365	1225	$ 15,841
Engineering Mule	Mule	3.0	$ 25.86	360	1400	$ 36,209	1400	$ 36,209	1400	$ 36,209	700	$ 9,052
Pickup Trucks	Ford 150	3.0	$ 25.00	360	2625	$ 65,625	2625	$ 65,625	2625	$ 65,625	1313	$ 16,406
UND'G SUPPORT EQUIPMENT												
Grout Pump	Perroni	1.0	$ 25.00	960								
Compressor Air Supply	Sullair 750 cfm Electric	2.0	$ 0.43	3600	14000	$ 6,000	14000	$ 6,000	14000	$ 6,000		$ -
Bit Sharpener	Atlas Copco Button	1.0	$ 3.00	240	1050	$ 3,150	1050	$ 3,150	1050	$ 3,150	525	$ 1,575
30 Ton Pneumatic Winch	Pikrose	1.0	$ 0.50	90	350	$ 175	350	$ 175	350	$ 175	175	$ 88
2 Drum 20 Hp Pneumatic Slusher/Scraper	Joy	3.0	$ 5.00	360	1400	$ 7,000	1400	$ 7,000	1400	$ 7,000	700	$ 3,500
2,000# Pneumatic Tugger	Joy	12.0	$ 0.50	900	4200	$ 2,100	4200	$ 2,100	4200	$ 2,100	1050	$ 525
SUB TOTAL - SERVICES HOURLY OPERATING						$ 610,350		$ 610,350		$ 610,350		$ 212,698

ITEM	DESCRIPTION		OPERATING	YEAR-01	YEAR-05		YEAR-06		YEAR-07		YEAR-08	
			$/MTH	MTH	MTH	$	MTH	$	MTH	$	MTH	$
UND'G VENTILATION												
Primary Fresh Air Ventilation												
Maintenance	allowance	2.0	$ 125	9.0	12.0	$ 1,500	12.0	$ 1,500	12.0	$ 1,500	8.0	$ 1,000
Mine Air Heater												
Maintenance	allowance	1.0	$ 100	2.0	4.5	$ 450	4.5	$ 450	4.5	$ 450	2.3	$ 230
Propane	allowance	1.0	$ 55,000	2.0	4.5	$ 247,500	4.5	$ 247,500	4.5	$ 247,500	2.3	$ 123,750
Primary Exhaust Vent Fan Maintenance	allowance	2.0	$ 500	6.0	12.0	$ 6,000	12.0	$ 6,000	12.0	$ 6,000	4.0	$ 2,000
Secondary Ventilation Fan Maintenance	100 Hp	4.0	$ 500	6.0	12.0	$ 6,000	12.0	$ 6,000	12.0	$ 6,000	4.0	$ 2,000
Auxillary Ventilation Fan Maintenance	75 Hp	6.0	$ 500	6.0	12.0	$ 6,000	12.0	$ 6,000	12.0	$ 6,000	4.0	$ 2,000
Egress Raise Maintenance	allowance	1.0	$ 100	6.0	12.0	$ 1,200	12.0	$ 1,200	12.0	$ 1,200	4.0	$ 400

SURFACE BACK FILL PLANT												
Stock Pad Maintenance	allowance	1.0	$ 150		12.0	$ 1,800	12.0	$ 1,800	12.0	$ 1,800	4.0	$ 600
Plant Maintenance	allowance	1.0	$ 1,500		12.0	$ 18,000	12.0	$ 18,000	12.0	$ 18,000	4.0	$ 6,000
30 Hp Pump Maintenance	allowance	1.0	$ 75		12.0	$ 900	12.0	$ 900	12.0	$ 900	4.0	$ 300
Und'g Distribution System Maintenance	allowance	1.0	$ 1,250		12.0	$ 15,000	12.0	$ 15,000	12.0	$ 15,000	4.0	$ 5,000
UND'G MINE WATER DISCHARGE												
Dewatering Pump Maintenance	allowance	2.0	$ 75	9.0	12.0	$ 900	12.0	$ 900	12.0	$ 900	4.0	$ 300
Level & Face Pump Maintenance	allowance	2.0	$ 150	6.0	12.0	$ 1,800	12.0	$ 1,800	12.0	$ 1,800	4.0	$ 600
Clean Dirty Water Sump	allowance	1.0	$ 1,500		12.0	$ 18,000	12.0	$ 18,000	12.0	$ 18,000	4.0	$ 6,000
UND'G PROCESS WATER SUPPLY												
Pump Maintenance	allowance	1.0	$ 75	9.0	12.0	$ 900	12.0	$ 900	12.0	$ 900	4.0	$ 300
Und'g Distribution System Maintenance	allowance	1.0	$ 150	6.0	12.0	$ 1,800	12.0	$ 1,800	12.0	$ 1,800	4.0	$ 600
UND'G REPAIR SHOP												
Shop Maintenance	allowance	1.0	$ 500		12.0	$ 6,000	12.0	$ 6,000	12.0	$ 6,000	4.0	$ 2,000
UND'G FUEL & LUBE STATION												
Station Maintenance	allowance	2.0	$ 500		12.0	$ 6,000	12.0	$ 6,000	12.0	$ 6,000	4.0	$ 2,000
POWDER & CAP MAGAZINES												
Magazine Maintenance	allowance	2.0	$ 100	6.0	12.0	$ 1,200	12.0	$ 1,200	12.0	$ 1,200	4.0	$ 400
Central Blast Line Maintenance	allowance	1.0	$ 350	6.0	12.0	$ 4,200	12.0	$ 4,200	12.0	$ 4,200	4.0	$ 1,400
Explosive Box Maintenance	allowance	1.0	$ 750	6.0	12.0	$ 9,000	12.0	$ 9,000	12.0	$ 9,000	4.0	$ 3,000
ELECTRICAL POWER DISTRIBUTION												
Electrical Sub Station Maintenance	500 kVa Tx	3.0	$ 100	3.0	12.0	$ 1,200	12.0	$ 1,200	12.0	$ 1,200	4.0	$ 400
Power Distribution System Maintenance	allowance	1.0	$ 1,250	6.0	12.0	$ 15,000	12.0	$ 15,000	12.0	$ 15,000	4.0	$ 5,000
Lighting Maintenance	allowance	1.0	$ 250	6.0	12.0	$ 3,000	12.0	$ 3,000	12.0	$ 3,000	4.0	$ 1,000
UND'G COMMUNICATIONS												
Communication System Maintenance	FEMCO	1.0	$ 200	9.0	12.0	$ 2,400	12.0	$ 2,400	12.0	$ 2,400	4.0	$ 800
SAFETY												
Refuge Station Maintenance	allowance	2.0	$ 100	6.0	12.0	$ 1,200	12.0	$ 1,200	12.0	$ 1,200	4.0	$ 400
Mine Rescue Equipment Maintenance	allowance	1.0	$ 75	9.0	12.0	$ 900	12.0	$ 900	12.0	$ 900	4.0	$ 300
First Aid Equipment	allowance	1.0	$ 125	9.0	12.0	$ 1,500	12.0	$ 1,500	12.0	$ 1,500	4.0	$ 500
Cap Lamp & Charger Maintenance	allowance	40.0	$ 100	9.0	12.0	$ 1,200	12.0	$ 1,200	12.0	$ 1,200	4.0	$ 400
ENGINEERING												
Survey Equipment Maintenance	allowance	1.0	$ 50	9.0	12.0	$ 600	12.0	$ 600	12.0	$ 600	4.0	$ 200
SUB TOTAL - SERVICES MONTHLY OPERATING			$ 66,773			$ 381,150		$ 381,150		$ 381,150		$ 168,880
TOTAL - UND'G SERVICES OPERATING						$ 991,500		$ 991,500		$ 991,500		$ 381,578
CUMULATIVE						$ 4,188,808		$ 5,180,308		$ 6,171,808		$ 6,553,386
NOTE: Above Cost Estimates Exclude Electrical Power Consumption												$ 5.70

