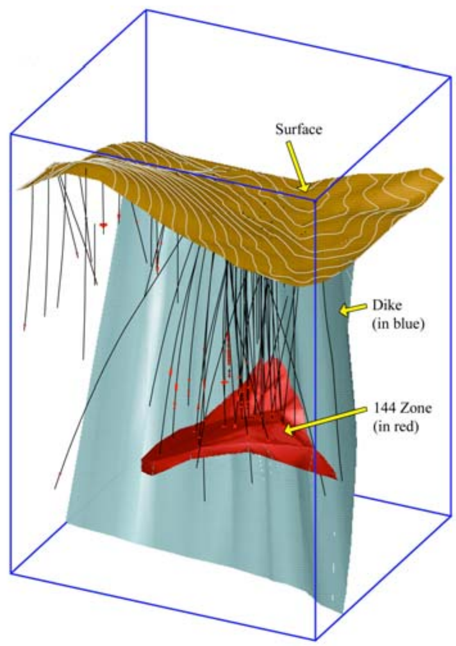
TECHNICAL REPORT ON THE STERLING PROPERTY 144 ZONE:

Resource Summary and Exploration Proposal
Nevada, U.S.A.



NI 43-101 Report

Prepared by
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Vancouver, B.C., Canada

Effective Date
February 7, 2006

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Imperial Metals

February 7, 2006

J. Brian Kynoch
Imperial Metals Corporation
200-580 Hornby Street
Vancouver, BC, V6C 3B6

Dear Mr. Kynoch:

Re: Technical Report Sterling Property 2006

Please find attached the Technical Report you requested updating the technical aspects of the Sterling Property, with respect to the new resource/reserve statements, the 2001 to 2003 drilling programs on the Panama and 144 Zones and recommendations for additional work. I visited the Sterling property during the week of December 5 2005, and reviewed the content of this report with the Sterling mine staff.

Major Contributors to this report:

- Greg Gillstrom, Engineer, Imperial Metals Corporation
- Chris Rees, Geologist, Imperial Metals Corporation
- Art Frye, Manager of Project Development, Imperial Metals Corporation.

I am the Qualified Person responsible for the report's preparation in accordance with National Instrument 43-101.

Sincerely,

Greg Gillstrom, P.Eng

Imperial Metals

CERTIFICATE OF AUTHOR

Greg Gillstrom, P.Eng
Imperial Metals Corporation
200-580 Hornby Street
Vancouver, BC V6C 3B6

I, Greg Gillstrom, am a registered Profession Engineer with the Association of Professional Engineers and Geoscientist of British Columbia.

I graduated from the University of British Columbia with a Bachelor of Applied Science in Geological Engineering in 1990, and from the British Columbia Institute of Technology with a Diploma of Technology in Electrical Engineering in 1984.

I have been practicing my profession continuously since graduating from UBC in 1990. I have been involved in numerous exploration and mining projects over the past 16 years, mostly in base and precious metals. As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101.

I visited the Sterling property this winter during the week of Dec 5th to 9th. During that time I reviewed the content of this report with the technical staff at the mine for accuracy and completeness.

February 7, 2006

Greg Gillstrom, P.Eng.

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Imperial Metals

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1 SUMMARY

The Sterling property is located on the Bare Mountain range in Nye County, southern Nevada, U.S.A., 185 km northwest of Las Vegas. It is 100% owned by Imperial Metals Corporation through its wholly owned U.S. subsidiary Sterling Gold Mining Corporation, subject to a Net Smelter Return of 2.25% on some claims.

Sterling operated as a heap leach gold operation starting in 1980 and suspended operations in 1997 when the known economic reserves were depleted. During this time the mine produced about 200,000 troy ounces of gold at an average mine grade of 0.217 oz/st from both underground workings and from three open pits, the Sterling, Ambrose, and Burro Pits. Subsequent property exploration and drilling has shown there to be new gold resources in two zones, the **Panama Zone** and the **144 Zone**.

The Panama Zone, is located south east of the Ambrose Pit (see figure 2.1). It was discovered by two drill intercepts intersecting up to 40 feet of high grade mineralization at the Sterling thrust fault in 1988. Follow up drilling in 2001 delineated a mineralized zone approximately 50 feet thick and 60 feet wide. The zone dips at approximately 45 degrees to the southeast. It should be noted that the Sterling Mine was originally called the Panama Mine which should not be confused with the Panama Zone.

Like the previously mined Sterling ore, the 144 Zone is a sediment-hosted, disseminated gold deposit, but it is located deeper and not directly connected to the old workings. The gold mineralization is hosted in altered and brecciated silty dolostone about 750 feet below the surface, and is bounded by a controlling dike on the east side. The setting is quite characteristic of structurally hosted Carlin-style mineralization in Nevada. A total of 39,108 feet were drilled in three programs from 2001 to 2003. These three programs were successful in delineating a significant gold resource in the 144 Zone.

A new resource estimate has been prepared for both zones and an exploration decline down to the 144 Zone is being recommended. This 3840 ft decline will be used to take a bulk sample of the 144 Zone for leach testing and also used for staging further exploration drilling.

Table 1.1 Sterling Mineral Resource Summary

Sterling Mine Mineral Resources, February 7, 2006						
Zone	**Category**	**Imperial**		**Metric**		**Contained**
	RESOURCES	**Short Ton**	**Grade (Au OPT)**	**Tonnes**	**Grade (Au g/t)**	**Ounces**
144	Indicated and Measured	214,554	0.216	194,640	7.41	46,344
Panama	Indicated and Measured	103,040	0.082	93,476	2.81	8,449

In light of the increase in the price of gold in 2005, Imperial Metals is re-evaluating the resource on the Sterling Property. The 144 zone is being looked at as a stand alone underground leach project. While the Panama Zone is being looked at as a shallow open pit target, that would be developed in conjunction with the 144 Zone.

2 INTRODUCTION

2.1 Purpose and Scope

This report was compiled by Imperial Metals Corporation to provide scientific and technical information in support of the company's current exploration and development strategy at the Sterling gold property in Nevada, U.S.A., specifically for the 144 and Panama zones.

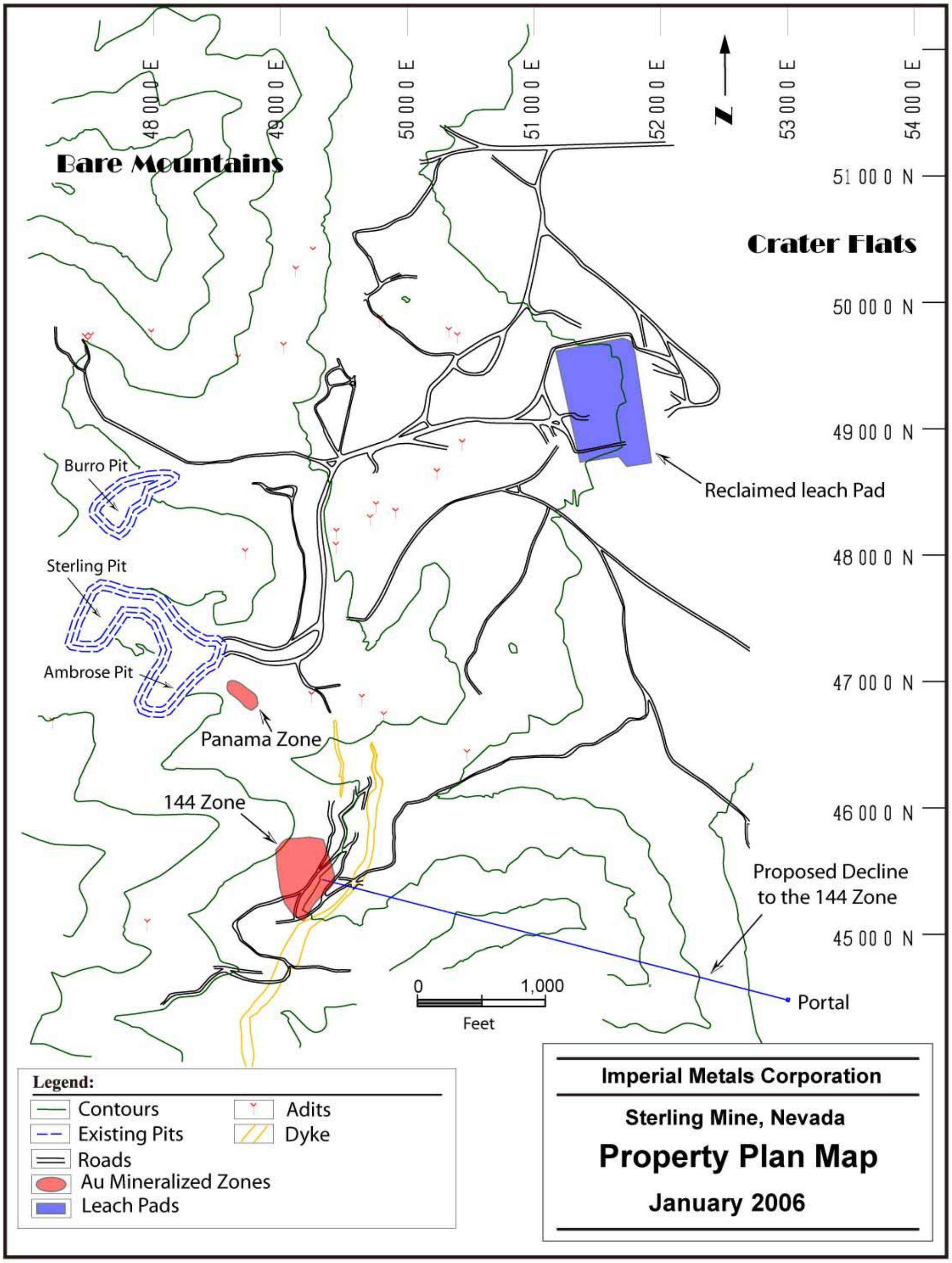
The Sterling Mine is located in Nye County, Nevada and operated as a heap leach gold operation from 1980 to 1997. The mine produced about 200,000 troy ounces of gold at an average mine grade of 0.217 oz/st. Production came from both underground workings and from three open pits, the Sterling, Ambrose, and Borrow Pits. New exploration drilling conducted by Imperial Metals in 2001 to 2003 delineated two new zones on the property, the Panama and 144 Zone.

The main focus of this report is on the evaluation of the gold resource in the 144 Zone and the new resources calculation concluded in August of 2005. In addition this report outlines the details of the near surface gold resource in the Panama Zone (see figure 2.1).

With respect to the former mining operations, only background and other data that are relevant to current deposits are included here. This includes disclosure of property permits, liabilities etc. which are, in effect, primarily in the context of the previous mining activities.

This report was written to comply with the terms of the Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects, and follows the format and terms set out by Form 43-101F1 governing technical reports.

Figure 2.1 Sterling Property: Deposit Zone Location Map



3 RELIANCE ON OTHER EXPERTS

<u>The following is a list of the personnel contributing to this report:</u>

Greg Gillstrom, P.Eng (Engineer, Imperial Metals) Report author and designated 'Qualified Person' responsible for the report's preparation in accordance with National Instrument 43-101.

Pat McAndless, P.Geo (VP Exploration, Imperial Metals) Designed and supervised the 2001 to 2003 drilling programs at the Sterling Property and acted as the Qualified Persons on site during drilling the programs.

Chris Rees, P.Geo (Geologist, Imperial Metals) Served as the Qualified Persons at different times during the 2001 to 2003 drilling programs and was a major contributor to the geological and drilling sections of this report.

Art Frye (Manager of Project Development, Imperial Metals) Performed the block modeling and calculated the new resource estimates in this report, using the MineSight Software package.

Chuck Stevens (Mine Manager, Sterling Gold Mining Corporation) and **Joe Marr** (Mine Geologist, Sterling Gold Mine) provided and reviewed the property history, claim status, production data and recovery criteria recorded by the previous owners and operators of the Sterling Mine.
They also provided the technical details for the proposed exploration decline to the 144 Zone.
Note: Sterling Gold Mining Corporation, is a U.S. subsidiary of Imperial Metals Corporation of Vancouver, who are the operators at the Sterling Mine.

Greg Gillstrom and **Chris Rees** were responsible for all maps and graphics in this report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location and Access

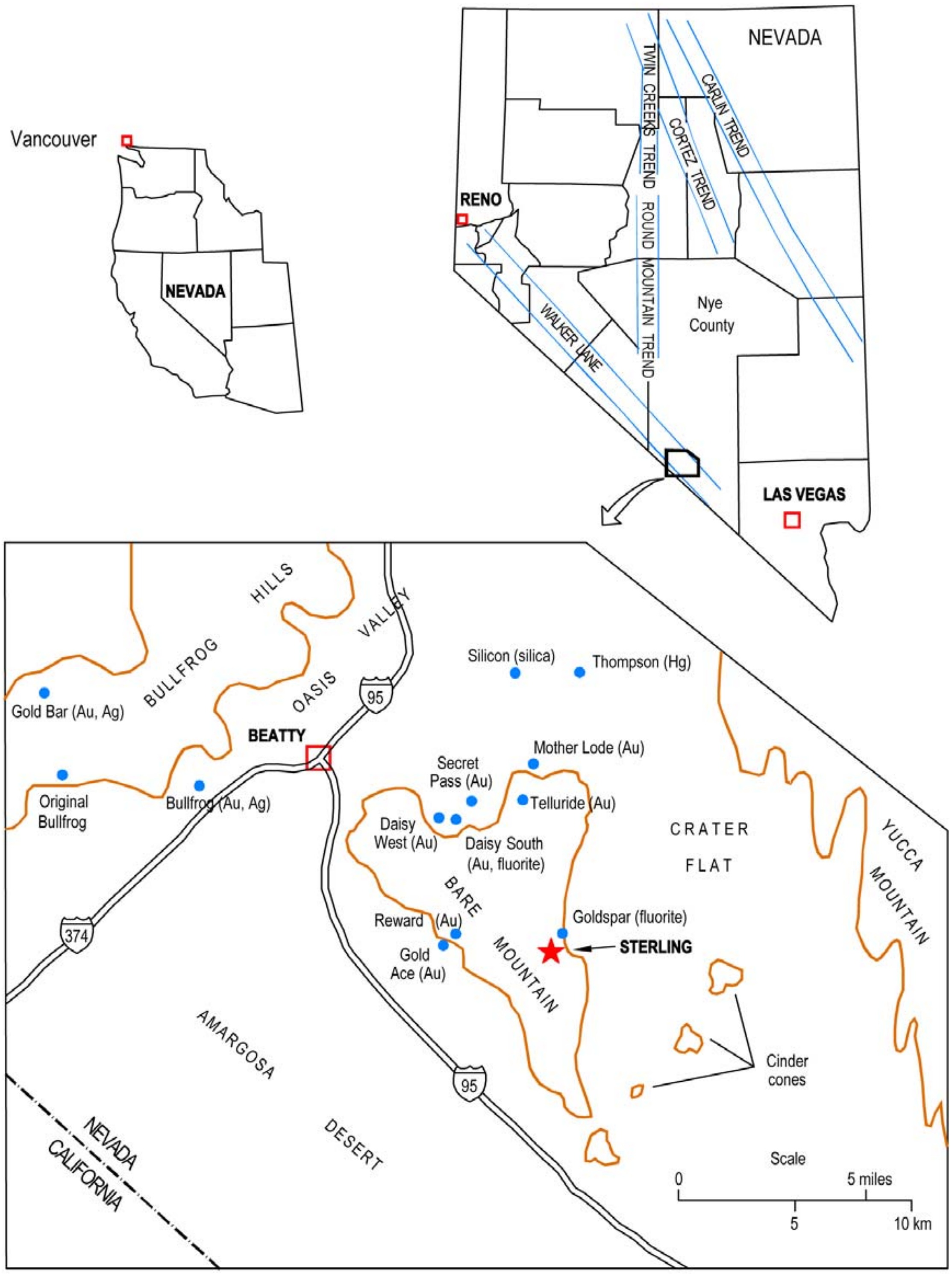
The Sterling property is situated in southern Nye County, Nevada, near the town of Beatty, about 115 miles (185 km) northwest of Las Vegas (Fig. 4.1). Sterling lies on the east side of Bare Mountain (summit 6317 feet), a small mountain range at the southern end of Pahute Mesa in the Great Basin. The mountains are flanked by Crater Flat to the east, and the northern Amargosa desert to the south, which is just north of the California state boundary.

Sterling is accessible via U.S. Highway 95, which runs between Las Vegas and Reno. A good secondary, eight mile (13 km) long gravel road turns off the north side of the highway at mile 45.9, 15 miles (24 km) southeast of the town of Beatty. The gravel road is maintained by Nye County and Sterling personnel. Las Vegas is the nearest major airport.

The center of the property is at latitude 36°49'40"N and longitude 116°38'00"W, or approximately UTM coordinates 532000E, 4075000N, in Zone 11. The magnetic declination in mid-2005 is 13° 28'E.

