

The following report dated October 31, 2003 and entitled, “Preliminary Structural Investigation And Identification of Exploration Target Areas, Kilgore Gold Project, Southeast Idaho” prepared by Stanton W. Caddey was conducted under the supervision of Larry Pancoast, P. Eng., a consultant with Kilgore Gold Ltd, a subsidiary of Kilgore Minerals Ltd. Mr. Pancoast is the qualified person for the purpose of this report.

MEMO TO: Norman Burmeister
President
Kilgore Gold Company

FROM: Stanton W. Caddey
Geologic Consultant

DATE: October 31, 2003

SUBJECT: **Preliminary Structural Investigation And
Identification Of Exploration Target Areas, Kilgore
Gold Project, Southeast Idaho**

General Conclusions

- 1) The Kilgore prospect area represents a high quality gold project, much of which remains to be drill tested. Most of the previous drilling was focused along a peripheral or satellite segment of the main hydrothermal system. The level of erosion is at a high vertical level where bonanza vein targets apex beneath and are blind to surface exposures. The primary exploration potential is for a bonanza, epithermal, gold-rich vein system localized along the major N60W-trending McGarry Canyon NW fault zone and subordinate faults in the area referred to as Dog Bone Ridge.
- 2) Exploration potential at the Kilgore property for more than doubling the present gold resource with further exploration drilling is regarded as excellent. It is probable that if a bonanza epithermal vein system is discovered, the new resource will require underground mining methods.
- 3) The gold mineralization at Kilgore is largely structurally controlled by the pre-existing fault system, and preferentially localized within the relatively more competent rocks. Reported gangue minerals occurring in veinlets encountered by past drilling activities consisted of banded chalcedony, fine-grained pyrite, and accessory amounts of stibnite, arsenopyrite, realgar, and orpiment. Ore minerals are

reported as native gold, electrum, and possible silver sulfosalts. Amethystine quartz was also reported, an important variety of vein quartz associated within many precious metal bonanza veins.

- 4) Multiple stages of tectonic brecciation and silicification characterize the most important fault zone on the property, the McGarry Canyon NW fault zone. This fault zone was a major vent zone and hydrothermal fluid conduit during the explosive events of pyroclastic volcanism and subsequent hydrothermal activity. Intensely silicified tectonic breccias, pebble dikes, blocks of phreatic explosion breccias and brecciated/silicified banded chalcedonic sinter coincident with highly anomalous mercury and antimony geochemical values in surface exposures indicate the presence of a hot springs type gold system with many similarities to the McLaughlin gold deposit in northwestern California.
- 5) The tectonic setting consists of a brittle biaxial conjugate shear system of fault zones, locally up to 300 feet wide and averaging several feet wide. Master faults trend on average N60W and are the most important for localizing the known zones of silicification and gold mineralization defining the district ore trend. Conjugate faults trend on average N10E and are also mineralized. Average extension and release fracture orientations are N25W and N60E and should represent the dominant trend of chalcedonic quartz veinlets subsurface. Joint sets and volcanic flow banding patterns indicate that the prospect area was domed as a result of pre-mineral intrusion, represented by the quartz porphyry. The quartz porphyry intrusive body is localized at the intersection of the N60W-trending McGarry Canyon NW and N10E-trending McGarry Canyon NE fault zones.
- 6) The N60W- and N10E-trending fault zones were respectively active as right and left lateral strike-slip during the multiple stages of hydrothermal mineral deposition. Episodic faulting during a single recognized tectonic event **D1** consisted of alternating tectonic pulses of lateral compression and strike-slip faulting, and system relaxation consisting of normal dip-slip faulting. Pulses of faulting triggered tectonic and hydrothermal brecciation and mineral deposition producing the composite system of gold mineralization associated

with banded chalcedonic quartz veinlets encountered at depth by past drilling programs.