Table 21.9- GENERAL & ADMINISTRATION OPERATING COST ESTIMATE

CLAVOS JV

		17,500		113,750		183,750		210,000		210,000		162,855		160,000		91,045
WORK CENTER	**YEAR 01**		**YEAR 02**		**YEAR 03**		**YEAR 04**		**YEAR 05**		**YEAR 06**		**YEAR 07**		**YEAR 08**	
	$ / Yr	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**	**$ / Yr**	**$/t (Ore)**
MINE SITE EXPENSES																
Senior Management																
Mine Manager	$ 294,888	$ 16.85	$ 294,888	$ 2.59	$ 294,888	$ 1.60	$ 294,888	$ 1.40	$ 294,888	$ 1.40	$ 294,888	$ 1.81	$ 294,888	$ 1.84	$ 196,592	$ 2.16
Admin Assistant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
QA/QC Engineer	$ 60,535	$ 3.46		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Environmental Department																
Environmental Engineer	$ 60,535	$ 3.46	$ 121,070	$ 1.06	$ 121,070	$ 0.66	$ 121,070	$ 0.58	$ 121,070	$ 0.58	$ 121,070	$ 0.74	$ 121,070	$ 0.76	$ 80,714	$ 0.89
Supplies	$ 24,000	$ 0.21	$ 48,000	$ 0.26	$ 48,000	$ 0.23	$ 48,000	$ 0.23	$ 48,000	$ 0.29	$ 48,000	$ 0.30	$ 48,000	$ 0.53	$ 32,000	$ 0.03
Accounting Department																
Senior Accountant	$ 118,958	$ 6.80	$ 126,625	$ 1.11	$ 126,625	$ 0.69	$ 126,625	$ 0.60	$ 126,625	$ 0.60	$ 126,625	$ 0.78	$ 126,625	$ 0.79	$ 42,208	$ 0.46
Payroll Clerk	$ 40,313	$ 2.30	$ 80,626	$ 0.71	$ 80,626	$ 0.44	$ 80,626	$ 0.38	$ 80,626	$ 0.38	$ 80,626	$ 0.50	$ 80,626	$ 0.50	$ 53,750	$ 0.59
Office Supplies	$ 6,000	$ 0.34	$ 12,000	$ 0.11	$ 12,000	$ 0.07	$ 12,000	$ 0.06	$ 12,000	$ 0.06	$ 12,000	$ 0.07	$ 12,000	$ 0.08	$ 4,000	$ 0.04
Purchasing Department																
Purchasing Agent	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Supplies	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Safety & Training Department																
Safety Director	$ 61,195	$ 3.50	$ 122,390	$ 1.08	$ 122,390	$ 0.67	$ 122,390	$ 0.58	$ 122,390	$ 0.58	$ 122,390	$ 0.75	$ 122,390	$ 0.76	$ 81,594	$ 0.90
Materials	$ 15,000	$ 0.86	$ 30,000	$ 0.26	$ 30,000	$ 0.16	$ 30,000	$ 0.14	$ 30,000	$ 0.14	$ 30,000	$ 0.18	$ 15,000	$ 0.09	$ 5,000	$ 0.05
1st Aid Department																
Materials	$ 7,200	$ 0.4	$ 14,400	$ 0.1	$ 14,400	$ 0.1	$ 14,400	$ 0.1	$ 14,400	$ 0.1	$ 14,400	$ 0.1	$ 14,400	$ 0.1	$ 4,800	$ 0.1
Security Department																
Materials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Services																
Potable Water	$ 7,200	$ 0.41	$ 14,400	$ 0.13	$ 14,400	$ 0.08	$ 14,400	$ 0.07	$ 14,400	$ 0.07	$ 14,400	$ 0.09	$ 14,400	$ 0.09	$ 4,800	$ 0.05
Communication	$ 15,150	$ 0.87	$ 16,500	$ 0.15	$ 16,500	$ 0.09	$ 16,500	$ 0.08	$ 16,500	$ 0.08	$ 16,500	$ 0.10	$ 16,500	$ 0.10	$ 8,250	$ 0.09
Barber Bay Electrical Power	$ 9,720	$ 0.56	$ 19,440	$ 0.17	$ 19,440	$ 0.11	$ 19,440	$ 0.09	$ 19,440	$ 0.09	$ 19,440	$ 0.12	$ 19,440	$ 0.12	$ 9,720	$ 0.11
Stock Electrical Power	$ 192,000	$ 10.97	$ 384,000	$ 3.38	$ 576,000	$ 3.13	$ 576,000	$ 2.74	$ 576,000	$ 2.74	$ 576,000	$ 3.54	$ 576,000	$ 3.60	$ 288,000	$ 3.16
Stock O/H Line Maintenance	$ 4,000	$ 0.23	$ 8,000	$ 0.07	$ 8,000	$ 0.04	$ 8,000	$ 0.04	$ 8,000	$ 0.04	$ 8,000	$ 0.05	$ 8,000	$ 0.05	$ -	$ -
Surface General Maintenance	$ 21,000	$ 1.20	$ 21,000	$ 0.18	$ 21,000	$ 0.11	$ 21,000	$ 0.10	$ 21,000	$ 0.10	$ 21,000	$ 0.13	$ 21,000	$ 0.13	$ 5,250	$ 0.06
Minesite Road Maintenance	$ 12,500	$ 0.71	$ 12,500	$ 0.11	$ 12,500	$ 0.07	$ 12,500	$ 0.06	$ 12,500	$ 0.06	$ 12,500	$ 0.08	$ 12,500	$ 0.08	$ 3,125	$ 0.03
Sewage Treatment	$ 2,500	$ 0.14	$ 5,000	$ 0.04	$ 5,000	$ 0.03	$ 5,000	$ 0.02	$ 5,000	$ 0.02	$ 5,000	$ 0.03	$ 5,000	$ 0.03	$ 1,667	$ 0.02
Others																
Community Allowance	$ 2,750	$ 0.16	$ 5,500	$ 0.05	$ 5,500	$ 0.03	$ 5,500	$ 0.03	$ 5,500	$ 0.03	$ 5,500	$ 0.03	$ 5,500	$ 0.03	$ 3,667	$ 0.04
Travel Allowance	$ 9,000	$ 0.51	$ 9,000	$ 0.08	$ 9,000	$ 0.05	$ 9,000	$ 0.04	$ 9,000	$ 0.04	$ 9,000	$ 0.06	$ 9,000	$ 0.06	$ 3,000	$ 0.03
Recruiting	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Consulting Fees	$ 12,500	$ 0.71	$ 25,000	$ 0.22	$ 25,000	$ 0.14	$ 25,000	$ 0.12	$ 25,000	$ 0.12	$ 25,000	$ 0.15	$ 25,000	$ 0.16	$ 16,667	$ 0.18
SUB TOTAL - MINE SITE	$ 976,945	$ 54.66	$ 1,370,339	$ 11.89	$ 1,562,339	$ 8.47	$ 1,562,339	$ 7.44	$ 1,562,339	$ 7.51	$ 1,562,339	$ 9.60	$ 1,547,339	$ 9.90	$ 844,803	$ 8.96
HEAD OFFICE EXPENSES																
Insurance	$ 32,500	$ 1.86	$ 32,500	$ 0.29	$ 32,500	$ 0.18	$ 32,500	$ 0.15	$ 32,500	$ 0.15	$ 32,500	$ 0.20	$ 32,500	$ 0.20	$ 16,250	$ 0.18
Land & Claim Title Taxes	$ 7,500	$ 0.43	$ 7,500	$ 0.07	$ 7,500	$ 0.04	$ 7,500	$ 0.04	$ 7,500	$ 0.04	$ 7,500	$ 0.05	$ 7,500	$ 0.05	$ 3,750	$ 0.04
Legal Service Fees	$ 35,000	$ 2.00	$ 35,000	$ 0.31	$ 35,000	$ 0.19	$ 35,000	$ 0.17	$ 35,000	$ 0.17	$ 35,000	$ 0.21	$ 35,000	$ 0.22	$ 17,500	$ 0.19
Regulatory Compliance Fees	$ 20,000	$ 1.14	$ 20,000	$ 0.18	$ 20,000	$ 0.11	$ 20,000	$ 0.10	$ 20,000	$ 0.10	$ 20,000	$ 0.12	$ 20,000	$ 0.13	$ 10,000	$ 0.11
Office Expenses	$ 30,000	$ 1.71	$ 30,000	$ 0.26	$ 30,000	$ 0.16	$ 30,000	$ 0.14	$ 30,000	$ 0.14	$ 30,000	$ 0.18	$ 30,000	$ 0.19	$ 15,000	$ 0.16
Travel Allowance	$ 18,000	$ 1.03	$ 18,000	$ 0.16	$ 18,000	$ 0.10	$ 18,000	$ 0.09	$ 18,000	$ 0.09	$ 18,000	$ 0.11	$ 18,000	$ 0.11	$ 9,000	$ 0.10
SUB TOTAL - HEAD OFFICE	$ 143,000	$ 8.17	$ 143,000	$ 1.26	$ 143,000	$ 0.78	$ 143,000	$ 0.68	$ 143,000	$ 0.68	$ 143,000	$ 0.88	$ 143,000	$ 0.89	$ 71,500	$ 0.79
TOTAL GENERAL ADMIN	$ 1,119,945	$ 64.00	$ 1,513,339	$ 13.30	$ 1,705,339	$ 9.28	$ 1,705,339	$ 8.12	$ 1,705,339	$ 8.12	$ 1,705,339	$ 10.47	$ 1,690,339	$ 10.56	$ 916,303	$ 10.06
CUMULATIVE	$ 1,119,945		$ 2,633,284		$ 4,338,624		$ 6,043,963		$ 7,749,302		$ 9,454,642		$11,144,981		$ 12,061,284	
																$ 10.50
																$ 10.50

21.2.4 Mining Productivities and Cost Estimates

Operating productivities and cost estimation for development and production are based upon knowledge of productivities as achieved in a similar setting.

21.2.5 Underground Mobile Equipment Fleet

Mining could be performed exclusively by mechanized mobile equipment with the following equipment to be utilised:

- Mine development could utilize a two-boom electric hydraulic jumbo for primary and secondary development and a two-boom pneumatic drill jumbo for pre-stope development and could be supported by 3.5 yd, and 2.5 yd diesel scoop trams loading 20 ton and 15 ton diesel haul trucks

- Ground support could be installed while working off standard scissor-lift diesel equipment

- Diesel articulated grader could maintain the underground and surface haul roadways

- Cut & fill stope complex could be equipped with 1.25 diesel scoop tram, Cavo loader or pneumatic slusher and scraper with drilling by hand-held pneumatic drilling machines. Ground support could be installed from the muck pile after grooming

Diesel engines on underground equipment could use best available low-emission technology to provide a better environment for the underground workers and ventilation optimization.

21.2.6 Mining Equipment Fleet

Surface mining equipment could be comprised of contract 35 ton articulated haul trucks equipped to travel underground and transport the mineralized material extracted to the processing facility. A Cat 950 type front-end loader with quick change out forks could be utilized for material handling.

In addition, various light vehicles could be provided for stores and supplies handling with administration and personnel transport by Kawasaki type mule personnel carriers modified for use underground.