The elevation of the operation is around 4000 feet, on the lower, eastern slopes of Bare Mountain. The local terrain is characterized by rounded or craggy ridges separated by ephemeral washes. Several small cinder cones, about one million years old, occur in Crater Flat. The climate in the region is arid with typical desert vegetation, characterized by very hot summers and mild winters. The annual precipitation (avg. 4 in.) in the form of rain or snow is mainly in the winter or late spring and occasional thunderstorms at other times of the year. High winds are frequent during the winter. Temperatures normally range from 30°F in the winter to 110°F in the summer. The evaporation rate is about 60 inches per year.

Figure 4.1 General Location Map



4.2 Claim Status

Sterling is 100% owned by Imperial Metals Corporation of Vancouver, Canada, through its wholly-owned U.S. subsidiary Sterling Gold Mining Corporation, subject to a 2.25% Net Smelter Return royalty on certain claims (see section 4.3 for details).

In November 2004, 62 new claims covering 1,282 acres were staked by Imperial Metals in the Bare Mountain area. This brought the total on the Sterling property to 211 lode mining claims, plus one mill site occupied by the water well, located in Crater Flat. The claims and mill site cover approximately 4,381 acres. An additional 29 claims (constituting the Mary and Goldspar deposits north of the mine property) were acquired under lease in 2003 to secure the northerly extension of the Reudy Fault along the Range Front, and potential mineralization associated with it. These additional claims cover approximately 599 acres.

The land is administered by the U.S. Bureau of Land Management (BLM) under the terms of the Mining Act of 1872 and subsequent amendments. The claims are recorded in the Nye County Recorder's Office in the Court House in Tonopah, Nevada. Annual rental fees are paid to BLM and notice of intention to hold the claims filed at the Nye County Recorder's Office.

4.3 Property Ownership and Royalties

Lands affected or controlled by the Sterling property are under the jurisdiction of the United States Federal Bureau of Land Management, Las Vegas Field Office.

The Sterling property is 100% owned by Imperial Metals Corporation through its wholly owned U.S. subsidiary Sterling Gold Mining Corporation, subject to a 2.25% Net Smelter Return on certain claims. The NSR is payable to Saga Exploration Company (2%) and Newmont Mining Corporation, formerly Euro-Nevada Mining Corporation Limited (0.25%) (See Appendix 4 for a list of the claims).

4.4 Permits and Environmental Liabilities

All required permits for exploration and mining are either current or the renewal is under review by the Nevada State Environmental Protection (NDEP) and the Bureau of Land Management (BLM). Permits include the following:

BLM PLAN OF OPERATIONS # N54-89-005P, SERIAL NUMBER 79385**.** This permit is valid through the life of the operation, and was last amended in 2000. The Plan determines the conditions and practices under which the mine operates.

BLM AND NDEP RECLAMATION PERMIT # 0065**.** This permit regulates the condition of the property upon completion of work and prior to abandonment. Specifically covered is heap detoxification, contouring disturbed ground, removal of all structures and materials, and re-vegetating disturbed ground. A cost estimate for completing this work is required, from which a reclamation bond amount is established. The cost estimate is reviewed every three years, and the bond amount recalculated. This permit is currently under the review process, including negotiation of an appropriate bond amount.

NDEP WATER POLLUTION CONTROL PERMIT #NEV89016. This permit mandates measures to be taken to minimize the impact of the operation on Waters of the State. Heap and pond lining are prescribed, as well as monitoring and testing. The permit has officially expired, and a permit renewal has been submitted to NDEP for review.

NDEP AIR QUALITY PERMIT # AP1041-0559. This permit is in good standing. The permit places limitations on the use, and prescribes mitigating measures to be taken, on dust producing operations. Procedures and equipment covered under this permit are the Screening plant (no longer on-site), the grizzly (no longer on-site), and the crushing circuit (water sprays are required).

NDEP STORM WATER DISCHARGE PERMIT #NVR300000. This is a general permit for metal mining in Nevada. Incorporated into the plan are measures to protect Waters of the United States including storm run-off diversion, and spill prevention.

NDOW (WILDLIFE) ARTIFICIAL POND PERMIT #S11456. This permit governs industrial ponds used on-site. Wildlife protection measures include fencing of the process areas, netting or covering contained process solutions to prevent bird deaths. The permit was renewed in 2000 and is valid for 5 years.

STATE FIRE MARSHALL HAZARDOUS MATERIAL PERMIT #2761/7024. This requires a listing and disclosure of all hazardous materials stored and/or used on a site. Annual renewal has been submitted.

NEVADA STATE WATER RIGHTS PERMIT # 48436. Water rights are granted when beneficial use of a specified amount of water has been proven. Until proven, the State may grant annual extensions of time on a permit request. The mine had originally claimed 800,000,000 gallons of water, but never used nearly that amount. In 1995, the State requested 'proof of beneficial use'. In negotiations, the State agreed to grant further time extensions and, in return, the mine lowered the claim to 140,000,000 gallons annually.

4.5 Current Property Status

Since October of 2001 the Sterling mine site has been kept on a care and maintenance basis, with a three person crew. The crew has undertaken clean-up work, conducted interim water management work that has reduced the process water volumes at the site and dropped weak acid soluble cyanide levels in water draining for the heaps to near closure levels. The existing heaps have also been recontoured and capped. This work has not affected, nor been affected by, the current exploration drilling.

5 ACCESSIBILITY, CLIMATE, AND PHYSIOGRAPHY

5.1 Access

Sterling is accessible by road from Las Vegas, a distance of 115 miles via U.S. Highway 95. A good secondary, 8-mile long gravel road turns off the north side of the highway at mile 45.9, 15 miles southeast of the town of Beatty (Fig. 4.1). The gravel road is maintained by Nye County and Sterling personnel. Las Vegas is the nearest major airport.

5.2 Local Resources

Beatty is the nearest centre for lodging and basic services, with a population of about 1200. Beatty has general stores, gas stations, several motels, elementary and high schools, emergency fire fighting facilities and an ambulance service and nursing station. The town is on a major transportation route between Las Vegas and Reno/northern California, expediting delivery of supplies and shipments.

5.3 Climate and Physiography

The climate in the region is arid with typical desert vegetation, characterized by very hot summers and mild winters. The annual precipitation (avg. 4 in. or 100 mm) in the form of rain or snow mainly in the winter or late spring with occasional thunderstorms at other times of the year. High winds are frequent during the winter. Temperatures normally range from 30°F in the winter to 110°F in the summer. The evaporation rate is about 60 inches per year. Occasionally, high winds and frost or snow in January and February have frozen water lines on the property for several days, causing minor interruptions of the gold leaching system. Otherwise, the climate does not impact year-round operations.

The 144 Zone is at 4000 feet elevation, on the lower, eastern slopes of Bare Mountain. The mine and infrastructure are at around 4100 feet elevation. The present leach pad is on the upper edge of the adjacent pediment (3800 feet). The local terrain is characterized by rounded or craggy ridges separated by ephemeral, gravel-filled washes.

5.4 Infrastructure

Mine buildings consist of several trailers used for office work, geological research and logging, sample preparation (during mining), and personnel facilities. A large steel container is used to securely store 144 Zone drill core, pulps and rejects. There is also a large mechanical shop for on-site maintenance of equipment and vehicles. Electrical power is provided by a generator on the site. The mine has no living quarters or canteen; mine personnel live in Beatty or communities in the Amargosa Valley and commute daily.

The leach pad area consists of apparatus for the gold extraction circuit, some of which is housed in trailers. An assay laboratory was in use during mining but is not operational at present. The area has its own electricity generator.

Water for the mine and gold recovery plant is drawn from a well (USW VH-2) in Crater Flat, located about 3.5 miles east-southeast of the mine. The well was originally drilled by Reynolds Electrical and Engineering Company for the U.S. Department of Energy and completed at a depth of 2,501 feet . Water was encountered at 1,100 feet but subsequently rose to 460 feet. The former Sterling Mine Joint Venture obtained permission in 1984 to pump water for mine use. Water is stored in a lined and fenced reservoir at the well site from which it is pumped or hauled to the mine by tank truck. The well pump is set at 617 feet and operates at a rate of 45 U.S. gallons per minute. Pumping capacity to the mine site is 50 gallons per minute. Potable water is supplied by bottle from Beatty.

Outside communication is provided by radio telephones and satellite internet email. Cellular phone reception is also amenable at certain locations on site.

Gasoline and diesel fuels are trucked in periodically and stored in tanks. Mine supplies are procured in Beatty whenever possible. Mining equipment and parts are obtained from dealers and distributors located mainly in Las Vegas, Reno and Los Angeles.

6 HISTORY

Sterling is a heap leach gold mine, 100% owned by Imperial Metals Corporation of Vancouver, Canada, through its wholly-owned U.S. subsidiary Sterling Gold Mining Corporation.

In November 2004, 62 new claims covering 1,282 acres were staked by Imperial metals in the Bare Mountain area. This brought the total on the Sterling property to 211 lode mining claims, plus 1 mill site occupied by the water well, located in Crater Flat. The claims and mill site cover approximately 4,381 acres. An additional 29 claims (constituting the Mary and Goldspar deposits north of the mine property) were acquired under lease in 2003 to secure the northerly extension of the Reudy Fault along the Range Front, and potential mineralization associated with it. These additional claims cover approximately 599 acres . The land is administered by the U.S. Bureau of Land Management (BLM) under the terms of the Mining Act of 1872 and subsequent amendments. The claims are recorded in the Nye County Recorder's Office in the Court House in Tonopah, Nevada. Annual rental fees are paid to BLM and notice of intention to hold the claims filed at the Nye County Recorder's Office.

6.1 Prior ownership of property

The recent ownership history of the property is summarized as follows.

- 1970s - Cordilleran Exploration Partnership
- 1980 (Jan.1) - Sterling Mine Joint Venture (SMJV) formed, comprising: Saga Exploration Company, E & B Explorations Inc., Derry Michener Booth Venture Number 1, and the Geomex Partnership.
- 1987 (April 16) - Cathedral Gold Corporation is established by Imperial Metals Corp., and acquires (Sept. 11) 52% interest in SMJV through Abbey Gold Inc., consolidating small ownership interests.
- 1992 (Oct. 1) - Geomex Development Inc., a wholly owned U.S. subsidiary of Imperial Metals Corporation, acquires 10% interest in SMJV.
- 1994 (June 3) - Geomex Development Inc. is renamed Albany Gold Corporation.
- 1995 (Jan. 31) - Abbey Gold Inc. is renamed Cathedral Gold U.S. Corporation.
- 1995 (Mar. 31) - Cathedral Gold U.S. Corporation acquires 38% interest from Saga, to hold a 90% interest in SMJV.
- 1999 (Dec. 31) - Imperial Metals acquires ownership of Cathedral Gold U.S. Corporation.
- 2000 (Sept. 30) - Cathedral Gold U.S. Corporation and Albany Gold Corporation merge to form Sterling Gold Mining Corporation.

6.2 Property Exploration and Mining History

Gold was discovered in several localities on Bare Mountain and the adjacent Bullfrog Hills around 1905, in a variety of geological settings. The first workings at Sterling from this period were known as the Panama mine or Bittlecomb shaft. Gold production figures from these original working are unknown.

The modern development of Sterling began in the 1970s with exploration (1973 to 1977) around the original deposit by Cordilleran Explorations Partnership. The holdings were leased to Saga Exploration Company in 1978. The initial Sterling Mine Joint Venture (SMJV) was formed in 1980, comprising Saga Exploration Company, E & B Explorations Inc. and Derry Michener Booth Venture Number 1, and the Geomex Partnership.

Mining of the Sterling Mine ore body began in late 1980, with Saga as the operator (see Section 6.3 for details). Between 1987 and 1995, Cathedral Gold Corporation accumulated a 90% interest in the property through its U.S. subsidiaries, and took over the operation of the SMJV; the other 10% interest was acquired by a wholly owned U.S. subsidiary of Imperial Metals Corporation in 1992 (see Section 6.1). Mining ended in 1997.

Placer Dome U.S. (PDUS) conducted a joint venture exploration program with Cathedral Gold U.S. in 1996.

Imperial Metals Corporation increased its ownership of Sterling to 100% in 1999 by acquiring Cathedral Gold U.S. Corporation from its parent, Cathedral Gold Corporation.

6.3 Sterling Mine

Open pit mining of the Sterling Mine deposit began in 1980 and continued until 1989. Underground mining began in 1980, and proceeded until mid-1997 when market conditions impacted profitability. Parameters set by the SMJV partners were aimed at maintaining an average production grade of 0.25 oz/st gold, which effectively kept the underground mining cutoff grade at 0.1 oz/st. Consequently, the potential for a larger tonnage, lower grade resource was not pursued, and a considerable amount of lower grade material was left in place.

Being oxidized, the Sterling Mine ore was amenable to processing by heap leaching. After mine production ceased, the pad continued to be turned over until October 2001, with additional ore from a low grade stockpile added in early 2001. Gold recovery continued until August 2002 when a final strip was carried out.

Total gold production (1980 through 2000) is 194,996 troy ounces, from 941,341 short tons of ore. The average gold grade (cyanide soluble) of material placed on the leach pad in this period is 0.217 oz/st (7.44 g/t). Recoveries have averaged 88%, without milling.

6.4 Panama Zone

As stated above the first underground workings at Sterling were known as the Panama Mine or Bittlecomb shaft. The Panama Mine, operated intermittently between 1906 and 1940. Historic records indicate that ore in the breccia zone averaged 0.400 oz Au/ton, while footwall rocks averaged 0.040 oz Au/ton. Above these old workings, a near surface target now called the 'Panama Zone' was first recognized in 1999. It was discovered by following up on two drill intercepts intersecting, including up to 40 feet of high grade mineralization at the Sterling thrust (holes 88-048 and 88-049). Some of this was subsequently mined from underground through a narrow drift, but the zone was not fully delineated at the time. Follow up drilling in 2001 (ST 10 to ST 44) delineated a mineralized zone approximately 50 feet thick and 60 feet wide. The zone dips at approximately 45 degrees to the southeast. The mineralized breccia in this zone is oxidized and has all the same characteristics of the Sterling Ore.

6.5 144 Zone Exploration History

In 2000 Imperial began a new exploration program that involved regional rock sampling, and a gravity survey. The purpose of the gravity survey was test the vertical offsets in the pediment east of Sterling, which might be related to high-angle faults. Based on all the results, several target areas were generated for drill testing, most of them inside the Sterling property. They were drilled in 2000 and early 2001. Most of the results were negative. The exception was a target around hole 89-144, drilled in 1989 by the former operator, Cathedral Gold Corporation. At that time, this was a routine, exploration step-out hole drilled to help determine the limits of the main Sterling ore body to guide mine planning. It was one of several surface holes around the Reudy Fault, beyond the eastern and southeastern margin of the (then) known deposit. The hole intersected a dike and silicified and partly brecciated dolostone, with strongly anomalous gold values. The results were not followed up by Cathedral during their operations, but Imperial decided to explore the area in 2000.

To test the area around hole 89-144, in 2001 Imperial drilled an angle hole aimed to intersect the Reudy Fault at a fairly high angle and at an appropriate depth (about 700 feet below the surface). This became the discovery hole, 01-7A (hole 01-7 had to be abandoned due to bad ground). The new zone was named the 144 Zone, after the original Cathedral hole, 89-144.

The discovery was made in April, 2001. In the following month, four more reverse circulation (RC) holes were drilled (01-9 through 12). Results ranged from very high grades of nearly 2 oz/st gold, to low or negligible gold grades at the target horizon. After a short break, another five holes (01-13 through 17) were drilled in June and early July to complete the 2001 program.

A more extensive drilling program was conducted in 2002 and 2003. Most of these holes in these two programs intersected significant gold mineralization. See sections 11 for details.

6.6 Current status

The Sterling mine site has been kept on a care and maintenance basis since closure in 1997. The crew has undertaken reclamation work including recontouring and capping the existing heap, and interim water management, that has reduced the process water volumes at the site and dropped weak acid soluble cyanide levels in water draining for the heaps to near closure levels.

In light of the increase in the price of gold in 2005, Imperial Metals is re-evaluating the resource on the Sterling property. The 144 Zone is being looked at as a stand alone underground leach project. While the Panama Zone is being looked at as a shallow open pit target, that would improve the 144 Zone economics.

7 GEOLOGICAL SETTING

7.1 Regional Geology

Sterling is fairly typical of a large number of similar deposits that occur in the western U.S., particularly in the Great Basin in Nevada. These deposits are known as sediment-hosted, disseminated precious metal deposits, or generically as Carlin-type deposits (Teal and Jackson, 1997).

The Great Basin province is a physiographic and tectonic region west of the Rocky Mountains, from southern Oregon to southern California and Arizona, and which is characterized by profound crustal extension and high heat flow beginning in the mid-Tertiary (about 35 to 40 million years ago). In the characteristic basin and range physiography, fault-bounded mountain ranges are composed mainly of metamorphosed Proterozoic and Paleozoic sedimentary rocks, originally deposited on the rifted paleo-continental margin (miogeocline) of ancestral North America. The intervening basins or flats are underlain at depth by thinner sections of the same rocks, but are filled with great thicknesses of younger volcanic deposits and erosional detritus related to Basin and Range magmatism and tectonics.