- 7) The fault zones on the property are systematic and repeated at all scales. The most important fault zones that localized the known hydrothermal mineralization trend on average N60W. Enhanced zones of silicification, and possibly subsurface gold deposition, occur where the N60W-trending faults are intersected by the N10E-trending faults.
- 8) Major ore controls consist of fault zone intersections of N60W- and N10E-trending faults, brecciated and sheared contacts of the intrusive quartz porphyry, structurally dilated segments of the N60W-trending McGarry fault zone, and relatively more competent rock units such as the lithic lapilli tuff and upper silicified Aspen Formation. Other important host rocks might include banded rhyolite flow domes and the quartz porphyry intrusive body.
- 9) Four prioritized exploration target areas were defined as a result of this preliminary structural investigation. Listed in decreasing order of priority, they are: 1. Dog Bone Ridge, 2. McGarry Canyon South, 3. Bear Cat Point, and 4. McGarry Canyon North.

Recommendations

- 1) Four prioritized exploration target areas were defined as a result of this preliminary structural investigation. They are based entirely on interpreted structural favorability. Exploration target area boundaries need further confirmation and possible modification through comparison with the surface geochemical maps currently under construction. The exploration target areas will then be ready for surface drilling during the 2004 field season.
- 2) The primary structural targets are the steeply dipping N60W-trending fault zones, and their intersections with the N10E-trending faults. Drill holes need to be designed to penetrate the targeted faults and fault intersections at depth intervals coincident with the known host rocks (lithic lapilli tuff) and depositional depth interval of known gold mineralization comprising the gold resource identified by past drilling

programs. Angled diamond drill holes should be completed on fences to optimize subsurface penetration in cross section through the steeply dipping targeted fault zones and intersections.

- 3) Surface outcrops at the Kilgore property appear to lack sufficient surface sampling. All surface outcrops across the entire limits of the Kilgore property need to be systematically channel sampled and chemically analyzed for at least Au, Ag, As, Sb, Hg, and possibly Tl. The results should be used, in conjunction with soil geochemistry and fault patterns, to identify and refine exploration target areas.
- 4) Volcanic stratigraphy at Kilgore property needs to be completely remapped by an expert in volcanic geology owing to numerous errors and inconsistencies in the present map base. The results should be integrated with the controlling fault patterns documented by this work. The mapping project should be carried out on a lower priority basis only if results from the 2004-drilling program are positive.

Purpose And Scope

Norman Burmeister, President of Kilgore Gold Company, contracted Stanton W. Caddey to conduct a preliminary structural investigation, and use the results to identify/document and prioritize exploration target areas at the Kilgore gold project located near Kilgore, southeast Idaho. The work was conducted on-site with Larry Pancoast from October 27-31, 2003. Stanton W. Caddey appreciated the opportunity to work as a Geologic Structural Consultant for Kilgore Gold Company in southeast Idaho. He also enjoyed the productive exchange of geologic ideas and concepts with both Mr. Burmeister and Mr. Pancoast, and appreciated the warm hospitality and lodging accommodations provided in St Anthony by Kilgore Gold Company.

The results of the present structural work are shown summarized at a scale of 1"=1000' as illustrated on Plates 1-3. Plate 1 is used as the geologic base map modified from Benson (1985). Plate 2 illustrates the present interpretation of the important major fault zones that controlled gold mineralization on the Kilgore property. Detailed field orientations for faults, joint sets, and volcanic flow banding (provided by L. Pancoast, 2003 field mapping) were examined statistically in stereographic projection (Schmidt

net, lower hemisphere) using the Fritznet software (Caddey and Main, 1999). The resulting geometries, kinematics, and interpretations are shown in the stereonet diagrams attached to Plate 2. Two additional diagrams (Caddey and Reid, 2002) showing the idealized control of bonanza veins by faulting are also attached to Plate 2. Identified and prioritized exploration target areas are displayed on Plate 3.

Preliminary Structural Results

The results of this preliminary structural investigation are represented on Plate 2. The fault system consists of two dominant conjugate sets. One trends on average N60W, the largest fault zone of which is the McGarry Canyon NW fault zone. The other trends on average N10E as represented by the major McGarry Canyon NE fault zone. The intersection of these two fault zones localized the quartz porphyry intrusive complex (overlay Plate 2 onto Plate 1). Both fault sets are associated with subordinate faults with similar, sub-parallel strike orientations repeated in systematic fashion across the Kilgore property (Plate 2).