Table 21.10 – MAXIMUM DAILY DIESEL FUEL CONSUMPTION

MOBILE EQUIPMENT DAILY DIESEL FUEL CONSUMPTION COST ESTIMATE

CLAVOS JV

TYPE OF MOBILE EQUIPMENT	MODEL #	QTY	DIESEL FUEL CONSUMPTION	LOAD FACTOR	MOBILE EQUIPMENT		
					AVAILABILITY	UTILIZATION	CONSUMPTION
			litres/hr	%	%	%	litres/day
2 Boom Pneumatic Jumbo	MJM-20-B	2.0	18.0	70%	90%	10%	60
Mobile Scoop Tram							
JCI 350 Diesel	3.5 yd	2.0	40.0	75%	85%	70%	1,008
JCI 250 Diesel	2.5 yd	1.0	35.0	75%	85%	70%	441
JCI 125 Diesel	1.25 yd	7.0	30.0	70%	85%	45%	1,588
Mobile Und'g Haul Truck							
JDT 420 Diesel	20 ton	2.0	35.0	85%	85%	75%	1,071
JDT 415 Diesel	15 ton	1.0	32.0	85%	85%	75%	490
Service Vehicles							
Mobile Rock Breaker	M-60	1.0	30.0	60%	85%	70%	302
JDT-41SL X-Lift	JDT-41-SL	2.0	18.0	60%	85%	70%	363
Flatbed c/w Hiab	M-60	1.0	25.0	60%	85%	70%	252
Front End Loader	CAT 950	1.0	35.0	75%	90%	75%	473
Grader	Cat 146-G	1.0	30.0	75%	90%	75%	405
Surface Haul Truck	Deere 35 ton	1.0	32.0	85%	85%	75%	490
Personnel Vehicles							
Maintenance	Ford 4WD	1.0	18.0	60%	85%	50%	130
Personnel Carrier	Mule	1.0	18.0	60%	85%	35%	91
Supervisor	Mule	5.0	9.0	60%	85%	40%	259
Toyota Ambulance	Toyota	1.0	12.0	60%	95%	5%	9
Geology Mule	Mule	4.0	9.0	60%	85%	50%	259
Engineering Mule	Mule	3.0	9.0	60%	85%	50%	194
Diesel Generator	Ruston	1.0	340.5	75%	85%	70%	4,290
DAILY DIESEL FUEL CONSUMPTION							**12,174**

Table 21.11 - UNDERGROUND MOBILE EQUIPMENT OPERATING COST ESTIMATE

CLAVOS JV

TYPE	OPERATING UNIT COST $/hr	TIRE BUDGET SCHEDULE LIFE hrs	TIRE BUDGET SET OF 4 $	FUEL CONSUM $/hr	LUBE % OF FUEL 15%	REBUILD SCHEDULE hrs	REBUILD SCHEDULE $	OPERATING TOTAL COST $/hr
2 Boom Pneumatic Jumbo	$ 27.50	Solid	$ 22,000	$ 14.40	$ 2.16	20,000	$ 115,000	$ 52.80
Mobile Scoop Tram								
JCI 350 Diesel	$ 55.00	1,550	$ 18,000	$ 32.00	$ 4.80	12,500	$ 155,000	$ 115.81
JCI 250 Diesel	$ 50.00	1,550	$ 16,000	$ 28.00	$ 4.20	12,500	$ 135,000	$ 103.32
JCI 125 Diesel	$ 45.00	1,550	$ 12,000	$ 24.00	$ 3.60	12,500	$ 95,000	$ 87.94
Mobile Und'g Haul Truck								
JDT 420 Diesel	$ 45.00	2,350	$ 16,000	$ 28.00	$ 4.20	18,500	$ 120,000	$ 90.49
JDT 415 Diesel	$ 43.00	2,350	$ 14,500	$ 25.60	$ 3.84	18,500	$ 115,000	$ 84.83
Service Vehicles								
Mobile Rock Breaker	$ 40.00	4,000	$ 8,500	$ 24.00	$ 3.60	20,000	$ 75,000	$ 73.48
JDT-41SL X-Lift	$ 27.50	4,000	$ 8,500	$ 14.40	$ 2.16	20,000	$ 65,000	$ 49.44
Flatbed c/w Hiab	$ 30.00	4,000	$ 8,500	$ 20.00	$ 3.00	20,000	$ 85,000	$ 59.38
Front End Loader	$ 30.00	4,000	$ 7,500	$ 28.00	$ 4.20	20,000	$ 45,000	$ 66.33
Grader	$ 27.50	4,000	$ 10,800	$ 24.00	$ 3.60	20,000	$ 65,000	$ 61.05
Surface Haul Truck	$ 37.50	3,000	$ 9,000	$ 25.60	$ 3.84	18,500	$ 55,000	$ 72.91
Personnel Vehicles								
Maintenance	$ 27.50	4,000	$ 8,500	$ 14.40	$ 2.16	20,000	$ 30,000	$ 47.69
Personnel Carrier	$ 27.50	4,000	$ 8,500	$ 14.40	$ 2.16	20,000	$ 30,000	$ 47.69
Supervisor	$ 15.00	2,000	$ 2,500	$ 7.20	$ 1.08	7,500	$ 10,000	$ 25.86
Toyota Ambulance	$ 18.50	4,000	$ 2,500	$ 9.60	$ 1.44	20,000	$ 25,000	$ 31.42
Geology Mule	$ 15.00	2,000	$ 2,500	$ 7.20	$ 1.08	7,500	$ 10,000	$ 25.86
Engineering Mule	$ 15.00	2,000	$ 2,500	$ 7.20	$ 1.08	7,500	$ 10,000	$ 25.86

21.3 Project Proposed Execution Plan

The Clavos JV project interim schedule has been established such that many of the mineralized structures at Clavos JV could be defined in better detail by the underground exploratory and definition/delineation diamond drill program at close spacing and proper detail mine planning, and the preparation of a pre-feasibility study could be possible.

Once the decision to move ahead at the mine is made, the following outlines the proposed development schedule and stope extraction targets.

Table 21.12 - PROJECT EXECUTION SCHEDULE

CLAVOS JV

WORK CENTER	UNITS	QTY	YEAR-01				YEAR-02				YEAR-03				YEAR-04				YEAR-05				YEAR-06				YEAR-07				YEAR-08		
			1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD
Environmental Permitting	day	30																															
Secure Financing	day	175																															
Und'g Mobile Eqp't Procurement																																	
Primary Production Equipment	day	875																															
Primary Support Equipment	day	875																															
Primary Mining Equipment	day	525																															
Fixed Und'g Equipment	day	1,225																															
Surface Infrastructure	day	525																															
Mine Rehabilitation																																	
Primary Ventilation	day	525																															
Mine Dewatering																																	
Phase 01	day	58																															
Phase 02	day	29																															
Mine Rehabilitation	day	88																															
Mine Water Discharge	day	175																															
Cut & Fill Stope Production																																	
Stope Definition Dia. Drilling	day	2,494																															
	meter	31,751			138	367	691	812	909	1,084	1,209	1,340	1,486	1,616	1,129	1,128	985	1,249	1,126	1,120	1,125	1,156	1,136	1,002	635	398	1,579	1,579	1,579	1,579	1,579	1,579	436
Pre-Stope Development	day	2,494																															
	meter	3,322			14	38	72	85	95	114	127	140	156	169	118	118	103	131	118	117	118	121	119	105	66	42	165	165	165	165	165	165	46
Cut & Fill Stoping	day																																

Long Hole Stope Production																																			
Stope Definition Dia. Drilling	day	1,706																																	
	meter	8,506				136	127	164	220	218	253	284	303	334	691	693	798	604	694	698	695	672	408	257	257										
Pre-Stope Development	day	1,706																																	
	meter	849				14	13	16	22	22	25	28	30	33	69	69	80	60	69	70	69	67	41	26	26										
Long Hole Stoping																																			
Mill Facility Processing	day	2,494																																	
Surface Truck Haulage	day	2,494																																	
Und'g Services																																			
Manpower	day	2,494																																	
Operating Supplies	day	2,494																																	
General & Administration	day	2,494																																	
Exploration																																			
Primary Develoipment	day	2,188																																	
	meter	1,617					36	36	41	51	55	58	62	103	87	94	89	88	81	75	76	64	65	63	63	66	66	66	66	66					
Diamond Drilling	day	2,188																																	
	meter	19,569					436	434	491	618	667	703	749	1,244	1,055	1,137	1,079	1,065	979	911	925	772	782	767	757	798	800	800	800	800					
Ore Production	tonne	1,148,900			3,500	14,000	21,875	26,250	30,625	35,000	39,375	43,750	48,125	52,500	52,500	52,500	52,500	52,500	52,500	52,500	52,500	52,500	42,855	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	11,045
Waste Rock Produced	tonne	63,668			154	572	1,331	1,507	1,738	2,057	2,277	2,486	2,728	3,355	3,014	3,091	2,992	3,069	2,948	2,882	2,893	2,772	2,475	2,134	1,705	1,188	2,541	2,541	2,541	2,541	1,815	1,815	506	
Primary Development	meter	1,617					36	36	41	51	55	58	62	103	87	94	89	88	81	75	76	64	65	63	63	66	66	66	66	66					
Exploratory Dia. Drilling	meter	19,569					436	434	491	618	667	703	749	1,244	1,055	1,137	1,079	1,065	979	911	925	772	782	767	757	798	800	800	800	800					
Stope Definition Dia. Drilling	meter	40,257			138	503	818	976	1,129	1,302	1,462	1,624	1,789	1,950	1,820	1,821	1,783	1,853	1,820	1,818	1,820	1,828	1,544	1,259	892	398	1,579	1,579	1,579	1,579	1,579	1,579	436	
Pre-Stope Development	meter	4,171			14	52	85	101	117	136	152	168	186	202	187	187	183	191	187	187	187	188	160	131	92	42	165	165	165	165	165	165	46	

22.0 ECONOMIC ANALYSIS

This Preliminary Economic Assessment (PEA) is preliminary in nature, and has been prepared using inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the Preliminary Economic Assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability. The PEA is deemed to be reliable +/- 50% level.