7.2 Local Geology

The Bare mountain district lies within the Walker Lane tectonic belt, a NW-trending mega-lineament in southwestern Nevada (Fig. 7.1), which hosts several significant gold mining districts, especially epithermal gold-silver deposits. The Walker Lane is fundamentally a deep-seated, Miocene tectonic boundary between Basin and Range extension in the western Great Basin, and subduction-related tectonics and calc-alkaline magmatism of the Sierra Nevada. It is a complex zone characterized by extension and dextral strike slip, but involving other fault systems related to Miocene tectonics, including domains of ENE-striking sinistral strike-slip structures and low- and high-angle normal faults.

Most of the Bare Mountain range comprises strongly deformed, but generally north-dipping, Upper Proterozoic and Paleozoic rocks (Figs. 7.1, 7.2). Siliciclastic lithologies dominate the Upper Proterozoic to Lower Cambrian part of the stratigraphy in the south of the range. In the Middle Cambrian there is a transition to carbonate-rich lithologies, with dolostones and limestones dominating the stratigraphy northwards through to the Upper Devonian, above which is a Mississippian unit of immature siliciclastics. The youngest rocks in the Bare Mountains are Tertiary igneous rocks of the Southwestern Nevada Volcanic Field.

Ductile deformation occurred in the Mesozoic, when crustal shortening produced large-scale, overturned folds and thrust-repetitions of these strata. Fold and thrust vergence was generally to the northwest. Metamorphic grade was low to moderate (greenschist or lower). The age of this deformation is assumed to be Jurassic to Early Cretaceous, as Late Cretaceous granitic rocks do not appear to be affected. Episodic Tertiary extension produced both low-angle and high-angle normal faults. At least some of the high-angle faults post-date the low-angle structures. Some of the latter are possibly reactivated Mesozoic thrusts. Some of the high-angle faults have oblique slip, with a right-lateral component.

Figure 7.1 Regional Geology

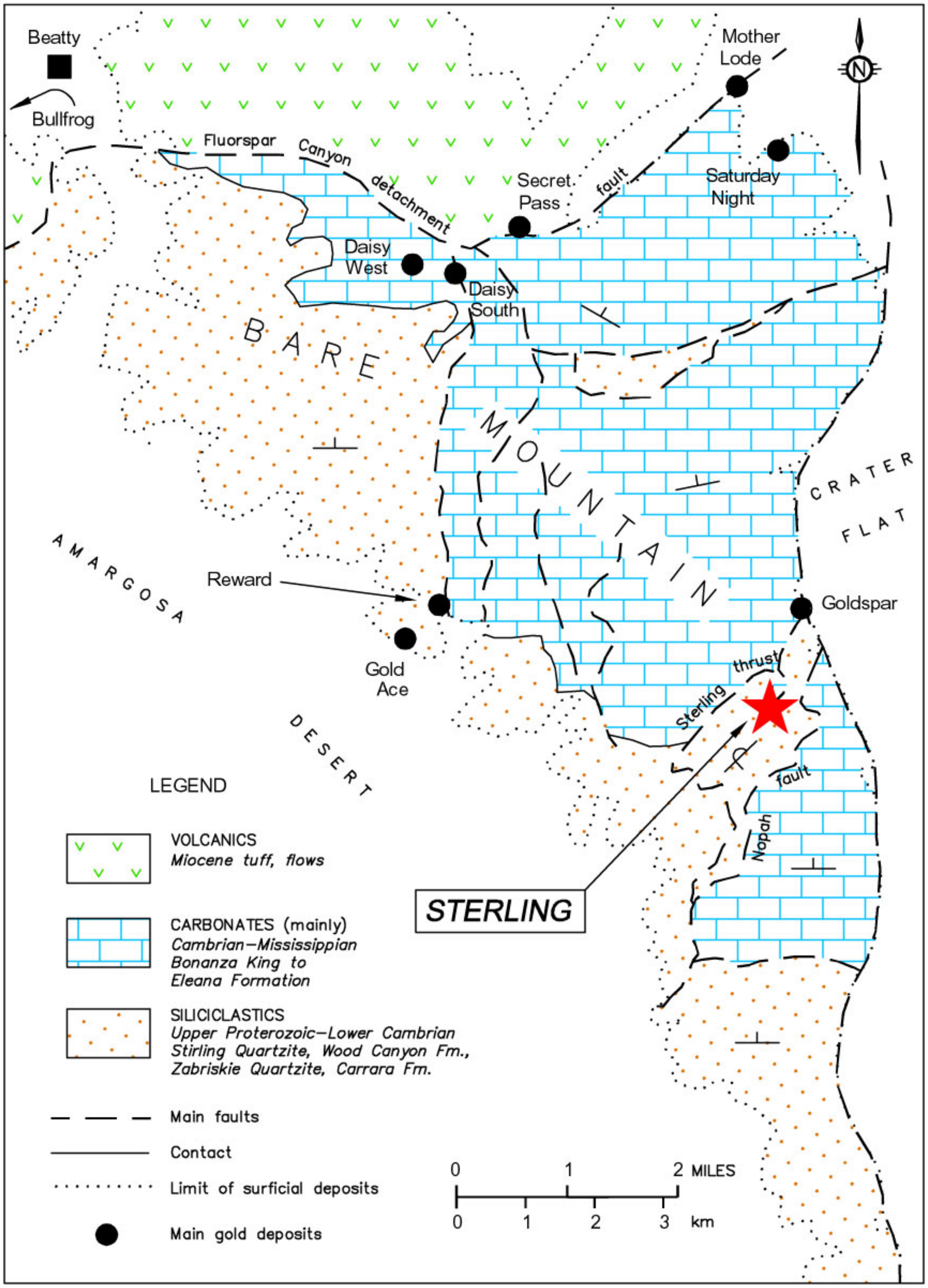


Figure 7.2 Local Geology

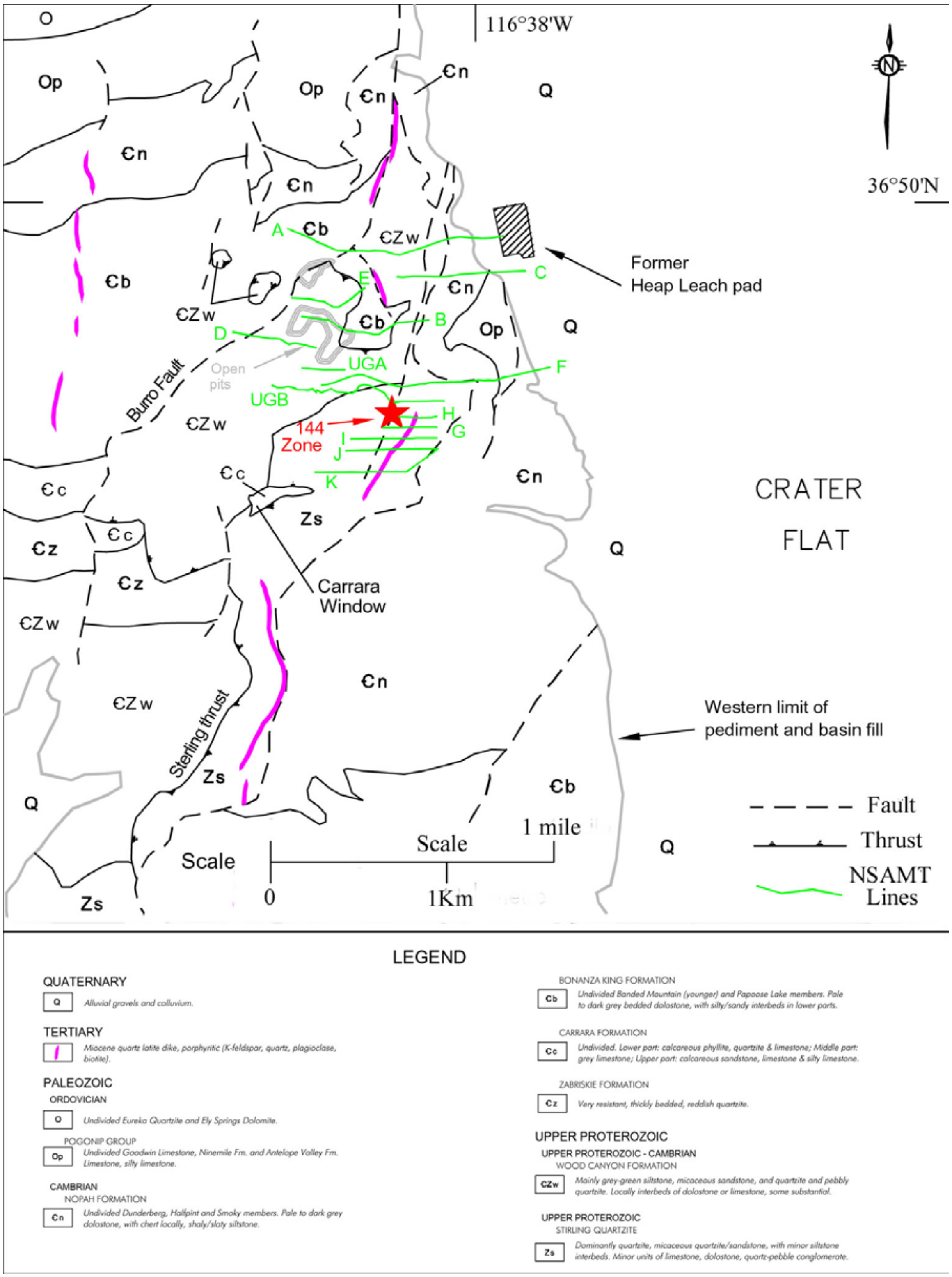


Figure 7.3 Cross Section, Sterling Property

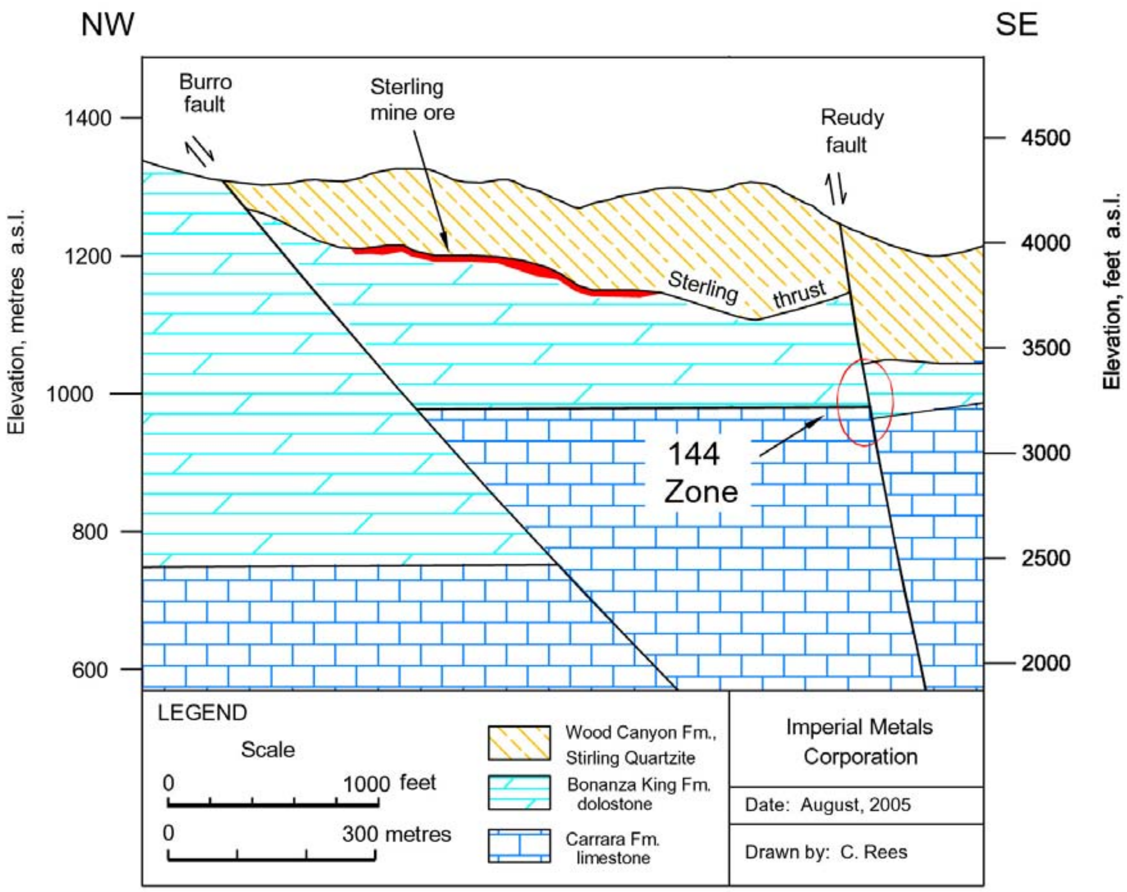
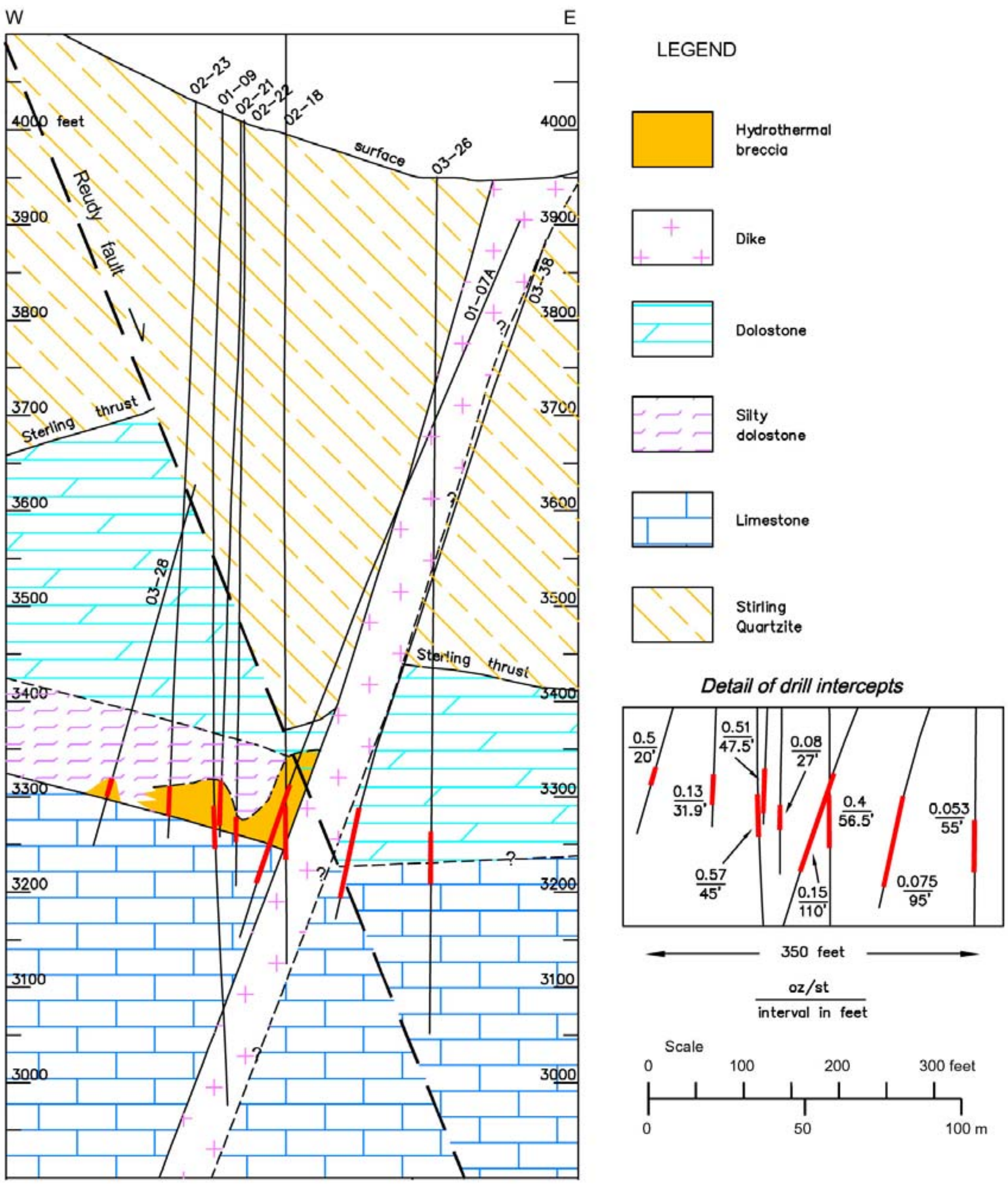


Figure 7.4 Cross Section, Center of the 144 Zone



7.2.1 Southwestern Nevada Volcanic Field

The Bare Mountain range lies within the Southwestern Nevada volcanic field (SWNVF), a large region of mid- to late Miocene silicic ash-flow tuffs and lesser silicic to mafic lavas and intrusions. On Bare Mountain, SWNVF volcanic rocks are restricted to the northern flank, in the hanging-wall of the north-dipping Fluorspar Canyon detachment fault (Fig. 7.1). Minor intrusions, however, occur throughout the range, comprising felsic to intermediate, porphyritic dikes related to the latter part of the 'main magmatic stage' of the SWNVF. These quartz latite dikes, approximately 13.9 Ma old (K-Ar, biotite), generally trend north, and in many cases appear to be intruded along fault zones.