The conjugate fault sets were formed in the volcanic rocks during a single tectonic event denoted as **D1**. They formed during a compressive tectonic event of N24W-S24E lateral shortening along the principal stress direction sigma 1, as shown in stereographic projection on Plate 2. During the periods of explosive volcanism and hydrothermal mineralization, the N60W- and N10E-trending fault segments were active fault systems. Shear sense oscillated between periods of strike-slip faulting during compressive tectonic pulses, and normal dip-slip faulting during tectonic pulses of system relaxation. Extensional and Release faults formed along average trends of N25W and N60E respectively.

The joint set patterns reflect a dominant radial symmetry as shown in stereographic projection on Plate 2. Mapped flow bands within the volcanic rocks and local intrusive dikes show a concentric pattern as shown in stereographic projection on Plate 2. Together, the radial and concentric patterns indicate an event of doming by igneous intrusion. The quartz porphyry rock unit shown on Plate 1, is interpreted by S. Caddey and L. Pancoast as an intrusive body emplaced and localized along the intersection zone of the two large McGarry Canyon NW and McGarry Canyon NE fault zones.

Multiple events of faulting along the N60W-trending McGarry Canyon NW fault zone each produced tectonic breccias that were healed and rehealed by chalcedonic/opaline quartz and later tectonic pulses in **D1** were timed with the ore stage hydrothermal event that occurred subsequent to the volcanic activity. The McGarry Canyon NW fault zone (several feet to 300 feet wide) was the source and local vent for early eruptive pyroclastic flows, phreatic explosion breccias, and eventual discharge of hydrothermal fluids onto the paleo surface forming local chalcedonic/opaline sinters. During events of explosive surface hydrothermal activity, chemical conditions are inferred to have been conducive at depth along the fault zones for deposition of precious metals in bonanza vein ore shoots as a result of fluid boiling.

The McGarry Canyon NW silicified fault zone forms the central ridgeline referred to as Dog Bone Ridge. This is the most important fault zone on the Kilgore property. The system of N60W-trending faults controlled the distribution of breccias, silicification, known surface Sb and Hg anomalies, and trend of the known gold mineralization. Zones of surface silicification are markedly enhanced at positions where the McGarry Canyon NW fault zone is intersected by N10E-trending faults. Segments of the larger fault system shown on Plate 2 localized pre-mineral, flow banded, rhyolite domes.

Inferred Ore Controls

The Kilgore exploration project area is centered over a structurally controlled, hot springs-type precious metal hydrothermal system dominated by gold. Surface exposures along the central Dog Bone Ridge consist of linear, siliceous, tectonic and phreatic explosion breccias localized along a 1-mile length of the McGarry Canyon NW fault zone (Plate 2). Erosion resistant surface outcrops forming the ridgeline are intensely silicified, brecciated, and healed with at least 3 generations of low temperature varieties of chalcedonic and opaline quartz. Fragment varieties are heterogeneous, angular to rounded, and locally contain iron oxides.

Preliminary rock chip geochemistry from the brecciated and silicified outcrops along the ridgeline indicates anomalous values of Hg, Sb, and As consistent with a high vertical level within an explosive and dynamic hydrothermal system. The level of erosion appears close to the original

paleo surface owing to the presence of rotated blocks of brecciated chalcedonic sinter and phreatic explosion breccia healed by chalcedony and opal. The shear volume of silicification, chalcedonic, and opaline quartz associated with various types of breccia present on the property is impressive. Mineralization, brecciation, and veining in this deposit have many physical similarities to the McLaughlin gold deposit in California, previously owned and operated by Homestake Mining Company.

A partial list of important ore controls are listed below:

- 1) Intersection of N60W and N10E fault zones,
- 2) Brecciated and sheared quartz porphyry intrusive contacts,
- 3) N60W and N10E-trending fault zones intersecting the lithic lapilli tuff unit and upper silicified Aspen Formation,
- 4) Structurally dilated segments of the N60W-trending McGarry Canyon NW fault zone (see vein diagrams on Plate 2),
- 5) Subordinate N60W-trending fault zones that lie adjacent to and sub-parallel to the McGarry Canyon NW fault zone,
- 6) Relatively more competent rock types provide favorable host rocks for vein-style mineralization consisting of the lithic lapilli tuff, silicified Aspen Formation, banded rhyolite, and silicified pyroclastic units, and
- 7) Economic ore shoots within bonanza epithermal veins are generally controlled and restricted to within a favorable vertical elevation range (Ore shoots that might be present on the Kilgore property apex beneath present surface exposures and are blind).