22.1 Taxes

Provincial and Federal Income taxes were considered as being applicable to the analysis outlined within this PEA Report. Sage currently has tax loss carry-forwards of $13.3 million, these loss carry-forwards have been factored into the model.

Harmonized sales tax ("HST") was considered as refundable to the Clavos JV mining operation, therefore, it was not included in the analysis within this PEA Report.

Import duties and other miscellaneous fees as associated with capital items (CAPEX) procurement were included in the capital cost estimate (CAPEX) developed.

Clavos JV is obligated to pay local municipal property taxes to the municipality of Matheson, in the province of Ontario.

Net Smelter Return royalties of 3% are included in this analysis, Please refer to Section 4.4.

22.2 Economic Evaluation Model

22.2.1 Introduction

The Clavos JV economic evaluation model is outlined below together with the effect on project economics due to variations in the gold price ($/oz gold), operating costs (OPEX), and capital costs (CAPEX).

This economic evaluation model was prepared on a pre-tax and after tax basis and in CDN$.

Table 22.1 – CLAVOS JV OPERATING COST ESTIMATE

OPEX ($111.79/t Cut & Fill / $61.79/t Long Hole)	111,739,507
G & A	12,061,284
Und'g Manpower Operating	12,140,796
Und'g Services Operating	6,553,386
Royalties (3%)	6,545,165
Total Operating Expenditures	149,040,138

22.2.2 Net Present Value and Internal Rate Of Return

This study predicts a pre-tax net present value (NPV) of CDN$23.2 million at an 8% discount rate, and an internal rate of return (IRR) of 71%.This study also predicts an after-tax net present value (NPV) of CDN$12.6 million at an 8% discount rate, and an internal rate of return (IRR) of 47%.

Initial and sustaining CAPEX expenditures and OPEX costs have been included on a quarter-by-quarter basis, for life of mine.

Contingency amounts vary by project area, depending on the assumed level of risk of change in the cost estimate.

Revenue has been based on an average price for gold of US$1,500.00 per ounce.

Payback could be achieved within 2years of Clavos JV start-up.

The seven year mine life, NPV and IRR are based upon extracting 70% of the indicated and the inferred mineral resource.

22.2.3 Cash Flow and Payback Period

A summary of the Clavos JV cash flow statement is presented below with Pre Tax Undiscounted Cash Flow indicated over a payback period of 2years.

Over the life of mine, total revenue is estimated at $218.2million, with operating expenses of $149.0 million for total proceeds before capital expenditures of $69.2 million.

After funding initial and sustaining capital of $35.1million, net undiscounted pre-tax cash flow is estimated to be $34.0 million representing an NPV of $23.2million (8% discount) and an IRR of

71%. On an after-tax basis the NPV is reduced to $12.6 million (8% discount) and the IRR is 47%.

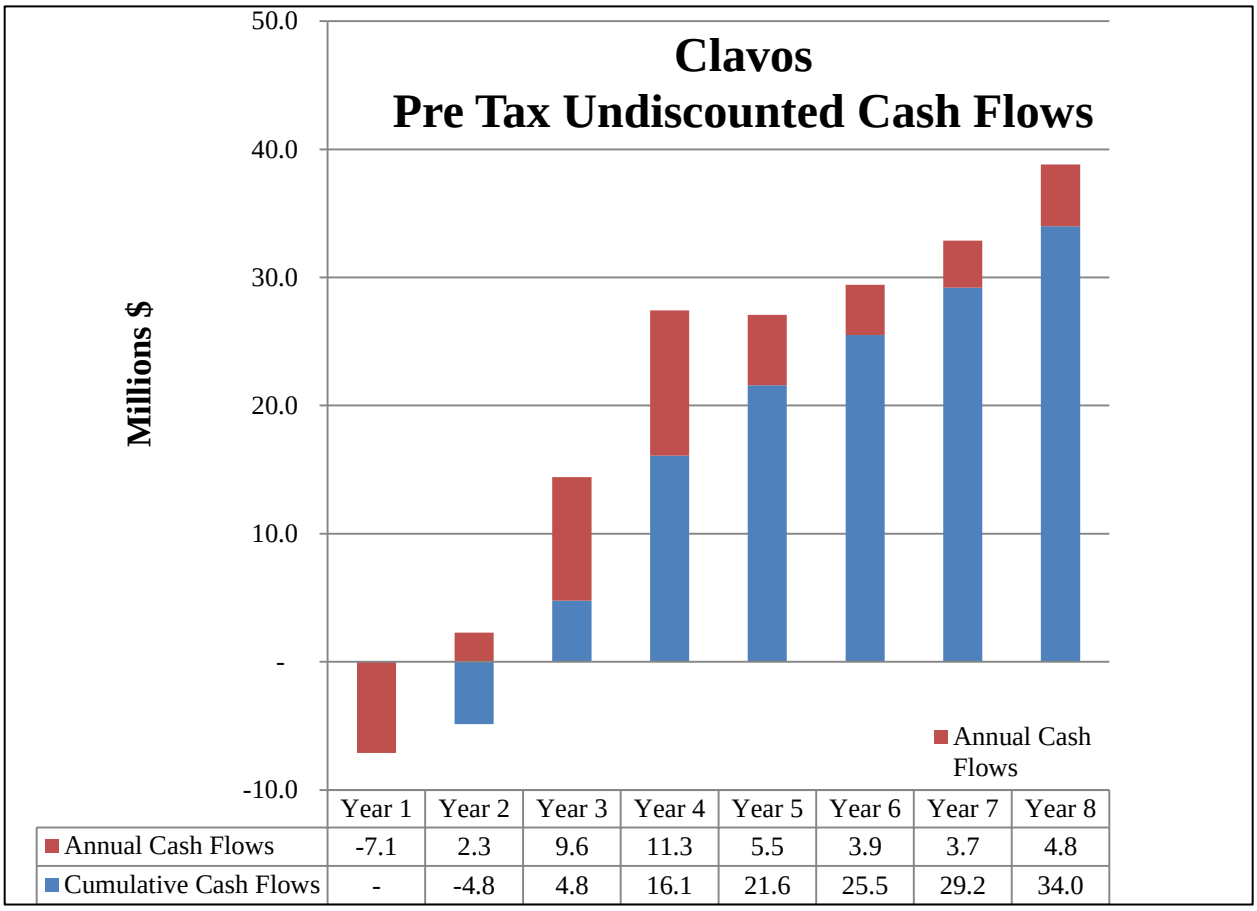
Table 22.2 – ECONOMIC MODEL SUMMARY

CLAVOS JV

GOLD PRICE	US$ / Oz (Au)	**$ 1,400/Oz (Au)**	**$ 1,500/Oz (Au)**	**$ 1,600/Oz (Au)**
Gold Production	OZ/AU	145,448	145,448	145,448
Revenue	Cdn$ (m)	$ 203.6	$ 218.2	$ 232.7
Initial Capital Expenditures	Cdn$ (m)	$ 14.1	$ 14.1	$ 14.1
Sustaining Capital	Cdn$ (m)	$ 21.1	$ 21.1	$ 21.1
Total Capital	Cdn$ (m)	$ 35.1	$ 35.1	$ 35.1
OPEX	Cdn$ / t (Ore)	$ 142.5	$ 142.5	$ 142.5
NSR	Cdn$ / t (Ore)	$ 6.1	$ 6.5	$ 7.0
Cash flow (undiscounted)		**$ 19.9**	**$ 34.0**	**$ 48.1**
Pre Tax				
Net Present Value (NPV) 8%	Cdn$ (m)	$ 13.5	$ 23.2	$ 33.0
Internal Rate Of Return (IRR)	%	48%	71%	94%
Post Tax				
Net Present Value (NPV) 8%	Cdn$ (m)	$ 5.6	$ 12.6	$ 19.5
Internal Rate Of Return (IRR)	%	27%	47%	67%
Life of Mine	Year	7	7	7
Payback Period	Year	2.25	2.00	1.75

Note - assumes a exchange rate of 1:1 of Canadian to US Dollar

FIG 22.1 – CLAVOS JV PRE TAX UNDISCOUNTED CASH FLOWS



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Annual Cash Flows	-7.1	2.3	9.6	11.3	5.5	3.9	3.7	4.8
Cumulative Cash Flows	-	-4.8	4.8	16.1	21.6	25.5	29.2	34.0