7.3 Property Geology

The geology of the Sterling property is summarized in Fig. 7.2. The more local setting of mineralization is illustrated in the cross section (see Figs. 7.3 and 7.4).

7.3.1 Stratigraphy

Layered rocks:

From oldest to youngest, stratified rock units on the property range from the Upper Proterozoic to Ordovician part of the stratigraphic section. The host rocks of the 144 Zone mineralization span the bottom of the Bonanza King Formation and the top of the Carrara Formation.

Intrusive rocks:

Miocene quartz latite dikes of the SWNVF occur throughout the Sterling property, but most are along or close to the Reudy Fault zone (see below, under Structure). They normally range in thickness from 5 feet to about 30 feet, though some are considerably thicker. Most trend north-south, and were probably intruded along faults or fractures. Clay-alteration of the dikes ranges from weak to locally intense. The dikes slightly pre-date the most important hydrothermal activity and gold mineralization at Sterling.

7.4 Structures

7.4.1 Bare Mountain panel

The lowest panel, which forms the major part of Bare Mountain, comprises a regular stratigraphic section which generally strikes east-west and dips about 60° north. The Bare Mountain panel is deformed by north-trending, high-angle faults related to Tertiary extension. East-side-down displacements are predominant, resulting in right-lateral separations of stratigraphic contacts. A few faults show small, west-side down displacements. The amount of strike-slip associated with the faulting is not clear.

The 144 Zone is in Bonanza King-Carrara rocks of the Bare Mountain panel. The mineralized zone is completely blind, and lies beneath the Sterling thrust panel (see below).

7.4.2 Sterling thrust panel

On top of the Bare Mountain panel is the Sterling thrust, which carries a panel of overturned, west-facing Wood Canyon Formation and overlying (older) Stirling Quartzite. These strata typically strike northeast and dip gently to moderately southeast. The Sterling thrust is itself gently folded, but generally dips and roots to the east or southeast. Thus, the thrust and the overturned folding are each west- or northwest-verging, and are probably roughly coeval and Jurassic to Early Cretaceous in age. The mined-out Sterling ore deposit occurs along the Sterling thrust. A window in the Sterling thrust panel south of the mine area exposes north-dipping Carrara Formation of the underlying Bare Mountain panel ('Carrara window', Fig. 7.2). The Carrara Formation is not mineralized in the window, but its down-dip, northward projection under the Sterling thrust is mineralized in the 144 Zone, along with the overlying Bonanza King Formation.

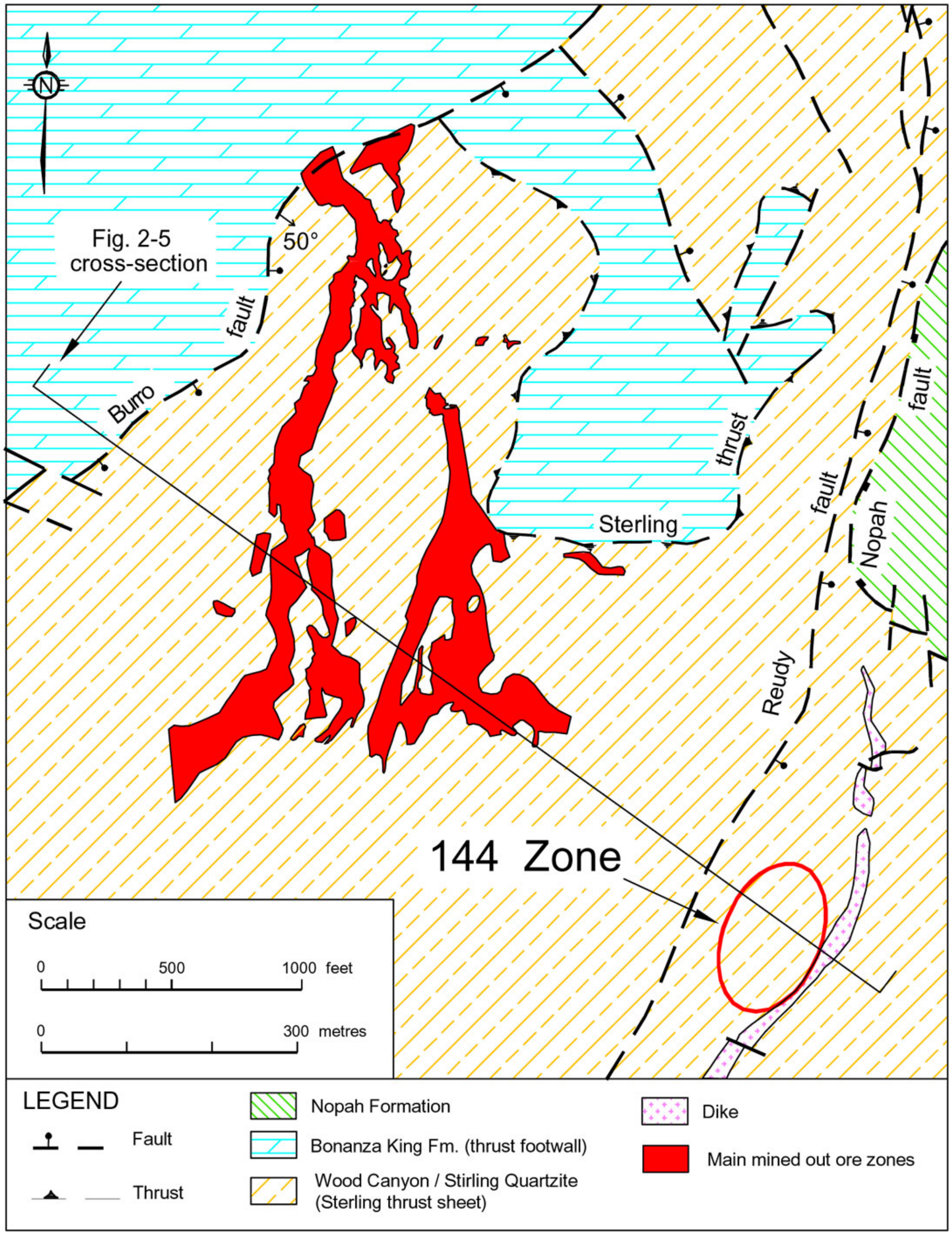
7.4.3 Nopah fault panel

The highest structural panel forms the hanging-wall of the low-angle Nopah fault. This is a large detachment fault which overlies the Sterling thrust panel and, in southern Bare Mountain, also overlaps the lowest (Bare Mountain) structural panel. The fault dips 20° to 30° east-southeast, and trends northeast. Just northeast of Sterling it heads out onto the pediment where it is truncated by the younger, range-bounding high-angle fault or faults.

The hanging-wall of the Nopah fault on the property is mainly Nopah Formation. However, east of Sterling, overturned Goodwin limestone and Ninemile Formation of the Pogonip Group structurally overlie older Nopah Formation dolostone.

The Nopah fault panel is structurally much higher than the 144 Zone, and does not impact the structural setting of the mineralization, nor that of the main Sterling deposit.

Figure 7.5 The three major structural divisions or panels in the Sterling area



7.4.4 Other important faults

BURRO FAULT. Most of the leading, northwestern edge of the Sterling thrust sheet is truncated by the Burro fault. This normal, dip-slip fault strikes northeast and dips 45° southeast, or somewhat steeper (60° or more) farther southwest along its trace. Vertical separation on the Burro fault ranges from 300 or 400 feet (down to the southeast) in the Burro-Sterling pits area to about 800 feet in the southwest. Several small klippen or salients of Wood Canyon lie on Bonanza King Formation on the up-faulted, northwest side of the Burro fault. The Burro fault is important in that it is presumed to underlie, at depth, the entire Sterling Mine deposit (Figs. 7.2, 7.3, 7.5), and probably the 144 Zone as well. This raises the question of its role as a principal fluid conduit, which was discussed in Rees and McAndless (2001).

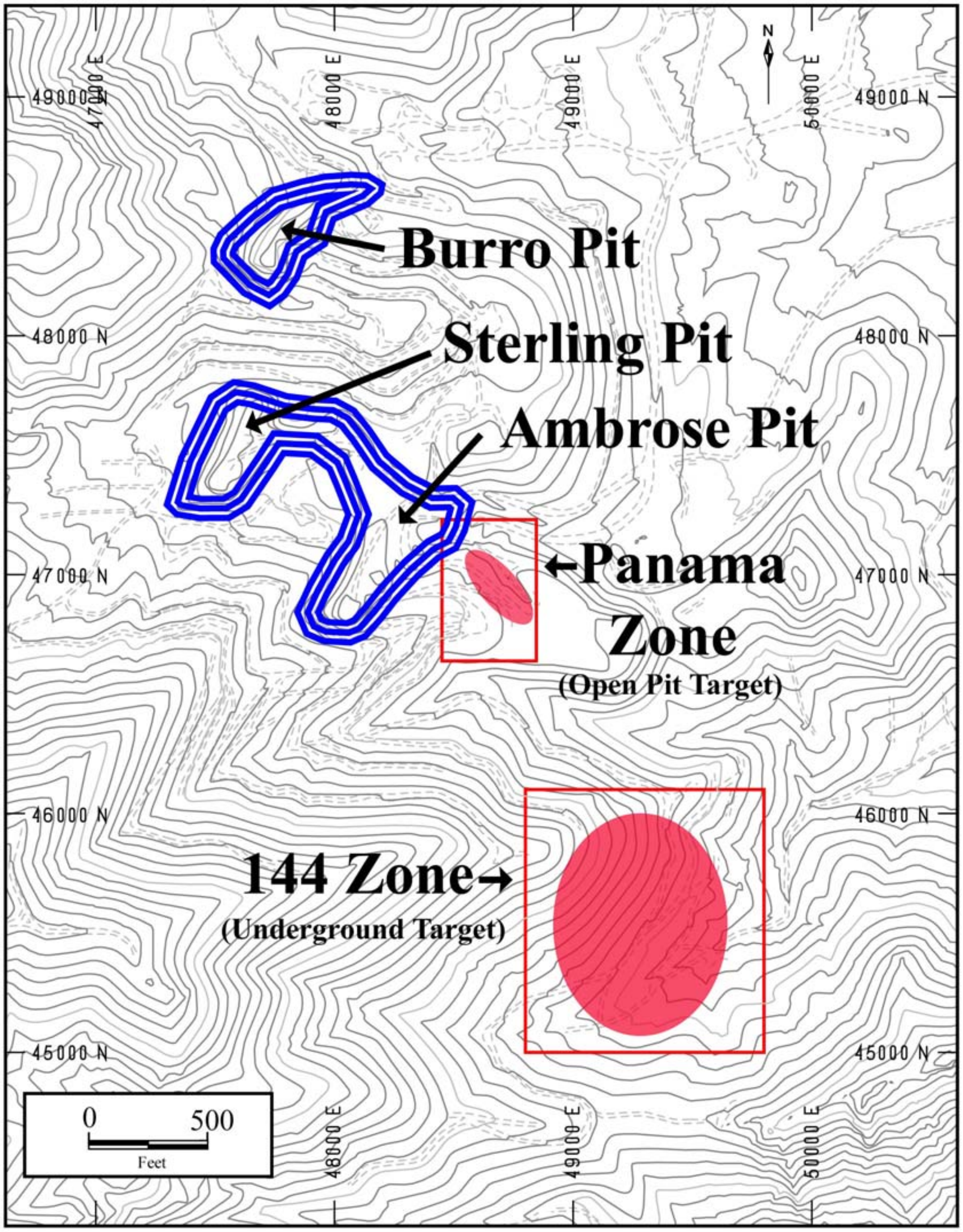
REUDY FAULT. The Tertiary Reudy fault is the principal structure associated with the mineralization in the 144 Zone. It is an east-side-down normal fault, east of the mine area, and cuts through the Sterling thrust panel and underlying Bare Mountain panel. It trends just east of north and dips about 60° to 80° east. The surface expression of the fault above the 144 Zone is not obvious, as Stirling Quartzite outcrops on both sides. Its approximate surface trace is marked by several zones of strong fracturing, microbreccia, slickensides, and local limonite or hematite staining. Its geometry is understood mainly from drill data. Slip on the fault is not clear: both subhorizontal and dip-slip slickenlines have been observed on surface and underground (the fault zone has been crossed in mine workings north of the 144 Zone). Overall it is thought to be mainly dip slip, or oblique slip with a minor right lateral component. The kinematics might be complicated because of several stages of displacement. The vertical separation component is in the order of 250 feet or more. Several quartz latite dikes are closely associated with the Reudy fault zone. The fault is thought to pre-date the dikes because the latter are not appreciably displaced.

STERLING MINE FAULTS. Minor faults in the mine deposit trend north to north-northeast, and have typically small displacements which don't affect the map pattern although they give rise to irregularities on the Sterling thrust surface apparent in drill sections. However, they are significant because they are intimately associated with mineralization, and were almost certainly conduits for hydrothermal fluids.

RANGE FRONT FAULT. A significant, north-trending fault, or series of faults, flanks the eastern side of Bare Mountain, generally known as the Range Front fault. The gravity survey indicates that there is no abrupt, buried fault scarp, but pediment that extends for at least 1.5 miles (2.5 km) under Crater Flat. The pediment dips about 20° under the gravels, and is cut by several high-angle faults with moderate vertical separations (hundreds of feet).

8 DEPOSIT TYPES

Figure 8.1 Sterling Property: Mineralized Zone Location Map



8.1 Sterling Deposits (Includes Panama Zone)

The original Sterling deposit occurred mainly at and below the Sterling thrust contact between the Wood Canyon (above the thrust) and Bonanza King formations, and locally along the Burro fault (Figs. 7.2, 7.5.). The main ore zones generally form longitudinal ‘pipes’ along the thrust, following the intersections between minor NNE-trending high-angle faults and the thrust.

The high-angle faults or fractures were the feeders that carried the ore solutions from depth. The relatively impermeable Wood Canyon siltstones acted as the ‘cap’ to the hydrothermal system, trapping early fluids so that ground preparation (decalcification, solution brecciation) could take place for subsequent gold solutions. The gently dipping Sterling thrust itself was probably not a hydrothermal fluid conduit, and mineralization generally did not spread out laterally very far from an individual high-angle feeder. However, in many places the ore zones merged because of the close-spacing of the faults or fractures.

Two strongly mineralized zones dominate the ore distribution: the Sterling-Burro zone and the Crash zone (Rees and McAndless, 2001). These appear to be localized along particularly influential high-angle structures in the hanging-wall of the Burro fault.

In more detail, mineralization is in brecciated and altered Wood Canyon siltstone or phyllite, and in breccias, sub-vertical pipes and crackle zones in the Bonanza King dolostone. The ore bodies range from 50 to 120 feet in width, 5 to 40 feet in thickness and are up to 2000 feet in length. Better mineralization is generally found where the immediate Wood Canyon hanging-wall is phyllite or siltstone rather than quartzite. Gold also occurs as the “Perched Ore Dolomite” or POD, the first (no stratigraphic position implied) of several dolostone (± limestone) subunits within the Wood Canyon hanging-wall. This indicates that some high-angle structures penetrated the hanging-wall allowing gold fluids to mineralize receptive carbonate subunits in the Wood Canyon Formation.

In the ore, sulfides are minor and include pyrite (mainly), marcasite, arsenopyrite, stibnite, cinnabar, galena and sphalerite. The iron sulfides are generally oxidized, and the ore is typically conspicuously red or brown due to hematite, limonite, goethite and jarosite. Gold is extremely fine grained (up to 4 microns and usually much less), and is associated with pyrite or its oxidized products, clay or calcite. Gold grades are highly variable. The average mine grade is 0.217 oz/st, with high grade ore in the range of 0.4 to 7.0 oz/st.

Anomalous arsenic, antimony, fluorine, silver, molybdenum and tungsten correlate strongly with gold. Variably anomalous copper, lead, zinc and barium display a moderate association with gold. No significant silver, thallium, gallium, tellurium, cadmium, tungsten or bismuth have been recorded at Sterling. The gold:silver ratio in the Sterling deposit is about 30:1.

Associated alteration includes silicification, decalcification, carbonate remobilization, argillic and sericitic alteration, and oxidation. Odt (1983) distinguished three particular alteration assemblages in the Wood Canyon: (i) sericite>kaolinite, (ii) kaolinite>sericite, and (iii) sericite.

Other mineral products include halloysite and alunite. Late stage calcite ± quartz veins, ± pyrite, are common.

The main mineralization and alteration at Sterling affects the quartz latite dikes, so it is presumed to be slightly younger than 13.9 Ma. Its temporal coincidence with mid-Miocene igneous activity suggests a genetic relationship as well, although whether magmas provided the fluids and metal enrichment as well as the heat to drive the hydrothermal system is a debatable question, as it is in many Carlin-type deposits of the Great Basin.