Prioritized Exploration Target Areas

Four exploration target areas were identified based entirely on interpreted structural favorability. They are illustrated by priority on Plate 3. Listed in decreasing order of priority the exploration target areas are 1) Dog Bone Ridge, 2) McGarry Canyon South, 3) Bear Cat Point, and 4) McGarry Canyon North. Each of the 4 zones is recommended for follow-up drilling using angled diamond drill methods. Outer boundaries of the exploration target areas should be compared and possibly revised after overlaying the interpreted fault patterns (Plate 2) onto the geochemical maps currently in preparation. The exploration target areas contain potential for discrete bonanza veins, chimneys, and vein swarms that would be amenable to

underground and possibly open pit mining methods. Brief descriptions of the prioritized exploration target areas are described below.

Priority #1, Dog Bone Ridge:

The exploration target concept is the potential presence of bonanza, vein-style ore shoots and associated vein swarms developed along the major McGarry Canyon NW fault zone, and sub-parallel subordinate fault strands inferred to be repeated along the slope to the southwest. It is interpreted that the mineralized drill hole, DDH-178, penetrated one of the subordinate N60W-trending fault zones (overlay Plate 3 onto Plate 2). The target zone and strongly brecciated/silicified segment of the fault system is approximately 7000 feet long and up to 3000 feet wide. Surface exposures are high in the hydrothermal system where the vein targets apex beneath and are blind to present surface exposures.

Priority #2, McGarry Canyon South:

This exploration target area is focused along the major N10E-trending McGarry Canyon NE fault zone and its intersection with the major N60W-trending McGarry Canyon NW fault zone, quartz porphyry intrusive contact, and subordinate N60W-trending faults. The exploration target area also coincides with a geochemical soil anomaly (Plates 1-3). The target area is untested by previous drilling programs.

Priority #3, Bear Cat Point:

The Bear Cat Point exploration target area is focused along the N10E-trending Bear Cat Point fault zone and its intersection with the major McGarry Canyon NW fault zone, subordinate N60W-trending faults, and northwest extension of the gold mineralization defining the known resource area (Plates 1-3).

Priority #4, McGarry Canyon North:

This exploration target area is focused along the major N10E-trending McGarry Canyon NE fault zone and its intersection with the N45E-trending 28 fault zone, and intersection with a subordinate but significant N60W-trending fault zone (Plates 1-3).

References

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Caddey, S. W., Main, F. H., 1999, FRITZ-NET, a comprehensive stereographic program for solving structural problems: computer software documentation and instruction manual created by the authors, June 1, 88p.

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Burbank, W. S., Luedke, R. G., 1968, Geology and ore deposits of the western San Juan Mountains, Colorado: in Ridge, J. E., editor, *Ore Deposits of the United States, 1933-1967*, New York, American Institute of Mining Engineers, pp. 714-733.

Koide, H., Bhattacharji, S., 1975, Formation of fractures around magmatic intrusions and their role in ore location: *Economic Geology*, v. 70, no. 4, pp. 781-799.

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Cc: Larry Pancoast

STANTON W. CADDEY, PH.D.

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SERVICES PROVIDED (FOREIGN & DOMESTIC)

- ▶ Applied structural analyses of mineral deposit systems including determination of a tectonic deformation history, timing of economic mineralization, fault/fold kinematics and geometry, ore controls, ore trends and geometry, solution of specific structural problems, identification of exploration target areas, drilling recommendations, presentations, and reports.
- ▶ Structural methods short course applied to mineral deposit systems tailored to the client's specific needs and interests.
- ▶ Structural field training for geologic personnel including data collection, mapping, and interpretation.
- ▶ Prospect/project examinations, appraisals, and reviews.
- ▶ Geologic mapping (structure, rock types, mineral alteration zones) in all tectonic and geologic terrains.
- ▶ Reconnaissance and generative exploration stressing an applied structural approach.