Table 22.3 – ECONOMIC EVALUATION MODEL
CLAVOS JV

COST CENTER	UNITS	YEAR-01	YEAR-02	YEAR-03	YEAR-04	YEAR-05	YEAR-06	YEAR-07	YEAR-08
TOTAL REVENUE									
Ore Processed	t	17,500	113,750	183,750	210,000	210,000	162,855	160,000	91,045
Average Head Grade - Gold	gms/t	6.45	5.06	4.84	4.51	3.73	4.16	4.37	4.37
Contained Gold	oz's	3,628.5	18,521.8	28,578.2	30,443.0	25,188.1	21,793.7	22,479.8	12,791.7
Gold Recovery	%	89%	89%	89%	89%	89%	89%	89%	89%
Recovered Gold By Year	oz's	3229.4	16484.4	25434.6	27094.3	22417.4	19396.4	20007.0	11384.6
Gold Price	CDN$/oz	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500
GROSS REVENUE (CDN $)	CDN$	4,844,047	24,726,651	38,151,854	40,641,438	33,626,090	29,094,646	30,010,513	17,076,920
OPERATING COST									
MINE OPERATING COSTS									
Ore Production	CDN $	$ 1,691,894	$ 11,234,893	$ 18,151,800	$ 18,559,526	$ 18,600,261	$ 16,269,634	$ 17,355,613	$ 9,875,886
Underground Manpower - Operating	CDN $	$ 483,423	$ 1,777,138	$ 1,859,538	$ 1,859,538	$ 1,859,538	$ 1,859,538	$ 1,859,538	$ 582,545
Underground Services Operating	CDN $	$ 318,008	$ 896,301	$ 991,500	$ 991,500	$ 991,500	$ 991,500	$ 991,500	$ 381,578
G & A	CDN $	$ 1,119,945	$ 1,513,340	$ 1,705,339	$ 1,705,340	$ 1,705,340	$ 1,705,340	$ 1,690,340	$ 916,302
SUB TOTAL MINE OPERATING COST	CDN $	$ 3,613,271	$ 15,421,672	$ 22,708,177	$ 23,115,904	$ 23,156,638	$ 20,826,011	$ 21,896,991	$ 11,756,311
Average $ Per Tonne Processed	$/t	$ 206.47	$ 135.58	$ 123.58	$ 110.08	$ 110.27	$ 127.88	$ 136.86	$ 129.13
Average $/oz Gold (Au) Produced	$/oz (Au)	$ 1,118.88	$ 935.53	$ 892.81	$ 853.17	$ 1,032.98	$ 1,073.70	$ 1,094.47	$ 1,032.65
3RD PARTY ROYALTY	CDN $	$ 145,321	$ 741,800	$ 1,144,556	$ 1,219,243	$ 1,008,783	$ 872,839	$ 900,315	$ 512,308
OPERATING COSTS	CDN $	$ 3,758,592	$ 16,163,471	$ 23,852,733	$ 24,335,147	$ 24,165,421	$ 21,698,851	$ 22,797,306	$ 12,268,619
Average $ Per Tonne Processed	$/t	$ 214.78	$ 142.10	$ 129.81	$ 115.88	$ 115.07	$ 133.24	$ 142.48	$ 134.75
Average $/oz Gold (Au) Produced	$/oz (Au)	$ 1,163.88	$ 980.53	$ 937.81	$ 898.17	$ 1,077.98	$ 1,118.70	$ 1,139.47	$ 1,077.65
NET REVENUE	CDN $	$ 1,085,455	$ 8,563,179	$ 14,299,122	$ 16,306,291	$ 9,460,669	$ 7,395,795	$ 7,213,207	$ 4,808,301
Average $ Per Tonne Processed	$/t	$ 62.03	$ 75.28	$ 77.82	$ 77.65	$ 45.05	$ 45.41	$ 45.08	$ 52.81
Average $/oz Gold (Au) Produced	$/oz (Au)	$ 336.12	$ 519.47	$ 562.19	$ 601.83	$ 422.02	$ 381.30	$ 360.53	$ 422.35
CUMLATIVE	CDN $	1,085,455	9,648,634	23,947,756	40,254,046	49,714,716	57,110,511	64,323,719	69,132,020
CAPITAL EXPENSES									
Capital Mine Rehabilitation	CDN $	2,619,873	375,546	11,966	-	-	-	-	
Capital - Underground Mining Equipment	CDN $	3,192,196	1,653,175	383,975	224,600	38,700	38,700		
Surface Infrastructure	CDN $	1,103,548	997,445	173,260	173,260	173,260	173,260	173,260	-
Contingencies	CDN $	1,288,723	795,186	167,171	119,358	63,588	63,588	51,978	-
TOTAL CAPITAL COST	CDN $	8,204,340	3,821,352	736,372	517,218	275,548	275,548	225,238	-
Sustaining Capital									
Primary Development	CDN $	-	494,533	840,787	1,083,772	896,696	775,857	800,280	-
Exploratory Diamond Drilling			247,267	420,393	541,886	448,348	387,929	400,140	-
Additional Exploraiton	CDN $	-	1,730,866	2,670,630	2,844,901	2,353,826	2,036,625	2,100,736	-
TOTAL SUSTAINING CAPITAL	CDN $	-	2,472,665	3,931,810	4,470,558	3,698,870	3,200,411	3,301,156	-
NET CASH FLOW									
Gross Revenue	CDN $	4,844,047	24,726,651	38,151,854	40,641,438	33,626,090	29,094,646	30,010,513	17,076,920
Operating Cost	CDN $	3,758,592	16,163,471	23,852,733	24,335,147	24,165,421	21,698,851	22,797,306	12,268,619
Capital Cost	CDN $	8,204,340	3,821,352	736,372	517,218	275,548	275,548	225,238	-
Sustaining Capital	CDN $	-	2,472,665	3,931,810	4,470,558	3,698,870	3,200,411	3,301,156	-
PRE-TAX CASH FLOW	CDN $	7,118,885	2,269,162	9,630,940	11,318,514	5,486,251	3,919,836	3,686,813	4,808,301
CUMULATIVE	CDN $		4,849,723	4,781,217	16,099,731	21,585,982	25,505,819	29,192,631	34,000,932
Post-TAX CASH FLOW	CDN $	7,202,027	1,150,663	7,638,696	7,036,078	2,959,812	2,129,522	2,002,339	3,749,491
CUMULATIVE	CDN $		6,051,364	1,587,332	8,623,410	11,583,222	13,712,743	15,715,082	19,464,573

22.2.4 Sensitivity Analysis

A PEA is deemed to be reliable +/- 50%. To give a more granular perspective, the following sensitivity analysis estimated the impact of a 25% fluctuation in recovery, OPEX or CAPEX.

Results from a sensitivity analysis are summarized for the pre-tax discounted cash flow and for the pre-tax IRR:Itis apparent that gold price ($/ounce gold) and implicitly the head grade (g/t gold) and gold recovery (%)have the strongest influence on the economic performance of the Clavos JV Project, followed by CAPEX and to a lesser degree OPEX expenditures.

Table 22.4 – PRE TAX NPV / IRR CASH FLOW SENSITIVITY (8%)

	Sensitivity of Pre Tax Net Present Value of Cash Flow (8%)				
Fluctuation	-25%	-10%	0%	10%	25%
Recovery	-$ 13.3	$ 8.6	$ 23.2	$ 37.8	$ 59.8
Opex	$ 30.0	$ 25.9	$ 23.2	$ 20.5	$ 16.4
Capex	$ 49.4	$ 33.7	$ 23.2	$ 12.8	-$ 2.8

	Sensitivity of Pre-Tax IRRs				
Fluctuation	-25%	-10%	0%	10%	25%
Recovery	-25%	35%	71%	105%	154%
Opex	107%	84%	71%	61%	47%
Capex	129%	94%	71%	47%	-1%

22.3 Risks and Opportunities

At the Clavos JV project, risk can be defined as any contributing factor that could affect the project with a significant probability of occurrence, whether adversely or contributory to the project economics. Situations whereby the above event would have a straightforward solution available would not be considered as a risk and thus are not commented on.

External risks that could affect the Clavos JV project include:

- Significant reduction in gold price
- Increased OPEX costs as the result of inflationary increases in labour, electricity, diesel, and/or mining materials and mining supplies
- Increased CAPEX costs as the result of inflationary increases in raw materials, original equipment manufacturer componentry, and/or mine contractor costs
- Delays in construction schedule due to external influences either politically, with the First Nations, with due process and/or shortage of construction labour

Internal risks that could affect the Clavos JV project include:

- Increased OPEX costs as the result of operational inefficiencies
- Increased CAPEX costs as the result of weak on-site project management
- Reduction in contained gold grade as a result of detail definition and delineation diamond drilling on close spacings
- Inconsistent ore thickness (too narrow to extract efficiently) as a result of detail definition and delineation diamond drilling on close spacings
- Reduced stoping block mineralized material extraction productivities
- Increased internal and/or external waste dilution for stope block mineralized material extraction
- Lower than expected metallurgical gold recovery
- Increased OPEX cost for processing plant consumable materials and supplies
- Increased OPEX cost due to environmental contamination by hazardous materials
- Increased inflow of ground water and/or ground stabilization problems underground

Mineral properties often can become unproductive for reasons not anticipated at start-up and can be adversely compounded by operational factors such as labour problems, environmental issues, safety, geology, weather, and regulatory issues.

In meetings with the First Nations, Clavos JV hasalways stressed their position of promoting the mutual benefits afforded to each party through co-operation and that Clavos JV will continue to support these measures with the indigenous people.

Clavos JV, too, is subject to competitive risk for financing and the need to generate positive cash flows, while subject to world precious metal pricing and other economic forces which influence the accessibility to the funds in the capital driven market. The market for gold can be affected by factors beyond Clavos JV’s control and predictability - i.e. metal prices, market fluctuations, and proximity of a custom milling facility, processing equipment, government regulations, royalties, and environmental protection.

Clavos JV does not currently have sufficient financial resources to undertake this proposedmine development work program/ exploration program and will need to raise funds through equity offerings and/or project financing. Presently, there is no assurance that additional funding will be made available to Clavos JV andany delay or failure to obtain this additional financing could result in the postponement of this proposed program.

Clavos JV’s projected revenue would be derived primarily from the sale of gold, and the gold price can fluctuate widely as a result of any of the following factors: economics, politics, inflation, currency exchange, and interest rate levels. Thus the economic viability of the Clavos JV operations cannot be accurately predicted.

Clavos JV competes with many other mining companies some of which possess larger financial resources and technical capabilities, therefore at some point in the future, the company may be unable to meet its share of costs incurred under agreements to which it is a party with their interest in the property reduced and/or other companies may not be able to meet their share of costs to complete certain programs.

Mining involves certain risks, which experience, knowledge and careful evaluation may not overcome. The work programs proposed could be subject to hazards and risks incidental to development and extraction of any similar resource. This could result in work stoppages and damage to persons, property or environment with possible legal liability for damages. In any mine economic model, there exists a risk during the exploration phase when sound professional judgment, in conjunction with realistic statistically based calculations, yields few rewards.

Clavos JV, as with all mining companies, are subject to environmental regulations which are in a state of constant revision to stricter standards and enforcement, increased fines and penalties for non-compliance, stringent environmental assessments for proposed projects and an increasing responsibility level for companies, officers, directors and employees. There is no assurance that future environmental regulations, if any, will not adversely affect the Clavos JV project.