8.2 The 144 Zone

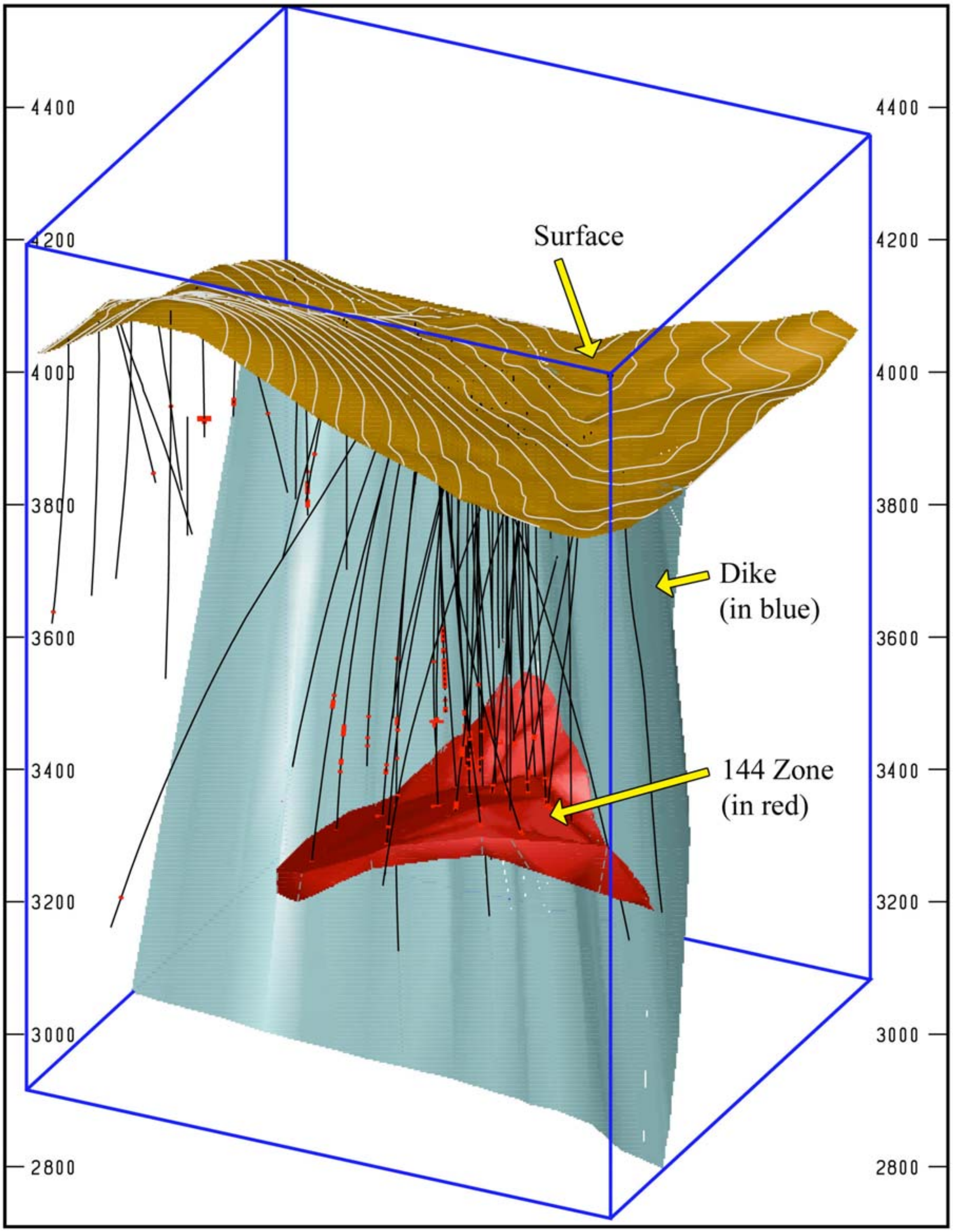
The 144 Zone mineralization is similar to many sediment-hosted disseminated gold, or Carlin-type, deposits in the Great Basin in Nevada. The characteristics of this type of epigenetic deposit are a calcareous host rock, and micron-size gold and very fine grained pyrite or arsenical pyrite disseminated in altered carbonates or hydrothermal breccias. Alteration is dominated by decalcification/decarbonatization (carbonate removal), silicification and argillization, and there is commonly an oxidation overprint. These systems are generally very deficient in base metals; gold:silver ratios are typically high but variable.

Based on its presently known features, the 144 Zone is associated with a sequence of silty dolostone and limestone near a high-angle fault, the Reudy fault, and a dike. The working hypothesis is that hydrothermal solutions responsible for alteration and gold mineralization preferentially followed dilational or otherwise permeable pathways in this structural-stratigraphic setting, during or soon after the dike intrusion event. Very high grade gold is present in some hydrothermal breccias and in fault or gouge zones, at least on the west side of the Reudy fault (the east side has not had any significant amount of drilling).

The geometry of these key geological elements has been reconstructed from the drill data. This reveals that lithological contact zones and related intersections and structural domains are related to significant gold mineralization, and these are obvious targets to focus further exploration. Any or all of these features could represent important gold feeders, to one degree or another. The strategy is to find the most prospective of these potential hydrothermal controls through step-out drilling, which will involve testing a variety of depths and possibly deeper stratigraphic horizons, as well as map locations. The presumed feeders may converge laterally or at depth, strengthening mineralization. To date, no very deep holes have been drilled. The discovery of more, high grade gold zones will help to move the project forward to an underground exploration program, which should provide grade definition enabling resource evaluation.

Other structurally-controlled, breccia-hosted deposits, which may serve as useful analogues for the 144 Zone are Barrick's Meikle mine, or Meridian Gold's Storm (Rossi) deposit, both in northern Nevada.

Figure 8.2 The 144 Zone: 3D View from Above

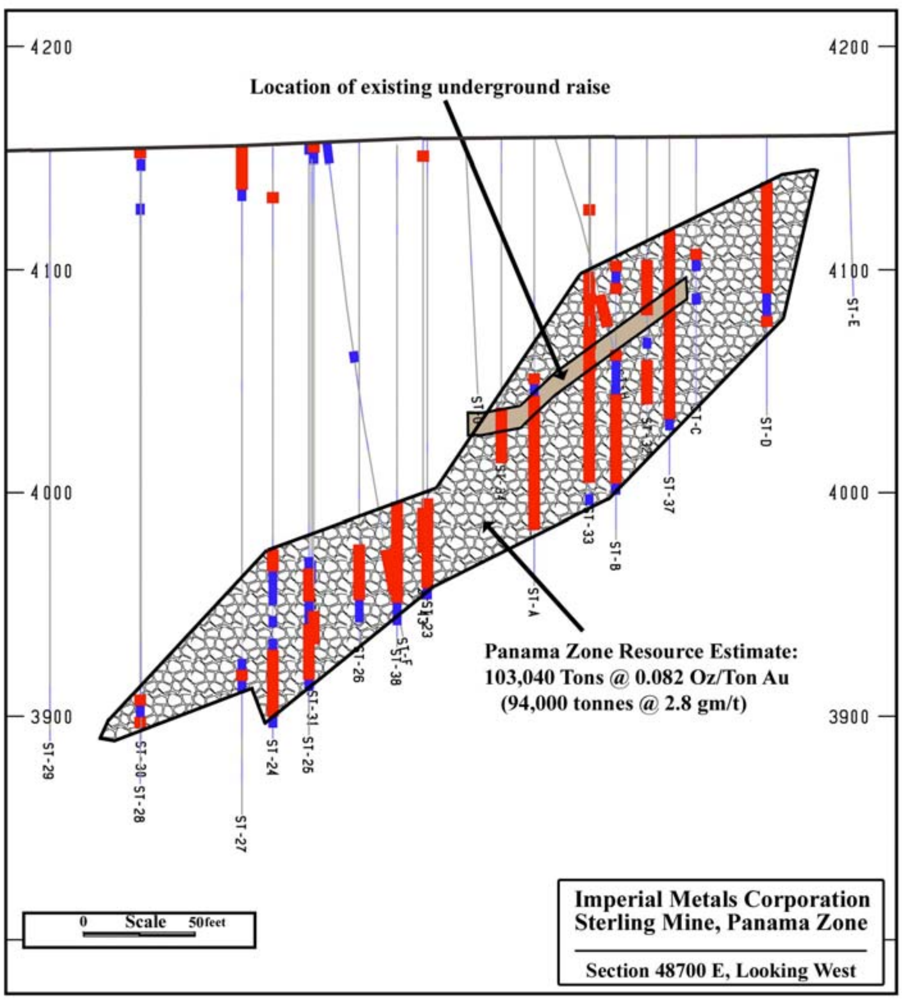


9 MINERALIZATION

9.1 Panama Zone

The near surface mineralization in the Panama Zone consists of a gold bearing breccia pipe along the Sterling thrust. The zone is approximately 50 feet thick and 60 feet wide, and dips at approximately 45 degrees to the southeast. The mineralization is similar the other breccia pipes mined at Sterling where gold mineralization is contained in silicified and oxidized siltstone and brecciated dolostone. The thrust in the Panama area daylights about 150 feet north of the target zone. It dips southeast, gently near the surface, but steepens quickly to over 50° where the mineralization of interest is situated, about 100 to 120 feet below the surface. The thrust continues to drop down to the southeast, beneath the old Panama waste dump. Figure 9.1 shows the geometry of the zone.

Figure 9.1 The Panama Zone: Cross-Section 48700 E



9.2 The 144 Zone

The original hypothesis was that anomalous gold intersected in hole 89-144 was related to fault-related brecciation and hydrothermal alteration in the Reudy Fault zone, possibly extending well below the Sterling thrust. The discovery hole, 01-7A, was designed to test not simply the fault zone, but also where the fault was projected to intersect the contact between the Carrara and Bonanza King formations. (The Carrara Formation is known to host gold mineralization in the South zone on the Daisy property in Fluorspar Canyon.) This target was intercepted as planned, and it was deduced that mineralization is not related exclusively to the Reudy Fault, but also to stratigraphic controls related to the Bonanza King-Carrara contact and a bounding vertical dike. These factors remained the focus of exploration of the 144 Zone in 2001-2003.

All known mineralization of the 144 Zone occurs well below Stirling Quartzite (Fig. 7.1), which in this area exclusively forms the upper plate of the Sterling thrust (farther west, the Wood Canyon Formation forms the upper plate). The footwall of the thrust is the Bonanza King Formation, consisting mainly of grey dolostone, with lesser intervals of brownish silty or finely micaceous dolostone and dolomitic siltstone, particularly towards the base of the formation.

A change from dolomitic rocks to limestone or silty limestone occurs at depth, usually quite abruptly. Regionally, the Bonanza King Formation is dolomitic and the older Carrara Formation is calcareous, so this dolostone-limestone lithology change is taken to mark the boundary between the two formations (assuming the carbonate type is diagnostic). The subsurface position of this contact concurs with structural projections of the Carrara Formation from the Carrara window to the southwest.

Significant mineralization occurs in

- Gouge or breccia in the Reudy Fault zone and locally along the dike margin,
- Adjacent to the fault (on both sides) in Bonanza King silty dolostone/dolostone, and to a lesser degree in underlying Carrara silty limestone/limestone (proximity to the Reudy Fault is not requisite for mineralization),
- In hydrothermal breccias derived from the above lithologies.

Silty subunits occur throughout the lower Bonanza King Formation over a wide area in the 144 Zone, and they usually contain anomalous to strongly anomalous gold. However, the strongest values almost invariably occur in the deepest silty section(s) in the formation, which is immediately above the limestone (Carrara) contact (Fig 7.3).

Most of the best results to date have come from proximal to the dike margin and, to a lesser degree, proximal to the Reudy Fault. In a few drill holes, the mineralization extends somewhat below into Carrara limestone and silty limestone.

Some degree of brecciation and alteration is always associated with significant mineralization in these host rocks. The underlying theme is that hydrothermal fluids were introduced into the rocks through a steeply dipping structural fabric, likely related to post-dike extension. Through this secondary permeability, enhanced by decalcification or decarbonatization locally, the rocks were infiltrated and replaced by gold-bearing solutions which also deposited silica, and argillically altered the dike.

The Reudy fault was intersected in the majority of drill holes in the 144 Zone, although usually well above the mineralization. From these locations, a best fit fault plane has been computed, at 027°/69°E. From this and other, historical drilling on the property, the Reudy is known to be an east-side-down normal fault, with a vertical separation ranging from about 250 feet in the 144 Zone area, to at least 400 feet , farther south. The fault probably has a strike-slip component to its net displacement, but the actual slip vector of the fault has not yet been determined.

The Reudy Fault may or may not be the principal feeder in the 144 Zone. It is not mineralized everywhere it is intersected. However, it is the most important structure so far identified in the area, and may have exerted some control on dike intrusion and the hydrothermal plumbing at greater depth.

The bedding attitude of the 144 Zone host stratigraphy is not certain because it is completely obscured by Stirling Quartzite of the overlying Sterling thrust sheet. Bedding core angles from drill core in the 144 Zone generally range from about 30° to 70°, with a majority between 50° and 70°. This indicates a true dip of the strata (assuming statistically vertical holes) of 20° to 40°.

The strike is more difficult to determine (no oriented core was produced). The best marker horizon to determine this is the dolostone-limestone contact. Preliminary computer modeling of this contact from drilling in the area indicates that it has a general orientation of 283°/27°NE. This conforms well with the observed core angles.

The orientation of the strata is complicated somewhat by a perturbation in the general northeastward dip. This produced an antiformal arch around northing 45360 such that the Carrara contact changes to a gentle southwestward dip. Whether this is due to folding or to fault tilting (or stepped faults) is not known. It is presumed a complementary structure must occur farther southwest in order to bring the contact up again towards the Carrara window.

The Reudy Fault was intersected in over 80% of the drill holes in the 144 Zone. In most cases this occurred well above the Bonanza King-Carrara contact, and hence above of the main mineralization. The fault is usually marked by several feet of tectonic microbreccia, but there is typically only minor enrichment of gold above background values for normal Bonanza King dolostone at these shallower depths.

Gold mineralization is much stronger in and around the Reudy Fault zone where it is encountered at deeper levels, e.g. in hole 01-7A (about 640 feet) and in hole 02-18 (see preceding sub-section). This is probably because of the association of favorable lithologies, as described under stratabound mineralization, or of the altered dike margin.

9.3 144 Zone Alteration

Alteration found within the 144 zone mineralization includes:

Silicification
The better-developed hydrothermal breccias tend to show the strongest alteration. Virtually all high-grade gold zones are moderately to strongly silicified, with partial to complete replacement of carbonate by quartz. Typically there is vuggy, dark grey (almost black) to reddish-brown silica replacement of the matrix, accompanied by aphanitic, oxidized sulfide, ferroan carbonate and hematite. Remnant open space is generally lined with tiny drusy quartz crystals, some with excellent terminations. Some clasts in breccia were cut by quartz microveinlets prior to brecciation, and others have rims of quartz, suggesting different stages of silicification. In general, gold grade increases with the degree of silicification.

Pyrite
Visible, unoxidized pyrite is not common. Most evidence of sulfide is in the form of limonitic pyrite or limonite, and lesser hematite and goethite, which occupy microfractures and coat the surfaces of vugs or whole chips, particularly in microbreccia. Rusty microfractures are extremely common, inside and outside the gold zones. Pyrite (unoxidized or limonitic) is very fine and disseminated, and has been estimated at up to one or two percent in a few intervals, but is usually much less. Petrographic analysis reveals very fine pyrite within and on the rims of quartz in the matrix of silicified breccias. Overall, the 144 Zone is within the range of oxidation.

Argillic alteration
Clay-alteration of silicates is minor, represented by spotty kaolinite. Tiny pits in microbreccia may be filled or lined with white kaolinite or similar clay mineral, and probably represent altered mica or feldspar. Fine, white powdery minerals observed locally in fractures or tectonic microbreccia may be argillic, at least in part. Clay alteration is also associated with the quartz latite dikes.

Bleaching
A pale colouration of silicified dolostone or limestone is common in or marginal to gold zones and may be a bleaching effect due to the removal of certain components such as carbon or iron. Otherwise, bleaching is probably a normal compositional variation in the carbonates, unrelated to mineralization.

Alteration and brecciation in limestone
Very similar hydrothermal breccias occur in limestone and silty limestone below the dolostone-limestone contact, but (1) they are generally much thinner (less than 1 or 2 feet, or 0.5 m) and have sharply defined contacts with limestone, (2) gold grade is low or merely elevated, and (3) the adjacent limestone is markedly unaltered and unmineralized. The overall impression is that

fracture-related permeability and consequent alteration and mineralization was much less developed below the main lithological contact. In some drill holes, however, mineralized hydrothermal breccia bodies do appear to cut down from the dolostone above into the limestone below the projected contact between them.

9.4 Age of mineralization

The main mineralization and alteration at Sterling and adjacent properties affects the quartz latite dikes, so it is presumed to post-date the 13.9 million-years age of dike emplacement. Castor (1997) proposed an age slightly younger than 12.9 million years based on the dating of Miocene alteration and volcanics in the immediate area. The temporal coincidence of gold mineralization with mid-Miocene igneous activity suggests a genetic relationship as well, although whether magmas provided the fluids and metal enrichment as well as the heat to drive the hydrothermal system is a debatable question, as it is in many Carlin-type deposits of the Great Basin.

9.5 Geometry and Dimensions of Mineralization

The present drilling has shown mineralization, indicative of hydrothermal activity related to the 144 Zone, to occurs over an area about 650 feet by about 450 feet. Significant gold values are seen at depths of between about 600 and 800 feet. These dimensions will likely change as more drilling is done outside the present limits, and presumed structural and stratigraphic controls are followed laterally and vertically.