SUMMARY

1. Over 30 years of experience in the exploration and mining business, with demonstrated skills in ore discovery. Experienced in all varieties of base and precious metal deposits. I have worked for:
 - Bunker Hill Mining Company (2 years)
 - Kennecott Exploration Services (3 years)
 - Occidental. Minerals Corporation (2 years)
 - Homestake Mining Company (14 years)

2. I have consulted for:

- Lac Minerals Ltd.; Chile, Canada
- Barrick Gold Corporation; Chile, Argentina
- Coeur d' Alene Mines Corporation; New Zealand, USA, Chile
Mineral Resources Development Inc.; Ghana, West Africa Kennecott
Copper Corporation; USA
- Metallica Resources Inc.; Mexico, Brazil
- Dayton Mining Corporation; Chile
- CIA. Minera Michilla S. A.; Chile
- CIA. Minera Mantos de Oro S. A. (Placer Dome USA); Chile Echo
Bay Exploration Inc.; Peru, Philippines
- CIA. Minera Tamaya S. A., Anaconda Chile; Chile
- REA Gold Corporation; Chile
- CIA Minera Candelaria (Phelps Dodge/Sumitomo Corporations);
Chile Somich S. A.; Chile
- Universidad de La Serena y Empresa Nacional de Minería (ENAMI),
Proyecto FONDEF, Distrito de Punitaqui; Chile
- Servicios Industriales Penoles, S. A DE C.V.; Mexico, Argentina,
Peru Minera Homestake Chile, S. A; Chile
- Hecla Mining Company; Chile
- CIA De Minas Buenaventura S. A.; Peru
- Minera Argentina Gold S. A.; Argentina
- AngloGold Corporation; Colorado, USA
- Compañía Minera Disputada de Las Condes Uda., a subsidiary of
ExxonMobil; Chile
- Compañía Minera Penmont S. A. DE C.V.; Mexico
- Coeur Silver Valley, Inc.; Idaho, USA
- Meridian Gold Inc.; Chile
- Aur Resources Inc.; Chile

SPECIALIZED SKILLS

1. Apply practical methods of structural geology to structurally controlled mineral deposits. Proficient in field techniques in both brittle and ductile tectonic environments. Applications include:
 - Field mapping

- Structural characterization of producing mines and exploration prospects
 - Development of a tectonic deformation history
 - Identification of ore-controlling structures and timing of mineralization
 - Fracture/fold pattern analyses and structural geometry
 - Kinematic plans including pre-, intra-, and post-mineral fault movements
 - Identification of ore controls
 - Documentation of exploration guides
 - Determination of ore trends, orebody patterns, ore shoot rake, and geometry
 - Generation of exploration target concepts at all scales
 - Generation of a database to assist rock mechanics and ground support problems
 - Integration of structural geology with rock type, mineral alteration mapping, geochemistry, geophysics, and remote sensing to define high quality exploration targets
 - Target identification, definition, and recommendations
 - Generation of a computerized structural database and stereo graphic plots
 - Hands-on field training for geologic personnel
 - Presentations and reports
2. Applied structural methods Short Course (4 days) for mine/exploration geologists and mining engineers, given in-house tailored to meet the specific needs of clients.