The cost of compliance as a result of new governmental regulations could reduce the profitability of Clavos JV project such as to preclude the development of the project. In addition, certain

environmental hazards may already exist on the project resulting from actions of previous or existing owners or operators with these conditions currently unknown to Clavos JV.

Although Clavos JV has secured liability insurance and will secure property insurance in an amount considered as adequate, a fire, power outage, labour disruption, flooding, explosion or cave-in may exceed the policy limit with the liabilities being non insurable, or, Clavos JV may elect to not insure against such liabilities due to high premium costs, in which event Clavos JV could incur significant costs or uninsurable losses that would have an adverse material effect upon its financial condition.

The author of this PEA Report is not aware of any outstanding aboriginal land claims having been asserted or any legal actions relating to aboriginal issues having been instituted with respect to the Clavos JV property.

The author of this PEA Report is of the opinion that any of the above risks as identified, should not be considered as being adversely, nor probable of, impacting the Clavos JV project to any degree higher than the same risk factor profiles at any other similar mine development project.

23.0 ADJACENT PROPERTIES

The author is not aware of any relevant data and/or information nor has any material related to adjacent properties been sourced.

24.0 OTHER RELEVANT DATA & INFORMATION

The author of this PEA is not aware of other known relevant data and/or information that should be included.

25.0 INTERPRETATION & CONCLUSIONS

This Preliminary Economic Assessment (PEA) is preliminary in nature, and has been prepared using inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the Preliminary Economic Assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The author of this PEA is of the opinion that sound detailed geological information needs to be made available to permit proper stope mine planning with stope definition/delineation diamond drilling possibly needed on close spacing.

The lack of detailed geological information, combined with the sill drift level development program to define the available mineralized material zone structures, resulted in a high percentage of mill feed derived from sill drift level development with the probability of excessive external dilution experienced.

The long hole and modified shrink stoping method selected would have necessitated the inclusion of internal dilution encountered to maintain proper stope boundaries with excessive external dilution experienced from poor wall rock control due to both wandering long hole drill patterns and inherent in-situ wall rock ground conditions. This above would have been a significant contributing factor in obtaining poor economic results obtained during historical production from Clavos during the 2005 to 2007 period.

The large data base of geological information reviewed by both RPA and the author of this report has provided an insight into the earlier mining activities at Clavos JV such that a degree of confidence at the macro level should ensure that the grade of the mineralized material configured should be close to that as predicted within the mineral resource estimate produced.

Local variations in both grade and tonnage at Clavos JV are recognized as likely to occur, and is considered to be quite typical of the types of mineralized structures present within this general area, however, the author of this PEA is of the opinion that these variances can be managed and accommodated through: completion of stope definition and delineation diamond drilling on close spacing, detail face sampling, and by ensuring that an abundance of working headings are constantly under development to reduce the need for short-term planning to meet the demands of the milling facility.

The author of this PEA is of the opinion that a change in the proposed primary mining method from longitudinal retreat long hole stoping to cut & fill mining method, could reduce substantially any previous impediments to the practical mining extraction sequence as

experienced by the earlier mining experience, especially in these types of mineralized structures, and will produce a degree of confidence in the proposed stope extraction mining methods and control of ground support.

The procedures outlined below should be implemented to ensure and improve the selection criteria applied for those initial stope blocks selected for extraction:

- Confirm the mineral resource grade and tonnage estimates are as published
- Verify that the correct type of stope method has been selected
- Detail each stope block mineralized envelope configuration
- Verify the economics for each stope block selected prior to commencing with pre-stope development
- Combine as many individual cut & fill stope blocks as possible into a single cut & fill stope complex
- Verify that the correct type of underground mining equipment has been selected for CAPEX
- Verify that the OPEX operating cost estimates are realistic for each differing stope method selected

A mine design software planning program should be procured for Clavos JV, to aid with 3-D block modeling for improving local grade estimation, expedite the mine planning and design exercises, and reduce the sensitivity of the grade estimate to erratic high gold values.

Clavos JV have reached a stage where additional surface diamond drilling programs cannot generate the information needed to make a mine decision easier, as underground access and underground drill windows are needed to verify the mineralized zone continuity, configuration and accuracy for the gold grade estimate.

The surface diamond drilling exploration program completed by Clavos JV recently, has renewed interest in the mineralized structures to the east (namely the Sediment Zone and the 960 Zone) with further exploration work required to fully understand the overall grade and structure configurations present.

The flow sheet process selected for custom milling is considered as a conventional method in use at the gold recovery process plants within this general area, and is essentially the same as those employed during the historical production program at Clavos JV.

No fatal risk factors have been identified in any of the studies performed on this project and the gold recovery and estimated processing costs of the selected custom mill facilities proposed in this study are considered to be reliable, with predicted recoveries being similar to the gold recoveries experienced during the earlier mining phase at Clavos JV, and thus are considered to be sound and conservative for this evaluation of Clavos JV.

The existing surface infrastructure is considered to be adequate for dealing with the following conditions: control of ground water, availability of Ontario Hydro providing electrical grid power on site, availability of a pool of experienced manpower, accessibility to a provincial highway network, and local supply of mining materials and supplies in close proximity and at more than a single source supply depot.

All environmental permitting is in place to allow the project to proceed with the outlined scope of work.

The PEA level economic evaluation of the Clavos JV project indicates that a positive return on investmentis possible while exhibiting sufficient economic and practical merit to make a decision to proceed to mine construction, mine dewatering, mine rehabilitation, and definition/delineation stope diamond drilling.

26.0 RECOMMENDATIONS

This Preliminary Economic Assessment (PEA) is preliminary in nature, and has been prepared using inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the Preliminary Economic Assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The following plan is recommended by the author of this PEA Report towards advancing the Clavos JV project into the future:

Phase 1:

- Secure the key Clavos JV project execution team members
- Install the polishing pond discharge weir
- Upgrade the required surface infrastructure needed to support the underground mine dewatering (Phase 1 and 2) and the mine rehabilitation program
- Commence with worldwide sourcing and procurement, at discounted prices, of good condition and/or good value underground capital equipment that either will require repair and/or complete rebuild
- Dewater the mine (Phase 1) between surface and the 150m level while working from within the confines of the mine egress ventilation raise opening
- Construct the surface ventilation fan house at the egress ventilation raise collar
- Commission the surface ventilation fans thus providing fresh air flow down the egress ventilation raise to the 150m level while exhausting over to and up the access ramp decline to surface
- Rehabilitate the mine while progressing down the access decline ramp until the 150m level is reached
- Commence with the required definition/delineation diamond drill programs at those selected stoping blocks that could be prepared for mineralized material extraction
- Dewater the mine between the 150m level to the 285m level (bottom of the mine)
- Rehabilitate the mine to the 285m level

Phase 2:

- Provided positive results can be obtained from the Existing Clavos mineralized structure definition/delineation diamond drill program, prepare the required detailmine planning for Clavos JV underground mineralized material extraction
- Commence with the 250m level exploration mine development and exploratory diamond drilling program to define the Sediment and the 960 Zone mineralized structures previously defined by the past surface diamond drilling completed
- Provided positive results can be obtained from the above programs, prepare a Pre-Feasibility Study.

Table 26.1 – CLAVOS JV RECOMMENDED WORK PROGRAM

	WORK CENTRE	Year 01	Year 02
	PHASE 1:		
1)	Surface Building Construction	$ 170,662	$ 341,809
2)	Safety Facilities & Training	$ 63,268	$ 6,383
3)	Governmental Requirements	$ 65,750	$ 59,350
4)	Environmental	$ 78,000	$ 63,000
5)	Mine Services	$ 180,328	$ 97,500
6)	Roads & Access	$ 141,495	$ 108,060
7)	Secure Staff Members	$ 130,482	$ 74,083
8)	Install Polishing Pond Discharge Weir	$ 35,000	
9)	Surface Primary Fresh Air Supply	$ 355,250	$ 43,250
10)	Mine Dewatering – Stage 1	$ 461,362	
11)	Mine Rehabilitation	$ 877,157	
12)	Mine Dewatering – Stage 2	$ 193,153	
13)	Mine Water Discharge	$ 83,500	$ 239,200
14)	Primary Production Equipment	$ 1,852,500	$ 1,163,000
15)	Primary Support Equipment	$ 612,000	$ 36,000
16)	Primary Mining Equipment	$ 175,000	$ 75,000
17)	Fixed Underground Equipment	$ 502,047	$ 329,425
18)	Misc. Services & Infrastructure	$ 302,444	$ 111,525
19)	Safety Facilities	$ 142,750	$ 49,750
20)	G & A - Manpower	$ 636,424	$ 415,258
21)	G & A - Supplies	$ 316,270	$ 585,240
22)	G & A – Misc.	$ 24,250	$ 39,500
23)	Definition/Delineation Diamond Drilling	$ 65,625	$ 426,563

24)	Head Office	$ 143,000	
25)	Contingency	$ 620,571	$ 228,832
	SUB TOTAL (Phase 1)	**$ 8,228,288**	**$ 4,492,728**
	PHASE 2:		
26)	Mine Supervision	$ 145,498	$ 468,683
27)	Technical Services	$ 242,820	$ 284,020
28)	Mine Operating - Services	$ 95,106	$ 135,865
29)	Mine Operating - Operating	$ 318,008	$ 446,200
30)	Head Office		$ 71,500
	SUB TOTAL (Phase 2)	**$ 801,432**	**$ 1,406,268**
	TOTAL (Phase 1 + 2)	**$ 9,029,720**	**$ 5,898,996**
	GRAND TOTAL		**$ 14,928,716**

An exploration program to assess the mineralized structures to the east of the current mine workings could be scheduled early in the overall proposed program at Clavos JV and could consist of primary mine development to both the east and to depth to access the most ideal diamond drill station windows available along the Pipestone Fault

The objectives of this underground exploration program could be to:

- Confirm the geological interpretations applied to date
- Investigate gold grade continuity
- Convert inferred mineral resources to indicated mineral resources
- Determine if the gold grade cutting level of 60 gms/t Au is appropriate
- Provide mineralized samples for additional metallurgical testing
- Assess the ground conditions for underground mining
- Provide additional data to support a pre-feasibility study

The proposed exploration program could include infill drilling, testing down-plunge trends to a depth of about 550m below surface proximal to the existing mineralized blocks.