The relationship between drilled thickness and true thickness of mineralization is difficult to characterize, because of the potentially discordant nature of hydrothermal breccia bodies, patterns of replacement, and the vagaries of structural controls. In so far as mineralization might be strata-controlled, the true thickness of mineralization would be about 90% of its drilled thickness, based on the estimated dip of the bedding (27°) and assuming a vertical drill hole.

9.6 144 Zone Comments and Interpretation

- The 144 Zone is spatially associated with, but not necessarily restricted to, the Reudy fault and a porphyry dike. The dike is oblique to the fault, and does not appear to be offset.

- Mineralization and alteration are strongest in silty dolostones around the base of the Bonanza King Formation. Hydrothermal breccias are thicker and better developed here than in any other part of the formation or the underlying Carrara Formation (to the extent known).

- The fault extends north from the 144 Zone for at least 3000 feet (915 m) and south for about 1700 feet (518 m), although it has not been tested for these distances. The host stratigraphy intersects the fault plane, and the dike contact, with a gentle to moderate northerly apparent dip. Mineralization is younger than the fault.

The working hypothesis is that during post-dike extensional deformation, the (silty) dolostone immediately above the limestone fractured more readily than the limestone, which was rheologically 'softer', producing open space and allowing infiltration by hydrothermal fluids. The source and main conduit for the fluids from depth is not known.

In this environment, there was more opportunity for decarbonatization, fluid-rock reaction and possibly groundwater fluid mixing in the silty dolostones. The formation of hydrothermal breccias was followed or accompanied by silicification and probably early stage gold mineralization, with sulfidation promoted by iron made available from the breakdown of siltstone components. Subsequent fracturing within or along the margins of breccias may have introduced more pulses of gold-bearing solutions. Shearing along the dike margin(s) and possibly minor reactivation of the Reudy fault created other dilational domains, leading to other sites of alteration and mineralization.

The proposed strategy for further exploration is to push an exploration decline down to the bottom of the 144 zone. A 20 ton bulk sample of the potential ore zone would be taken, for a pilot heap leach test. Once the decline is completed up to the 144 zone orebody, it would be extended under the zone, two addition cross drifts would also be excavated north/south to the edges of the known deposit. Delineation and exploration fan drilling could then be conducted from these 3 drifts. Initially the drilling would concentrate on confirming the exact dimension of the ore body along with confirming the grade. Additional drilling at the end the two north/south drifts could test for additional mineralization along the dike contact. The extent of the ore body away from the dike to the east will also be tested from all 3 drifts as shown in figure 19.2. (see Chapter 19 and Appendix 1 and 2 for details of this proposal).

10 EXPLORATION

10.1 Geochemical Sampling

Some surface prospecting samples were taken by in 2000 and 2001 along a traverse of the Reudy fault above the 144 Zone. Sample preparation was done by ALS Chemex. Each sample was crushed, and a 200-gram split was pulverized to -150 mesh using a chrome steel mill. These pulps were then transferred to Chemex's laboratory in Vancouver, B.C. for gold analysis by fire assay, with a detection limit of five ppb.

Seventeen rock samples (14 Stirling Quartzite, 3 dike) were taken from this small area and analyzed for gold and a 34-element geochemical suite by ICP. This was not grid sampling, but a collection of select grab samples, most displaying microbrecciation and/or strong iron oxide alteration. The highest gold values were 95 and 70 ppb, in quartzite or sandstone. The best dike sample was 15 ppb, which also had the highest arsenic value at 1170 ppm. Nine samples were below the gold detection limit. Although some samples were anomalous, the overall low gold values suggest there was limited leakage of hydrothermal solutions to the surface from the 144 Zone mineralization at depth.

10.2 Down-hole Photography

A down-hole photographic survey was done in 2001 in the 144 Zone, by Colog of Fontana, California. The survey was done on holes 01-9, 10, 12, 14, 16 and 17. This procedure provides a video and still photographic record of the drill hole wall, calibrated for depth. The technique also provides a computed estimate of the true orientation of planar intersections such as bedding, fractures and veins with the drill hole.

Some preliminary analysis of the data has been done, but no clear results have emerged. As far as providing useful orientation information for structure and stratigraphy, the photographic survey has been superseded by 2002 drill core data.

10.3 GEOPHYSICS

10.3.1 Introduction

A Natural Source Audio-Magneto Telluric (NSAMT) geophysical survey was carried out over the 144 Zone in December, 2002.

This method utilizes natural electric and magnetic fields that are generated in the earth's crust by various phenomena such as global atmospheric or solar events. In the field, a portable receiver measures resistivity and impedance data in rocks from the surface down to an appropriate depth. Results are used to produce maps and sections which can be interpreted based on characteristic responses of various rock types, sulfide content, and other physical properties.

The objective was to identify any features or structural trends which might reflect the principal controls on 144 Zone mineralization, namely the dolostone-limestone contact, dikes, bodies of silicification, and cavernous or clay-rich fault zones.

10.3.2 Implementation

The NSAMT survey was done by Zonge Engineering and Research Organization, Inc. of Tucson, Arizona. A two-person crew operated between December 3 and 9, 2002, inclusive. Sterling personnel assisted in the data collection and in the location and surveying of the lines and stations. Four representative rock samples (limestone, dolostone, siliceous breccia and dike) were submitted for laboratory bench tests to characterize resistivity and induced polarization (IP) responses, although IP is not actually measured in NSAMT.

Data was collected over 13 east-west lines (Fig. 2.3a), amounting to 30,000 feet with stations every 200 feet. Of this, 4,000 feet of the survey was collected from the underground workings immediately north of the 144 Zone (lines UGA and UGB). Two surface lines were repeated at 100-feet intervals for approximately 2000 feet of high-resolution coverage.

Results and details of the methodology and instrumentation used are given in Zonge's report, in Imperial's company files.

10.3.3 Results and interpretation

Data processing, assumptions and potential interference etc. are discussed at length in the Zonge report and will not be repeated here. The report also contains 1-D and 2-D inversion models for the results in plan and vertical cross-sections or "pseudosections", in their terms. Each line is described and discussed individually.

In general, Stirling Quartzite, and Bonanza King and Carrara carbonate rocks are all very resistive, as are the quartz latite dikes, but probably to a lesser degree. Even silicified hydrothermal breccia is very resistive. Although not verified experimentally, the least resistive (most conductive) lithology likely to be encountered in the 144 Zone would be clay-altered rock such as in dike or possibly a fault zone. Some of the highest gold grades are known to be associated with intense clay alteration.

The Zonge report notes the presence of low-angle resistivity changes in most sections that are probably related to the gently to moderately dipping stratigraphy. One interpretation of their observations would be that the Carrara Formation limestone is more conductive than Bonanza King dolostone.

Potentially more interesting and useful are lateral resistivity contrasts or narrow, high-angle conductors that Zonge suggest are related to faults, fractures or dike contacts. At least some of these are purportedly traceable from section to section. Probably the most notable image in the survey covered by lines A through K is "a central north-south oriented dike-like feature".

Zonge also postulated vertical displacements associated with the dike, but this would be more speculative, and perhaps not necessarily distinguishable from displacement due to the Reudy Fault.

The NSAMT survey was successful in that it showed a satisfactory response of 144 Zone stratigraphy to NSAMT signals. However, interpreted NSAMT features are too coarse to serve as specific drill targets at the present scale of 144 Zone exploration, especially given the challenges of drilling from the surface. Resolution and reliability probably decrease with depth, and this becomes more of an issue to the north as the Bonanza King-Carrara contact dips in that direction. Once the geology from drill logs is fully computerized, more precise correlations may be possible between the NSAMT imaging and geological contacts. This would provide a clearer impression of the effectiveness of the NSAMT method, and its applicability to target identification for future drilling programs.

11 DRILLING

11.1 Introduction

As explained previously in this report, only drilling specifically targeting the Panama and 144 zones is described in detail here.

11.2 Surveys

Prior to drilling, the target collars were surveyed in by the mine geologist using standard survey equipment and existing survey stations on the property. All coordinates were and continue to be referenced to the mine grid, which is between 0 and 1°E of true north.

In the 144 Zone, on completion of drilling, down-hole surveys were done by an outside contractor (Silver State Surveying) using a gyroscopic survey tool, providing azimuth and dip data at 50-feet intervals where possible. This data was subsequently corrected for magnetic declination before being entered into the database. Final drill collar positions were re-surveyed by the mine geologist. The short vertical holes in the Panama Zone were only surveyed at the collar.

11.3 Panama Zone Drilling

11.3.1 2001 Drill Program

Panama drilling was done in three phases. Initially, two northwest-trending fences comprising nine holes (ST-A through H) were drilled between and parallel to the three fences done in 1988. The southwest fence (ST-F through I) results were quite negative, but the northeast fence (ST-A through E) showed some good zones, especially ST-D which contained an interval averaging 0.166 opt gold over 35 feet, starting only 20 feet below the collar. This hole is 55 feet due north of the 88-048 and 88-049 holes and is possibly a continuation of the target zone.

These early drill results were not very encouraging, but one final hole (in the first phase) was drilled to test the eastern projection of the interpreted ore zone, namely ST-23. The chips revealed silicified and oxidized siltstone and brecciated dolostone which averaged 0.18 opt gold over 30 feet, 160 feet below the surface. This deeper mineralization in the east renewed interest in the underground potential of Panama, and when the next phase of drilling began, 16 more surface holes were drilled (ST-24 through 38, and 43).

In the second phase, holes ST-24 through 31, 34, 35, 38 and 43 were drilled to test the deeper, eastern mineralization around and beyond hole ST-23. The best holes were ST-24 (0.078 opt/25 feet), ST-26 (0.22 opt/10 feet) and ST-43 (0.28 opt/10 feet).

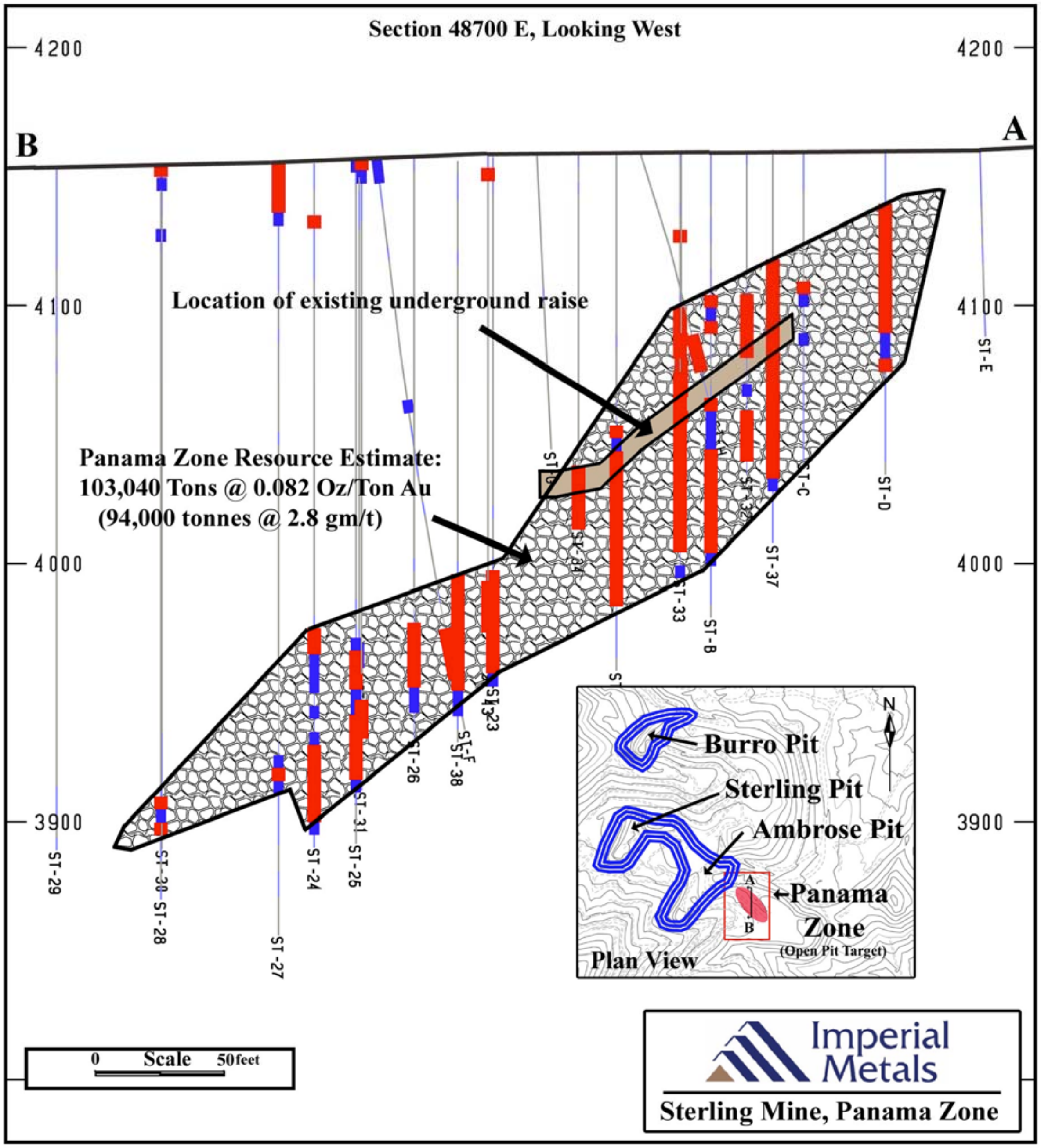
Several other holes contained narrow, 5-feet thick zones at or near the thrust grading between 0.2 and 0.4 opt gold (ST-25, 27 and 31). Another good hole was ST-38 (0.27 opt over 30 feet), although this was only a short step-out from an isolated, high grade hole drilled in 1988 (88-122). The end result of the drilling in the deeper, east zone is a cluster of about 5 holes (ST-23, 24, 25, 26 and 43) with low to high grade gold intercepts concentrated at the Sterling thrust. Mineralization in the other holes under the waste dump is too thin and deep to be of much interest at this time.

The other holes done during this second phase of drilling were aimed at the original, shallower target, up-dip to the northwest, i.e. ST-32, 33, 36 and 37. Holes ST-32 and 33 were fill-ins: ST-32 returned 10 feet grading 0.12 opt gold, but ST-33 was disappointing. Hole ST-36 was a short step-out to the south of the target zone and intersected strong alteration but which ran only 0.046 opt gold over 10 feet.

However, hole ST-37 was a standout. This was collared 30 feet west of the target zone, halfway towards the old pre-WW2 workings. Mineralization begins 55 feet below the surface and continues to about 135 feet, with the Sterling thrust at the mid-point. The main zone consists of 60 feet averaging 0.319 opt gold. The Wood Canyon has strong iron-oxidation, with clay-altered breccia right above the thrust. The Bonanza King dolostone below is vuggy, decalcified and silicified, with breccia and strong oxidation after pyrite. The unusual thickness of the zone probably means the hole was drilled down a fracture-controlled breccia pipe, filled with fractured and permeable rock which accumulated prior to or during the mineralization. The pre-WW2 workings are no longer accessible but it is reasonable to conclude that they were dug in similar material, as lower grade ore would probably not have sustained them.

The target zone at Panama (around holes 88-048, 049) has been expanded slightly to include hole ST-37 and possibly ST-D, and it is still open for about 30 feet to the west. Immediately surrounding mineralization is thinner and lower grade but still possibly ore grade. From here, the thrust dips away to the southeast quite steeply, and deeper mineralization was found in this direction.

Figure 11.1 Panama Zone: Cross Section and Plan Location Map



11.4 144 Zone Drilling

11.4.1 General

This exploration was carried out over three years. A plan map showing the location of all the hole is shown in Fig. 11.2. Reverse circulation drilling was utilized for this program, carried out by Lang Exploratory Drilling of Elko, Nevada, a division of Boart Longyear. Eleven holes were drilled in 2001 in the 144 Zone, totaling 8600 feet (2621 m). (Hole 01-7 was abandoned early, and twinned by 01-7A.) The results and interpretations are summarized in Appendix 1.

A track-mounted drill rig was operated by a driller and two helpers. Drilling was done during one 12-hour shift per day. 'Wet' drilling is required by state regulations, with water supplied by tanker truck driven to the drill site on a daily basis. After the down-hole surveys, all holes were abandoned with 'Abandonite' and capped with cement, according to BLM regulations. Holes 01-10 and 15 were left with 20-feet of casing; casing was pulled in all the other holes according to the drillers' records.

11.4.2 2001 144 Drilling Program

Success in the 2001 drilling program was experienced early, with the discovery of the 144 Zone with hole 01-7A, which was followed up by hole 01-9. [Hole 01-8 was drilled in a completely different area.] After that, some large step-outs were attempted, including an angle hole (01-10) and hole 01-12 which was drilled 300 feet east of the then known zone. The latter holes were disappointing. Subsequent holes were drilled closer in.

Most of the rest of the drill holes were plagued by problems with circulation and recovery of samples, due to broken ground and voids. Holes 01-11, 15, 16 and 17 had to be abandoned before their target depths due to stuck rods or no return. Holes 01-13 and 14 were satisfactorily completed, but they didn't match the results of the first two holes (7A and 9).