EXPERIENCE

1. Completed detailed structural analyses and target recommendations in the following major areas:
 - El Indio/Niento/Tambo/Rio Del Medio mines, Pascua gold project, and peripheral district gold prospects, Chile; El Indio Gold Belt (El Encierro, Llama, Sancarron, Libro, Vacas Heladas, Coipita, El Cannen), eastern Chile and western Argentina
 - El Penon silver/gold vein deposit, northern Chile
 - Veladero gold project and Del Carmen Sur, Rio Frio gold prospects, western Argentina Jaguelito and Cerro Alumbre silver-gold prospects, western Argentina
 - La Herradura shear zone-hosted gold deposit and district, northern Sonora, Mexico Cripple Creek gold district, Colorado, USA
 - Orcopampa-Chipmo silver-gold bonanza vein district, southern Peru
 - Julcani silver-lead-copper-tungsten-gold vein district, southern Peru
 - Hauchocolpa silver-lead-zinc-copper-gold vein district, southern Peru
 - Jarhuarazo gold district, southern Peru
 - Capac Orco and Cuna Cuna gold prospects, southern Peru
 - Andacollo gold mine and district, central Chile
 - El Bronce de Petorca gold-copper-silver bonanza vein deposit and district, central Chile La Coipa gold-silver mantos, El Cacique gold prospect, Maricunga Gold Belt, northern Chile
 - Agua De La Falda/El Hueso gold deposits, Domeyko shear zone, northern Chile
 - Los Mantos copper-gold-mercury vein deposit and Punitaqui district, central Chile Fachinal silver-gold vein deposit and district, southern Chile
 - Golden Cross gold mine and associated gold deposits in the Waitekauri graben, and the Martha Hill gold mine, New Zealand
 - Guanajuato silver-gold district, Guanajuato, Mexico
 - Taviche silver-gold district, Oaxaca, Mexico
 - McLaughlin gold mine and surrounding district, California
 - Bulldog Mountain silver-lead-zinc bonanza vein mine, Northern Amethyst .bonanza silver-gold veins, Creede district, Colorado
 - Round Mountain gold mine and surrounding district, Nevada
 - Rochester silver-gold mine and surrounding district, Nevada
 - San Pedro gold-silver-base metal district, San Luis Potosi, Mexico

- South Mercur gold district, Utah
- Homestake gold mine, South Dakota
- Mineral Hill gold mine, Montana
- Nova Lima gold district (Morro Velho, Cuiaba, Sao Bento, and Passegem De Mariana mines), Brazil
- Ashanti gold deposit, Ghana, West Africa
- Kalgoorlie gold district, Western Australia
- Kensington gold deposit, Juneau gold belt, southeast Alaska
- Guerrero terrain gold deposits, west central Mexico
- Mother Lode gold belt, California
- Red Mountain gold district, northern British Columbia, Canada
- Back River gold district, Northwest Territories, Canada
- El Soldado copper mine and district, copper-bearing chimneys, breccias, mantos, veins, and skarns, central Chile
- Carmen de Andacollo porphyry copper mine and district, central Chile
- La Candelaria FeOx-copper-gold and associated skarn deposit, northern Chile
- Michilla copper district, copper-silver-bearing mantos and fault breccias, Atacama shear zone, northern Chile
- Bingham Canyon porphyry copper mine and skarns, Bameys Canyon, Me1co gold deposits, North Oquirrh Mountains, Utah
- Chino porphyry copper mine and skarns, New Mexico
- Kingking copper-gold porphyry deposit, Mindanao, Philippines
- Somich porphyry copper prospect, Atacama shear zone, northern Chile
- Milpillas copper deposit and Cananea porphyry copper district, northern Sonora, Mexico
- El Toqui zinc-lead-silver-gold replacement mantos, southern Chile
- Halls Creek district, lead-zinc-silver massive sulfide deposit, Western Australia
- Main and East Tintic districts, precious and base metal replacements, veins, and chimney deposits, Utah
- Galena silver mine, Coeur d' Alene district, Idaho
- Bunker Hill mine, lead-zinc-silver veins, Coeur d' Alene district, Idaho

2. I have visited and have a working knowledge of the following properties:

- Carlin-trend gold mines, and the Chimney Creek-Rabbit Creek-Marigold gold mines and trends, Nevada
- Tayoltita and Fresnillo epithermal silver-gold vein districts, Mexico
- Pueblo Viejo gold mine, Dominican Republic
- Castleton, Bellevue copper-gold deposits, Jamaica
- Lupin gold mine, Northwest Territories, Canada
- San Ramon Homestake-type gold deposit, Bolivia
- Mount Isa and Broken Hill base metal mines, Queensland/New South Wales, Australia
- Buick mine, Viburnum Trend, Missouri

3. Literate in computer applications and posses a basic knowledge of the Spanish language.