27.0 REFERENCES

Ayer, J.A., 2000;

The Abitibi greenstone belt: a program overview; in Summary of Field Work and other activities 2000, Ontario Geological Survey, Open File Report 6032, p.3.1 to 3.4.

Ayer J.A., Berger, B., Johns, G., Trowell, N., Born, P., and Mueller, W.U., 1999,

Late Archaen Rock Types and Controls on Gold Mineralization in the Southern Abitibi Greenstone Belt of Ontario; Geological Association of Canada, Field Trip B3 Guidebook, 54p.

Ayer J.A., Trowell, N.F., Madon, Z., Kamo, S., Kwok, Y.Y., and Amelin, Y., 1999,

Compilation of the Abitibi Greenstone Belt in the Timmins-Kirkland Lake Area: Revisions to Startigraphy and new Geochronological Results;. in Summary of Field Work and other activities 1999, Ontario geological Survey,. Open File Report 6000, p4-1 to4-13.

Asbury, D. W., 1989,

Gold Reserves in the Shoot Zone of St. Andrew Goldfields Ltd., Taylor Township, Matheson Area, Ontario. March 1, 1989.

Atherton, P.G., 1991,

Report on Goldpost Property 1990-1991 Mining Activities for Mindecon Inc., November 1991.

Atherton, P.G., 1992,

Report on Reserve Estimate and Exploration of South and West Areas, Goldpost Property for Goldpost Resources Inc., March 1992.

Atherton, P.G., 1993,

Exploration Proposal, Hislop East Property for St. Andrew Goldfields Ltd.

Ayer, J.A., 2000;

The Abitibi greenstone belt: a program overview; in Summary of Field Work and other activities 2000, Ontario Geological Survey, Open File Report 6032, p.3.1 to 3.4.

Ayer J.A., Berger, B., Johns, G., Trowell, N., Born, P., and Mueller, W.U., 1999,

Late Archaen Rock Types and Controls on Gold Mineralization in the Southern Abitibi Greenstone Belt of Ontario; Geological Association of Canada, Field Trip B3 Guidebook, 54p.

Ayer J.A., Trowell, N.F., Madon, Z., Kamo, S., Kwok, Y.Y., and Amelin, Y., 1999,

Compilation of the Abitibi Greenstone Belt in the Timmins-Kirkland Lake Area: Revisions to Startigraphy and new Geochronological Results;.in Summary of Field Work and other activities 1999, Ontario Geological Survey,. Open File Report 6000, p4-1 to4-13.

Bath, A.C., 1990;

Mineral Occurrences, Deposits, and Mines of the Black River-Matheson area; Ontario Geological Survey, Open File Report 5735, 1883p.

Benn, K., Ayer J.A., Berger, B.R., Vaillincourt, C., Dinel, E., and Luinstra, B., 2001,

Project Units 97-013 and 00-011. Structural Style and Kinematics of the Porcupine-Destor Deformation Zone, Abitibi Belt, Ontario; in Summary of Field Work and other activities 2001 Ontario Geological Survey,. Open File Report 6070, p6-1 to6-13.

Berger, B. R., 2002,

Geological Synthesis of the Highway 101 Area Of Matheson; Ontario. Open File Report 6091, Ontario Geological Survey, 124 Pg.

Brisbin, D., and Presacco, R., (compilers), 1999,

World Class Archean Vein gold Deposits of the Porcupine Camp, Timmins Ontario; Geological Association of Canada (Sudbury, Ontario, 1999), 54p.

Bath, A.C., 1990;

Mineral Occurrences, Deposits, and Mines of the Black River-Matheson area; Ontario Geological Survey, Open File Report 5735, 1883p.

Benn, K., Ayer J.A., Berger, B.R., Vaillincourt, C., Dinel, E., and Luinstra, B., 2001,

Project Units 97-013 and 00-011. Structural Style and Kinematics of the Porcupine-Destor Deformation Zone, Abitibi Belt, Ontario; in Summary of Field Work and other activities 2001 Ontario Geological Survey,. Open File Report 6070, p6-1 to6-13.

Berger, B. R., 2002,

Geological Synthesis of the Highway 101 Area Of Matheson; Ontario. Open File Report 6091, Ontario Geological Survey, 124 Pg.

Brisbin, D., and Presacco, R., (compilers), 1999,

World Class Archean Vein gold Deposits of the Porcupine Camp, Timmins Ontario; Geological Association of Canada (Sudbury, Ontario, 1999), 54p.

Canadian Institute of Mining, Metallurgy and Petroleum, 2000,

CIM Standards on Mineral Resources and Reserves – Definitions and Guidelines, CIM Bulletin Vol. 93, No. 1044, October 2000, pp. 53 to 61.

Canadian Institute of Mining, Metallurgy and Petroleum, 2000,

CIM Standards on Mineral Resources and Reserves – Definitions and Guidelines, CIM Bulletin Vol. 93, No. 1044, October 2000, pp. 53 to 61.

Clark, Robert J., 1998,

Concepts and Models for Interpretation of Enzyme Leach Data for Mineral and Petroleum Exploration, Actlabs Preliminary Review Copy.

Dagbert, M., Geostat Systems International Inc., 2000,

Review of Gold Sample Data From the Clavos Property, Internal Report to Kinross Gold Corporation, May, 2000.

Durocher, C., 2003,

Report on the Proposed Exploration Work on the Royal Victoria Properties (Golden Reward Project) Located in Lamplugh, Harker, Elliot, Rand, Garrison, Thackeray, McCool, Michaud, Barnet, Munro, Guibord, and Cook Township, Ontario, Technical Report Prepared for St. Andrew Goldfields Ltd. And Dated February 28, 2003.

Falconbridge Limited web site:www.falconbridge.com, February 11, 2002.

Fyon, A., 1986,

Geology of the Timmins Area; in Macdonald, A. J., ed., Proceedings of Gold '86, An International Symposium on the Geology of Gold Deposits, Excursion Guidebook: Toronto, 1986, pp. 6 –16.

Golder Associates Ltd., 2003,

Closure Plan Clavos Advanced Exploration Project, August 2003.

GBM, 2006,

HARE Expansion Project, Canada. Presentation to St. Andrew Goldfields Ltd.And Kinross Gold Corporation.

GBM, 2006,

Proposed Hislop Ore Campaign at Stock Treatment Plant. Report for St. Andrew Goldfields, Ontario Canada.

Gerth, Debbie, 1993,

Surface Drill Program South of Porphyry Zone, Taylor Township; St. Andrew Goldfields Ltd., December 10, 1993.

Gochnour& Associates, Inc., 2005,

St. Andrew Goldfields Ltd. Stock Gold Complex, Environmental Review – 2005. Report for St. Andrew Goldfields Ltd.

Golder Associates Ltd., 1993,

Closure Plan Stock Mine, St. Andrew Goldfields Ltd., May 1993.

Golder Associates Ltd., 2003,

Closure Plan Clavos Advanced Exploration Project, August 2003.

Golder Associates (2003),

Draft permitting documents for Clavos AEP Project, including Closure Plan, Engineering Report for Sedimentation Pond, C of A – Air, and C of A – Water.

Golder Associates (September 1996),

Revised Closure Cost Estimate – Stock Mine – Appendix I.

Golder Associates (September 1996),

Response to MNDM Comments on Closure Plan for Stock Mine.

Golder Associates (May 1993),

Closure Plan – Stock Mine.

Hall, G.E.M., Vaive, J.E., and MacLaurin, A.I., 1996,

Analytical Aspects of the Application of Sodium Pyrophosphate Reagent in the Specific Extraction of the Labile Organic Component of Humus and Soils, Journal of Geochemical Exploration 56, pp. 23-36.

Hall, G.E.M., Vaive, J.E., and MacLaurin, A.I., 1996,

Analytical Aspects of the Application of Sodium Pyrophosphate Reagent in the Specific Extraction of the Labile Organic Component of Humus and Soils, Journal of Geochemical Exploration 56, pp. 23-36.

Hogg, G.M., 1987,

A Report on the Geology and Reserves of the Stock Township Project Properties of the St. Andrew Goldfields Ltd., Ontario, Report by G.M. Hogg & Associates Ltd. Dated October 19, 1987.

Hogg, G.M., 1993,

A Report on the Reserves of the Stock Mine, Matheson Area, Ontario, Report by G.M. Hogg & Associates Ltd. Dated July 31, 1993.

Hyde, C.B., 1986,

Model for Gold Mineralization and Petrology of the West Porphyry Deposit, Taylor Township, Ontario, University of Toronto B.A.Sc. Thesis.

Jarvi, U.W. and Kusins, R., 2003,

Report on Estimation of Gold Resources Clavos Property Timmins Area, Ontario, Internal Report Prepared for St. Andrew and Dated June 2, 2003.

Johnstone, R.M., 1991,

The Geology of the Northwestern Black River-Matheson area, District of Cochrane; Ontario Geological Survey, Open File Report 5785, 288p.

Johnstone, R.M., 1991,

The Geology of the Northwestern Black River-Matheson area, District of Cochrane; Ontario Geological Survey, Open File Report 5785, 288p.

Jarvi, U.W., and Kusins, R.; (June 2, 2003);

Report on Estimation of Gold Resources, Clavos Property, Timmins Area, Ontario.