Based on assay results and logging of chips, the 144 Zone at the end of the 2001 program was recognized as Carlin-style replacement mineralization in lower Bonanza King Formation, well below and peripheral to the Sterling mine deposit. Proximity to the Reudy fault was regarded as important, possibly because it was the principal fluid conduit, but the adjacent dike was not strongly implicated in this respect. Even in chips, the association of gold with hydrothermal alteration and brecciation and silty lithologies was clear.

Table 11.1 2001 Significant Drilling Intercepts									
Hole #		Interval				Length		Gold Assay	
		feet *from/to*		metres *from/to*		feet	metres	oz/t	g/t
2001-	7A	685	795	208.8	242.3	110	33.6	0.154	5.28
	including	765	785	233.2	239.3	20	6.1	0.316	10.83
	including	770	780	234.7	237.7	10	3	0.415	14.25
2001-	9	730	775	222.5	236.2	45	13.7	0.57	19.54
	including	730	750	222.5	228.6	20	6.1	1.03	35.3
	including	730	740	222.5	225.6	10	3	1.71	58.62
2001-	10	825	855	251.5	260.6	30	9.1	0.08	2.71
	including	825	835	251.5	254.5	10	3	0.11	3.91
2001-	13	710	755	216.4	230.1	45	13.7	0.056	1.92
2001-	14	640	680	195.1	207.3	40	12.2	0.056	1.92

11.5 2002 Drilling implementation

Six holes were drilled in the Summer 2002 program, totaling 4828 feet (1472 m). All were pre-drilled by reverse circulation (RC) to a certain depth above the expected depth of mineralization, followed by HQ-diameter diamond core drilling. The core drilling was done to reduce or avoid the typical circulation and recovery problems encountered in the 2001 RC program, and to acquire high quality geological information. The pre-collars were extended as much as possible or practical in order reduce overall drilling costs.

The RC pre-collar portion of the drilling was carried out by Eklund Drilling Company, Inc. of Elko, Nevada. Three drillers worked one 12-hour shift per day. The diamond drilling was carried out by Boart Longyear of Salt Lake City, Utah, using a sophisticated, truck-mounted rig. It was done in 12-hour day and night shifts by a driller and two helpers for each shift. Apart from a four day break, it was completed in one phase. Prior to drilling, the hole collars were surveyed by the mine geologist using standard survey equipment and existing survey stations on the property. All coordinates were and continue to be referenced to the mine grid, which is between 0 and 1°E of true north.

Down-hole surveying of the entire hole was done using a Reflex tool after completion of a hole, or in some cases in opportune periods during the drilling of the hole, to save time. This data was subsequently processed before being entered into the database. Final drill collar positions were re-surveyed by the mine geologist. After down-hole surveys, all holes were abandoned with 'Abandonite' and capped with cement, according to BLM regulations.

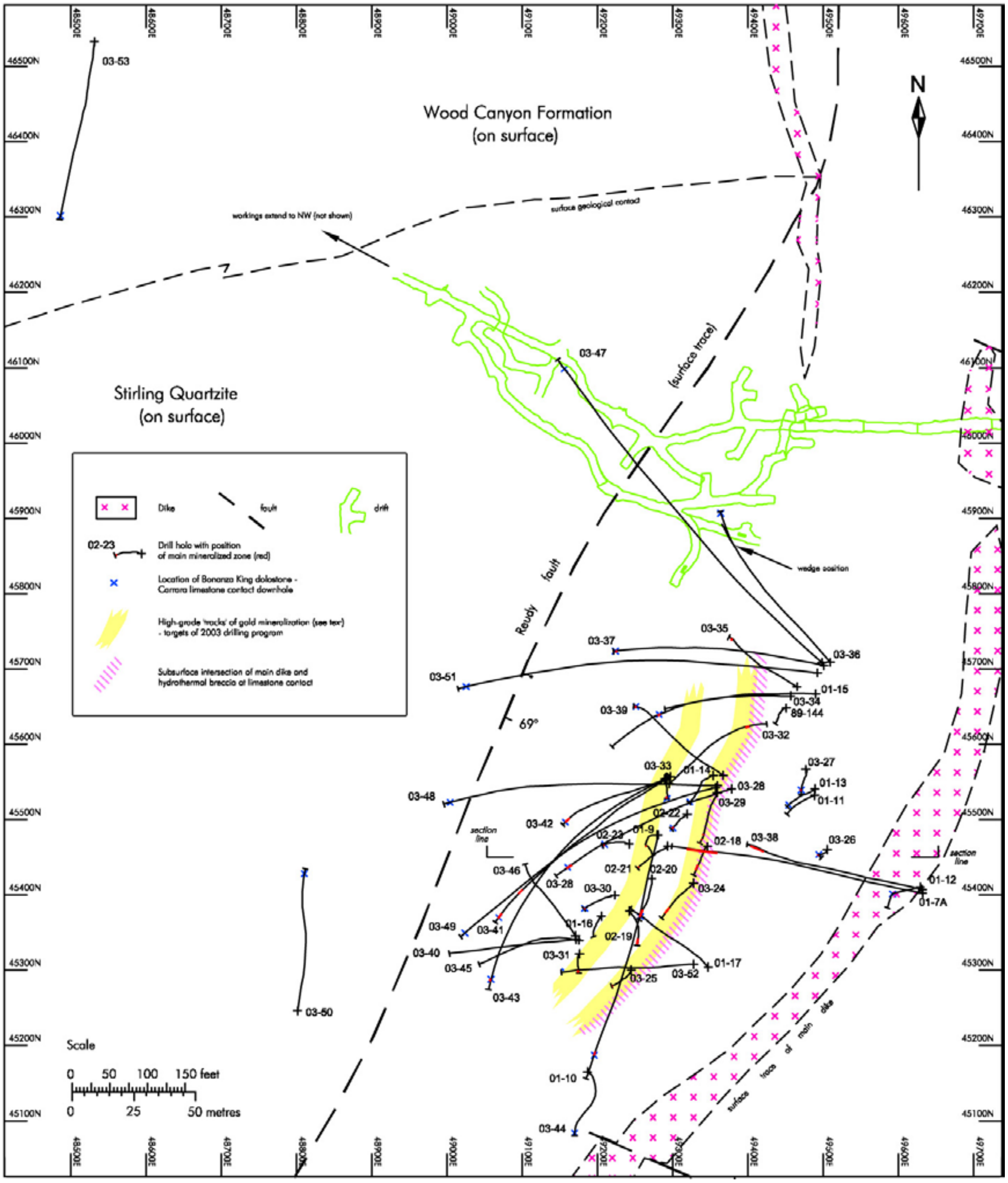
11.5.1 2002 Drilling Results and Interpretation

The summer 2002 program was very successful, both in terms of exploration results, and in the successful completion of all six holes, 02-18 through 23 (Fig. 11-1). At times, progress was slow as the drillers adjusted to the ground conditions, but recovery was very good throughout the program, except in some of the softest intervals or in very broken rock. The main assay results are summarized in table 11-2.

Imperial Metals

Table 11.2 2002 Significant Drilling Intercepts									
Hole #		Interval				Length		Gold Assay	
		feet *from/to*		metres *from/to*		feet	metres	oz/t	g/t
2002-	18	633	762	193	232.3	129	39.3	0.2	6.86
	including	705.5	762	215.1	232.3	56.5	17.2	0.4	13.71
	including	720	757	219.5	230.8	37	11.3	0.54	18.51
	including	723.7	738.5	220.6	225.1	14.8	4.5	0.99	33.94
	including	723.7	728	220.6	221.9	4.3	1.3	2.02	69.26
	and	750	752	228.7	229.3	2	0.6	1.02	34.97
2002-	19	669	794	203.9	242	125	38.1	0.13	4.4
	including	673.5	692.5	205.3	211.1	19	5.8	0.19	6.64
	including	683	692.5	208.2	211.1	9.5	2.9	0.27	9.25
	including	687	692.5	209.4	211.1	5.5	1.7	0.31	10.7
	and	719.5	729.5	219.4	222.4	10	3	0.22	7.59
	including	719.5	724.5	219.4	220.9	5	1.5	0.3	10.39
	and	745	764	227.1	232.9	19	5.8	0.18	6.04
	including	750	753.5	228.6	229.7	3.5	1.1	0.28	9.46
	and	781	794	238.1	242.1	13	4	0.17	5.78
2002	20	675.5	675.5	205.9	230.8	81.7	24.9	0.08	2.74
	including	694.5	694.5	211.7	213.1	4.5	1.4	0.13	4.46
	and	728	728	211.9	230.8	29.2	8.9	0.11	3.77
	including	733.5	733.5	223.6	228.1	15	4.6	0.14	4.8
	including	733.5	733.5	223.6	225.4	6	1.8	0.2	6.86
	including	736.5	736.5	224.5	225.4	3	0.9	0.26	8.91
	and	778.2	778.2	237.2	239.2	6.6	2	0.15	5.14
2002-	21	693	740.5	211.3	225.8	47.5	14.5	0.51	17.56
	including	706.7	740.5	215.5	225.8	33.8	10.3	0.7	23.86
	including	721	740.5	219.8	225.8	19.5	5.9	1.08	37.03
2002-	22	730	757	222.5	230.7	27	8.2	0.08	2.74
	including	733	740	223.4	225.6	7	2.1	0.09	3.09
	and	749.2	757	228.4	230.7	7.8	2.4	0.13	4.46
2002-	23	717.8	749.7	218.8	228.5	31.9	9.7	0.13	4.46
	including	722	725.7	220.1	221.2	3.7	1.1	0.21	7.2
	and	742	748.6	226.2	228.2	6.6	2	0.21	7.2
	including	746	748.6	227.4	228.2	2.6	0.8	0.41	14.06

Figure 11.2 Dill Hole Location Map, showing all drilling from 2001 to 2003



11.6 2003 Drilling

The 2003 exploration drilling program was carried out in two phases, from mid-February to late April (13 holes, 03-24 through 36/36A), and May to July (17 holes, 03-37 through 53). All significant intercepts are shown in table 11.3.

11.6.1 First phase

Building on the success of the 2002 drilling program, in which a combination reverse circulation and diamond drilling procedure was used to overcome problems of poor sample recoveries in 2001 due to cavernous ground, the same method was utilized for the first phase of drilling in 2003. A number of targets were designed based on apparent trends of high-grade gold mineralization discovered in the 2001-2002 drilling programs. The best gold grades had been found in a 'track' or band of hydrothermal breccia in the lowest silty dolostone of the Bonanza King where it abutted against the western margin of the west-dipping dike, such as in holes 01-7A, 02-18 and 02-19. A similar NNE-trending 'track' of high-grade gold was detected parallel to this intersection, but about 75 feet to the west of the dike contact, traced out by holes 01-9 and 02-21, and possibly 01-16 and 17 (these latter two holes had lost recovery on entering the mineralized zone). Thus, the main strategy in 2003 originally was to confirm and extend these tracks, which contained some sample intervals grading between 0.5 and 2 oz/st gold.

The other main idea in this phase was that the dike formed a trap for gold-bearing fluids rising up the Reudy Fault from below, making the eastern or footwall side of the dike an especially likely location for mineralization (Fig. 7.1). Theoretically, gold could occur in this area at the dolostone-limestone contact, along the eastern dike margin itself, or along the Reudy fault, or in all three settings.

The budget called for the drilling of 10 to 12 holes. Out of these, about half would be pre-drilled by RC to the top of the expected mineralized zone at the base of the Bonanza King dolostone, then cased and left open to be completed later by diamond drill. Priority was given to targets expected to coincide with the high-grade 'tracks'. The remaining targets, outside the tracks, would be drilled entirely by RC.

The reverse circulation stage of the first phase began February 19 and ended March 25. The drilling was carried out by Eklund Drilling Company, Inc. of Elko, Nevada. Three drillers worked one 12-hour shift per day.

Holes 03-26, 27, 28, 31, 32, 34 and 35 were drilled to completion by RC during this stage of the first phase of exploration in 2003.

Holes 03-24, 25, 29, 30, 33 and 36 were pre-drilled by RC and left open for completion later by diamond drill.

Total footage drilled by RC in the first phase was 10,370 feet.

After a short break at the end of March, the diamond drilling stage began on April 2, which was carried out by Boart Longyear of Salt Lake City, Utah, using a sophisticated, truck-mounted rig. It was done in 12-hour day and night shifts by a driller and two helpers for each shift.

Diamond drill production was generally good, but occasional mechanical problems or difficult ground conditions in some holes caused slowdowns. The most difficult hole was 03-36, which was down for several shifts after the bit got stuck at around 930 feet. After unsuccessful attempts to continue, a wedge was brought in. The rods were pulled back about 120 feet, and the wedge inserted. The hole resumed as 03-36A, with core starting again at about 812 feet. The hole was drilled to completion at 982 feet, but was extremely costly.

The six-hole diamond drilling program was completed on April 22, ending the first phase of 2003 exploration. Total footage drilled was 975.6 feet.

Prior to drilling, the hole collars were surveyed in by the mine geologist using standard survey equipment and existing survey stations on the property. All coordinates were and continue to be referenced to the mine grid, which is between 0 and 1°E of true north.

Down-hole surveying of diamond-drilled holes was done using a Reflex tool after completion, or in some cases in opportune periods during the drilling of the hole, to save time. This data was subsequently processed before being entered into the database.

RC-drilled holes were down-hole surveyed by an outside contractor (Welnav) using a gyroscopic survey tool, providing azimuth and dip data at 50-feet intervals where possible. This data was subsequently corrected for magnetic declination before being entered into the database. Final drill collar positions were re-surveyed by the mine geologist. After down-hole surveys, holes were abandoned with 'Abandonite' and capped with cement, according to government regulations.

11.6.2 Results: First phase results

As outlined above the first phase drilling (13 holes from 03-24 through 03-36) concentrated on:

(1) Firming up earlier, NNE-trending high-grade intersections found in two narrow bands along or parallel to the western dike contact (Fig. 4.1). Holes 24, 25, 29, 32 and 35 were along the dike contact, and holes 30, 31, 33 and 34 were in another parallel track farther west.

(2) Step-out holes reaching out to the west, i.e. hole 28, or northwest, i.e. hole 36.

(3) The eastern footwall side of the main dike, i.e. holes 26 and 27.

Hole 24 was highly successful, reproducing the high-grade gold values recovered from another core hole, 02-18, drilled the previous year about 65 feet to the northeast. The zone was in the same, silicified and highly faulted hydrothermal breccia in silty dolostone, just above the limestone contact, and very close to the western margin of the dike. This setting appears to be the most ideal for high-grade mineralization (>1 oz/st Au) in the 144 Zone.

Hole 25 tested the same setting about 120 feet to the southwest, but the zone was less altered and faulted, and grades were much lower. Greater distance from the dike, which was not intersected, may have been a factor.

Hole 29 deviated somewhat and became essentially a re-test of hole 01-7A. Gold grade was more uneven than 7A, and peaked in fault zones and right at the dike contact, where there was 0.5 oz/st over five feet.

Hole 32 reached out to the NNE along this track, but unfortunately it deviated and hit the dike too high above the projected limestone contact, and so the silty dolostones were only very weakly mineralized. The intended target might be worth another try.

Hole 35 was an even bigger, northerly step-out along this track. The same problem occurred as with hole 32, with only very low grade gold intersected.

Targeting the apparent western track of high-grade gold, the core hole 30 was disappointing. The right rocks and alteration were present, but grades were very low. Hole 31 was drilled farther southwest, and produced the same result, with slightly better gold. Hole 33 was drilled northeast of the excellent holes 01-9 and 02-21, and had a predictably good result. The best grades were in faulted, silicified hydrothermal breccia just above the limestone, reaching 0.45 oz/st in one 5-feet sample. Interestingly, there was another high-grade sample much higher up in this hole.

Finally, hole 34 was drilled from farther northeast along this track. The result was disappointing but quite typical of the second phase of drilling on the western side of the 144 Zone (away from the dike), with a single thin, low grade sample of 0.14 oz/st gold just above the limestone. This hole 34 had an additional intent – to test the deeper limestone in case there were mineralized silty limestones deeper in the Carrara stratigraphy, which is not normally tested (holes are usually terminated about 20 to 30 feet into the limestone). About 415 feet (not true thickness) of limestone was drilled, including several intervals of dike(s). Virtually all samples were completely barren.

One of these holes was a highlight of the first phase. Hole 28 intercepted typical stratigraphy and alteration, but with unusually high-grade gold, up to 0.99 oz/st in one 5-feet sample. The zone averaged 0.5 oz/st gold over 20 feet. The rocks were not otherwise distinctive, and suggest that 'ordinary' rock types and alteration can be greatly enhanced by some unknown factor. The most likely candidate is the presence of a narrow fault or fracture which introduced an enrichment of gold. The recovery was in the form of chips, and so no fault was obvious, although the chips were vuggy and rich in iron oxide. The quick drop to negligible gold on leaving the mineralized zone was startling.

Hole 36 targeted the dolostone-limestone contact vertically beneath a zone at the Sterling Thrust in the mine workings where the dike contact was anomalously mineralized (although well below mine ore grade). It was theorized this target area could be on a high-angle feeder zone.