Kinross Gold Corporation,

web site, www.kinross.com, December 05, 2012.

Kusins, R., 2003,

Stock Mine Indicated Resource Below 812 Stope, Internal Memorandum with cross-sections from Bob Kusins to Wayne Reid Dated June 24, 2003.

Kinross Gold Corporation March 19, 2001,

Summary Report: Year 2 Exploration Program on the Clavos Property by Ken D. Tylee, Blair Needham, Colin Green.

Kinross Gold Corporation March 28, 2000,

Summary Report: Year 1 Exploration Program on the Clavos Property by Ken D. Tylee, Blair Needham, Colin Green.

Londry, J., 2003,

St. Andrew Goldfields Ltd. Central Timmins Area Background Description, Internal St. Andrew Report.

Luhta, L.E. et al, 1992,

St. Andrew Goldfields Ltd., Stock Mine; in Report of activities 1992 Resident Geologists, Ontario Geological Survey, Misc. Paper 161.

Micon International Limited, 2002,

For St. Andrew Goldfields Ltd. Strategic Review of Potential Mining Alternatives in the East Timmins Mining Camp.

Micon International Limited, 2002,

For St. Andrew Goldfields Ltd. Strategic Review of Potential Mining Alternatives in the East Timmins Mining Camp.

Mindecon Inc., 1992,

Project Feasibility Review, Hislop East Property, Goldpost/St. Andrew Joint Venture.

Ministry of Northern Development and Mines,

Miscellaneous Notes and References to Hiskerr Gold Mines Ltd., OFR 5775, Resident Geologists Office, Kirkland Lake, Ontario.

Micon International Limited August 2000,

Review of the Mineral Resources, Infrastructure and Operating Plans of the Taylor Mine Development Project.

Nadeau, Serge, 1998,

Notes on Enzyme Leach and Na Pyrophosphate Techniques and Selected References, St. Andrew Goldfields Ltd. Internal Report.

Neal, H.E., 1985,

Valuation Report, Hislop Project Property, for Goldpost Resources Inc., July 1985.

Neal, H.E., 1987,

Property Report and Valuation, Hislop Township, Ontario for Holcorp Gold Mines Limited, November, 1987.

Neal, H.E., 1989,

Report of Geology and Reserve Estimate of Hislop East Property for Goldpost Resources Inc., February 1989.

Derry, Michener, Booth & WahlApril 7, 1987,

NTS 42A/10 Prepared for Esso Minerals Canada.

Prest V.K., 1957,

Geology of Hislop Township; Ontario Department of Mines, Sixty-Fifth Annual Report Vol. LXV, Part 5, 1956.

Quantec IP Incorporated, 1997,

Geophysical Survey Logistical Report regarding the Gradient-Realsection Time Domain IP Survey at the Hislop Property, Matheson, ON. for St. Andrew Goldfields Ltd.

Roscoe Postle Associates Inc., 2003,

Update of the Report on the Mineral Resource Estimate on the Clavos Property Prepared for United Tex-Sol Mines Inc. and Dated April 4, 2003.

Roscoe Postle Associates Inc., 2002,

Report on the Mineral Resource Estimate on the Clavos Property Prepared for United Tex-Sol Mines Inc. and Dated March 8, 2002.

William E. Roscoe, Ph.D., P.Eng., Luke Evans, M.Sc., P.Eng., David W. Rennie, B.A.Sc., P.Eng., Bruce S. Brady, B.Eng., P. Eng., September 24, 2003,

Report on the Clavos, Stock Mine, Taylor, Central Timmins, and Golden Reward Properties in the Timmins area of northeastern Ontario, prepared for St. Andrew Goldfields Ltd.

Reid, W., 2003,

Central Timmins Project Proposed Surface Exploration, Internal St. Andrew Report Dated September 11, 2003.

Reid, W. and Degagne, P., 2003,

Golden Reward Phase 1 Exploration Program Targets and Budget, Internal St. Andrew MS Excel Tables.

Reid, W., 2003,

Golden Reward Project Update- East Timmins (Ontario), Internal St. Andrew Report Dated July 18, 2003.

Reid, W., 2003,

Interim Report on Winter 2003 Exploration Program Golden Reward Project, Internal St. Andrew Memorandum Dated April 7, 2003.

Rennie, D., 2003,

Update of the Report on the Mineral Resource Estimate on the Clavos Property. Report prepared by Roscoe Postle associates Inc. for United Tex-Sol Mines Inc.

Roscoe, W.E., Evans, L., Rennie, D.W. and Brady, B.S., 2003,

Report on the Clavos, Stock mine, Taylor, Central Timmins, and Golden Reward properties in the Timmins Area of Northeastern Ontario. Report by Roscoe Postle Associates Inc. for St. Andrew Goldfields Ltd.

Roscoe Postle Associates Inc., 1999,

Report on the Stock Mine, Hislop Mine, Fenn-Gibb Project and Other Properties in the Timmins Area, Northeastern Ontario Prepared for St. Andrew Goldfields Ltd. and Dated February 19, 1999.

Roscoe Postle Associates Inc., 1993,

Report on the Valuation of St. Andrew Goldfields Ltd. and the Hislop East Mine for GoldpostResources Inc., February 10, 1993.

Roscoe Postle Associates Inc., 1993,

Report on the Hislop East Property, Hislop and Guibord Townships, Ontario, for St. Andrew Goldfields Ltd., August 3, 1993.

Roscoe Postle Associates Inc., 1995,

Report on the Stock, Taylor and Hislop East Properties of St. Andrew Goldfields Ltd., April 7, 1995.

Roscoe Postle Associates Inc. April 4, 2003,

Update of the Report on the Mineral Resource Estimate on the Clavos Deposit – Prepared for United Tex-Sol Mines Inc. by David Rennie.

Roscoe Postle Associates Inc. March 8, 2002,

Report on the Mineral Resource Estimate on the Clavos Deposit – Prepared for United Tex-Sol Mines Inc. by David Rennie.Roscoe Postle Associated Inc. February 19, 1999,

Report on the Stock Mine, Taylor Mine, Hislop Mine, Fenn-Gibb Project, and Other Properties in the Timmins Area, Northeastern Ontario, Prepared for St. Andrew Goldfields Ltd.

Roscoe Postle Associated Inc. 1995,

Report on the Stock, Taylor and Hislop East Properties of St. Andrew Goldfields Ltd.

RPA October 12, 2012,

Technical Report on the Clavos Project in the Timmins Area, Northeastern Ontario, Canada.

Schweng, B., 2000,

Clavos Property: Proposal of Mine Development and Economic Evaluation, Internal Report to Kinross Gold Corporation, December 15, 2000.

St. Andrew Goldfields Ltd. Minesite Staff, 1988,

Mining Feasibility for the Taylor Property, December 1988.

St. Andrew Goldfields Ltd., 1993,

Closure Plan for Hislop Mine Final Report by Otto Zavesiczky, June 21, 1993.

St. Andrew Goldfields Ltd., 1998,

Taylor Project Closure Plan, Exploration Phase, June 22, 1998.

St. Andrew Goldfields Ltd., 1998,

Hislop Mine Property, Diamond Drill Logs for Boreholes H96-1 to H96-6 inclusive and H97-7 to H97-11 inclusive.

Schweng, Bill December 15, 2000,

Clavos Property - Proposal of Mine Development and Economic Evaluation.

St. Andrew Goldfields Ltd. May 30, 2003,

Stock Mine – Environmental Department 2002 Performance Report and Public Report; filed with Ministry of Environment.

St. Andrew Goldfields Ltd. February 14, 2003,

Clavos Advanced Exploration Project – Notice of Project Status, filed with Ministry of Northern Development and Mines.

St. Andrew Goldfields Ltd January,1999,

Taylor Township Project (draft) – Prefeasibility Study; Dave Schultz, Eugene Puritch, Charles Gryba.

St. Andrew Goldfields Ltd June 22, 1998,

Taylor Project – Closure Plan, Exploration Phase.

St. Andrew Goldfields Ltd April, 2003,

Permit and Bonding Information; internal document.

St. Andrew Goldfields Ltd 1985 – 2003,

Miscellaneous company technical files, maps and records.

Timmins, City,

web site, www.city.timmins.on.ca, December, 2012.

Tylee, K., Needham, B., Green, C., 2000,

Summary Report, Year 1 (1999-2000) Exploration Programme on the Clavos Property, Internal Report to Kinross Gold Corporation, March 28, 2000.

Tylee, K., Needham, B., Green, C., 2001,

Summary Report, Year 2 (2000-2001) Exploration Programme on the Clavos Property, Internal Report to Kinross Gold Corporation, March 19, 2001.

Troop, D.G., 1989,

Geological Investigations of the Destor-Porcupine Deformation Zone East of Matheson.OGS Summary of Field Work and Other Activities, 1989.P146, pp.136-143.

Tyler, P.A. and Thompson, I.S., 1987,

An Audit of the N2 Mineralization Reserve Estimates, St. Andrew Goldfields Property, Stock Township, Timmins, Ontario.

Wahl, David G., P.Eng., 2006,

Memorandum on Mining at the Clavos Project, prepared by Southampton Associates Inc., September 2006.

Watts, Griffis and McQuat, 1996,

Letter to St. Andrew Goldfields Limited Outlining the Form of their Fair Market Value Opinion of the Canadian Resource Properties of St. Andrew Goldfields Limited; January 30, 1996.

Zavesiczky, Otto, 1992,

Ore Reserves at the Stock Mine as of December 31, 1992, St. Andrew Goldfields Ltd. Internal Company Report.

Zavesiczky, Otto, 1991,

Ore Reserves at the Stock Mine as of December 31, 1990, St. Andrew Goldfields Ltd. Internal Company Report Dated March 7, 1991.

End of Report