The core revealed the requisite stratigraphy, excellent silicification, and strong faulting, all of which validated the attempt. However, the gold grades were very low, defying expectations.

This area was drilled with two holes. More holes were anticipated, but holes 26 and 27 were disappointing and further drilling was deferred at this stage. Hole 26 intersected a thick zone of anomalous but very low grade gold around the dolostone-limestone contact. Oddly, the best sample, 0.16 oz/st Au, was well into the limestone. Hole 27 deviated and was a virtual re-test of hole 01-13, with comparable, low-grade results.

11.6.3 Second phase

The second phase of drilling followed about a month after the first phase, beginning on May 27 and ending on July 8, 2003.

Results of the first phase were mixed. Although some very high grade zones were intercepted (table 11.3), most served to fill-in previous known trends, rather than extend them. It became apparent that because of unpredictable hole deviation, building a precise picture of the very narrow high-grade tracks would not be possible by drilling 700 or 800-feet long holes from surface.

Furthermore, one of the most positive holes drilled in the first phase was 03-28, which intersected 0.5 oz/st gold over 20 feet, at the base of the Bonanza King. This intersection was 90 feet west of the then known 144 Zone, and 160 feet west of the dike contact, and at the time represented the largest westward step-out.

Hole 03-28 proved that high grade gold (up to 1 oz/st in one five foot sample) was not restricted to either the dike contact or to the Reudy Fault in the heart of the 144 Zone, and that the lower Bonanza King was potentially prospective over a larger area.

This finding, combined with the prohibitive challenges of trying to intercept specific or 'tight' targets along the dike contact, encouraged a broader strategy, stepping out as far as possible to the west, northwest and southwest of the centre of the 144 Zone in a bid to intersect other high grade zones. The now mined-out Sterling deposit lies to the northwest of the 144 Zone and feeders to the thrust-hosted ore higher up must have existed in this direction. If so, they may have also produced alteration and brecciation and deposited gold at the dolostone-limestone contact.

Thus, for the second phase, a number of widely-spaced targets were planned, mostly well west of the subsurface dike contact. Since the topography prohibited new drill road construction in this direction, the only access was from existing pads, and reaching the targets would require long angle holes.

This second phase of 17 holes was done entirely by reverse circulation drilling, using the same Eklund crew as the first phase. Diamond drilling was not considered for this phase because (1) the expense was prohibitive, and (2) during the first phase, the Eklund crew had proven itself adept at drilling in the frequently difficult ground conditions, and at drilling long angle holes. Total footage drilled in the second phase was 14,335 feet. Details are given in Appendix 3. Survey and abandonment procedures were done as described in Section 4.1.1 for the first drilling phase.

In the second phase, the lowest inclination drilled was around -62°. The only significant problem encountered was in hole 03-40 which got stuck in a fault for two shifts and was abandoned, incomplete. Two other holes had to be abandoned due to loss of return.

Although the Eklund drillers were efficient and productive, down-hole surveys showed that hole deviation was both very significant and unpredictable, with the result that many targets were never actually hit, and others were inadvertently hit more than once.

11.6.4 Results: Second Phase

This phase consisted of 17 holes, from 03-37 through 03-53. This phase was characterized by relatively large step-outs to the west and northwest, intended to determine the limits of significant mineralization, or at least get some indication of grade-alteration zonation. A few other holes (38, 44, 52 and 53) had other objectives (see table 11.3 below).

Holes 37, 39 and 51 stepped out between 200 and 350 feet northwest of the heart of the 144 Zone. They had typical results, intersecting modest zones just above the limestone, with low grades of gold between 0.1 and 0.18 oz/st. It is encouraging that the best assay was in hole 51, the largest step-out of this group.

Most of the other step-out holes were designed to hit various targets along an east-west corridor emanating to the west from the best holes in the heart of the 144 Zone (01-9, 02-21, 03-18 etc.). Some could not be completed due to the drillers encountering bad ground (hole 40) or total loss of circulation (holes 45 and 46). The rest (holes 41, 42, 43, 47, 48 and 49) were completed but targets were rarely intersected as planned due to hole deviation, with the holes veering off to the southwest or south, despite reasonable corrections being built into the collar set-ups. An excellent target around 49065E, 45450N defied several attempts to collar it, and remains undrilled. The completed holes produced similar and predictable results. As usual, mineralized zones were in variably silicified silty dolostone or hydrothermal breccia just above the limestone contact. Grades were generally low, around 0.1 oz/st Au or less. The best hole of this group was hole 41, which contained a 20 foot zone including 0.22 oz/st over 10 feet. None of these holes showed the gold enrichment found in hole 28 during the first phase. The largest westerly step-out was hole 50, drilled to the north from a new and completely separate pad in a dry wash well west of the known 144 Zone. The hole did not intersect appropriate lithologies or alteration, and probably condemns this area.

Hole 38 was another attempt to test the eastern, footwall side of the main dike, in the center of the 144 Zone. It hit a zone about 70 feet east of the zone in the discovery hole, 01-7A. Like 7A, the zone was thick and quite uniform, at 0.075 oz/st Au over 95 feet, but unlike 01-7A, the best assay was only 0.12 oz/st Au. Once again, proximity to the dike appears to be important.

Hole 52 was another attempt to hit the high-grade track immediately west of the main dike, between holes 24 and 25. Due to a slightly misaligned set-up and a deviation, it missed this target and inadvertently re-tested close to hole 03-31. However, the result was interesting as the zone assayed much better gold than hole 31, up to 0.26 oz/st, or 0.23 over 10 feet. This indicates significant increases in gold grade can occur over small distances, which was also the experience in the Sterling mine.

A rather speculative hole was 44, drilled vertically from above a small mineralized zone found in 2001 in hole 01-10. This is in the far south of the 144 Zone. The hole deviated even farther south, and did not intercept any significant mineralization.

The final hole in the second phase, and in the entire 2003 program, was drilled in a completely different area, although it still focused on the dolostone-limestone contact. Hole 53 was collared in a gully at the southern toe of the Sterling pit waste dump. The target was the limestone contact directly beneath one of the best breccia pipes mined along the Sterling thrust, the 3755 pipe. It was reasoned that if the pipe was situated on a high-angle structure, fluids rising up this feeder might also have deposited gold deeper down at the base of the Bonanza King, analogous to the 144 Zone. However, the result was negative, with no mineralization or alteration at the limestone contact. The reason may be that the dolostone immediately above the contact was not silty. This may have removed the potential for sulfidation reactions, and hence gold deposition with pyrite. However, the result does not negate the original idea – the inferred breccia pipe might have been missed.

The 2003 drilling program has shown that the 144 Zone represents a much broader area of mineralization than was previously defined. Using assays above 0.1 oz/st gold, the cut-off used in the Sterling UG mine, a zone can be delineated approximately 650 feet long north-south, and around 350 feet wide, east-west.

The presence of silty dolostone at the base of the Bonanza King Formation holds up as a pre-requisite for the development of strong silicification and hydrothermal brecciation, which are generally associated with the best gold mineralization, just above the contact with Carrara Formation limestone. Conversely, drill holes with minimal or absent silty lithologies above the contact have no zone. Faulted or blocky ground, and clay-altered gougy zones, can also be strongly mineralized, but this is not the case everywhere. There appears to be another control determining good gold grade, such as the coincidence of the main dike margin.

Most of the 144 zone added by this phase of drilling was about 5 to 20 feet thick and around 0.1 oz/ton. With one exception, the step-out drilling did not discover more of the very high gold grades associated with the western contact of the main dike, where it intersects the dolostone-limestone contact. This intersection or 'track' remains a priority for exploration, and will almost certainly become the nucleus for adding to the gold resource of this zone.

The exception referred to above is hole 03-28, in which the gold zone is 170 feet west of the dike contact, and presumably well away from its influence. Here, typical or 'ambient' low-grade mineralization at the dolostone-limestone contact was apparently enhanced by some other factor. It is speculated that this was a high-angle fault or fracture which introduced another pulse of solutions from below which deposited gold on leaving the limestone and entering siliceous or vuggy, decarbonatized rocks as soon as the solutions crossed the contact. The reason for gold precipitation here might be that the solutions experienced a sudden drop in pH, or a drop in temperature as they met cooler fluids residing in the vuggy and brecciated basal Bonanza King. If this is approximately correct, the gold enrichment might be expected to follow the length of the fault or fracture, which probably has a NNE trend, in common with all other high-angle structures in the region. This is also the trend of the high-grade 'tracks' along and west of the western dike margin, and also matches the habit of higher grade gold shoots mined for years along the Sterling Thrust.

Whatever the reason for the anomalous high grade gold (0.99 oz/st) in hole 28, it suggests that the widespread low-grade gold in the overall 144 Zone may be periodically upgraded by bands or pockets of high grade. The frequency or spacing of these postulated fracture-tracks or pockets, their dimensions, and consistency of grade, along their intersection with the dolostone-limestone contact will be an important factor in expanding the resource.

Drilling results east of the main dike indicate that this area appears to be less favorable than west of the main dike. So far, there is no evidence of high-grade tracks boosting the ambient low grades of gold mineralization at the dolostone-limestone contact.

Imperial Metals

Table 11.3 2003 Significant Drilling Intercepts								
Hole #	Interval				Length		Gold Assay	
	feet *from/to*		metres *from/to*		feet	metres	oz/t	g/t
2003-24	671.7	810.7	204.7	247.1	139.00	42.40	0.26	9.06
including	685.2	768.3	208.9	234.2	83.10	25.30	0.39	13.36
including	729.1	751.0	222.2	228.9	21.90	6.70	0.82	27.96
including	737.0	748.3	224.6	228.0	11.30	3.40	0.93	31.95
including	743.0	748.3	226.4	228.0	5.30	1.60	1.41	48.35
2003 25	701.1	755.0	213.7	230.1	53.90	16.43	0.05	1.8
including	710.2	730.6	216.5	222.7	20.40	6.22	0.1	3.3
including	717.0	726.4	218.5	221.4	9.40	2.87	0.14	4.6
2003-26	695.0	750.0	211.8	228.6	55.00	16.80	0.05	1.82
including	740.0	745.0	225.6	227.1	5.00	1.50	0.16	5.61
2003-27	700.0	740.0	213.4	225.6	40.00	12.20	0.04	1.27
	800.0	810.0	243.9	246.9	10.00	3.00	0.06	1.9
2003-28	705.0	750.0	214.9	228.6	45.00	13.70	0.25	8.72
including	725.0	745.0	221.0	227.1	20.00	6.10	0.5	17.14
	730.0	740.0	222.5	225.6	10.00	3.00	0.75	25.85
	730.0	735.0	222.5	224.0	5.00	1.50	0.99	33.95
2003-29	640.0	678.2	195.1	206.7	38.20	11.60	0.1	3.38
including	655.0	678.2	199.6	206.7	23.20	7.10	0.16	5.33
	655.0	664.4	199.6	202.5	9.40	2.90	0.28	9.56
	700.9	744.0	213.6	226.8	43.10	13.10	0.08	2.66
including	705.0	728.0	214.9	221.9	23.00	7.00	0.1	3.51
	710.3	721.9	216.5	220.0	11.60	3.50	0.14	4.66
	752.7	787.7	229.4	240.1	35.00	10.70	0.1	3.34
including	771.0	778.0	235.0	237.1	7.00	2.10	0.3	10.34
	775.0	778.0	236.2	237.1	3.00	0.90	0.5	17.15
2003-31	665.0	745.0	202.7	227.1	80.00	24.40	0.06	1.95
including	710.0	720.0	216.4	219.5	10.00	3.00	0.1	3.56
2003-32	705.0	730.0	214.9	222.5	25.00	7.60	0.03	1.12
including	715.0	720.0	217.9	219.4	5.00	1.50	0.06	2.08
2003-33								
2003-34	800.0	815.0	243.8	248.4	15.00	4.60	0.07	2.43
including	810.0	815.0	246.9	248.4	5.00	1.50	0.14	4.89
2003-35	725.0	730.0	221.0	222.5	5.00	1.50	0.03	1.07
	740.0	745.0	225.6	227.1	5.00	1.50	0.04	1.51
2003-37	865.0	885.0	263.7	269.7	20.00	6.10	0.11	3.81
2003-38	680.0	775.0	207.3	236.2	95.00	29.00	0.07	2.56

including	745.0	765.0	227.1	233.2	20.00	6.10	0.1	3.42
2003-39	805.0	825.0	245.4	251.5	20.00	6.10	0.09	3.21
including	805.0	815.0	245.4	248.4	10.00	3.00	0.12	4.03
including	805.0	810.0	245.4	246.9	5.00	1.50	0.17	5.76
2003-40	590.0	605.0	179.8	184.4	15.00	4.60	0.05	1.61
including	590.0	595.0	179.8	181.4	5.00	1.50	0.08	2.61
2003-41	625.0	650.0	190.5	198.1	25.00	7.60	0.05	1.7
	730.0	760.0	222.5	231.6	30.00	9.10	0.12	4.28
including	735.0	755.0	224.0	230.1	20.00	6.10	0.17	5.7
including	740.0	750.0	225.6	228.6	10.00	3.00	0.22	7.66
2003-42	580.0	590.0	176.8	179.8	10.00	3.00	0.09	3.2
including	585.0	590.0	178.3	179.8	5.00	1.50	0.13	4.31
	735.0	785.0	224.0	239.3	50.00	15.20	0.07	2.37
including	765.0	780.0	233.2	237.7	15.00	4.60	0.1	3.29
2003-43	765.0	820.0	233.2	249.9	55.00	16.80	0.05	1.58
including	785.0	790.0	239.3	240.8	5.00	1.50	0.1	3.36
2003-46	570.0	595.0	173.7	181.4	25.00	7.60	0.03	1.14
	675.0	700.0	205.7	213.4	25.00	7.60	0.03	1.08
2003-47	1125.0	1130.0	342.9	344.4	5.00	1.50	0.05	1.58
2003-48	790.0	820.0	240.8	249.9	30.00	9.10	0.05	1.69
including	815.0	820.0	248.4	249.9	5.00	1.50	0.08	2.77
2003-49	740.0	785.0	225.6	239.3	45.00	13.70	0.05	1.77
including	775.0	780.0	236.2	237.7	5.00	1.50	0.09	3.18
2003-50	600.0	605.0	182.9	184.4	5.00	1.50	0.04	1.34
2003-51	905.0	945.0	275.8	288.0	40.00	12.20	0.08	2.88
including	915.0	940.0	278.9	286.5	25.00	7.60	0.1	3.49
including	930.0	940.0	283.5	286.5	10.00	3.00	0.14	4.87
including	935.0	940.0	285.0	286.5	5.00	1.50	0.18	6.11
2003-52	645.0	710.0	196.6	216.4	65.00	19.80	0.1	3.39
including	670.0	705.0	204.2	214.9	35.00	10.70	0.14	4.68
including	670.0	685.0	204.2	208.8	15.00	4.60	0.19	6.6
including	675.0	685.0	205.7	208.8	10.00	3.00	0.23	8.03

12 SAMPLING METHOD AND APPROACH

12.1 2001 Reverse Circulation Programs

12.1.1 Procedure at drill site

For each of the eleven reverse circulation holes drilled in 2001, drill cuttings for assay/geochemical analysis were collected at five feet intervals consistently throughout the program. For each interval, the cuttings emerging from the drill outlet were separated into two identical samples with a Johnson splitter; complete mixing was provided by the cyclone device immediately preceding the splitter outlets. The resulting pair of cuttings was collected in two identically numbered synthetic-cloth bags which were allowed to dry somewhat before being placed into two corresponding nylon sacks. Each sack would be filled with five or ten sample bags (depending on volume of recovery) representing 25 or 50 feet of consecutive samples, and the sack taped closed.

One set or suite of these sacks of samples was retained on the property, and selected intervals were analyzed by the mine's own (atomic absorption) laboratory facilities for guidance. The other suite was kept in locked storage until it was sent out for independent .

Drill cuttings for logging purposes were collected from the overflow outlet at the splitter in plastic trays by the mine geologist, who oversaw the whole operation at the drill site throughout the program.

All the holes in this program had to drill through hundreds of feet of Stirling Quartzite or dike in the upper plate of the Sterling Thrust before entering potentially mineralized carbonate rocks below the thrust. In this material, drill cuttings for logging were collected in five feet intervals as usual. However, in some holes the cuttings collected at the Johnson splitter were composited into 20 foot samples instead of five foot samples, and were generally not submitted for analysis except for the last few intervals of quartzite immediately above the Sterling Thrust contact with Bonanza King dolostone.

12.1.2 Quality Control

To assess the quality of outside laboratory procedures and reproducibility of results, blank and duplicate samples were inserted into the suites submitted to the outside laboratory (Bondar Clegg – see next section under Analyses). In general, one blank and one duplicate were run for each 100 feet (20 samples) of drill cuttings.

BLANKS. A regular sample would be removed from a drill suite, and renumbered with a fictitious number corresponding to a non-existent depth interval greater than the ultimate length of that hole (unknown to the laboratory). In its place, a correctly numbered blank sample was inserted. Material for blanks was obtained from past drill holes, known (from fire assay) to contain gold values below the detection limit.

When the fire assay results were received, the blank's value would be replaced with the proper result for that interval before being inserted into drill logs or the data system.

DUPLICATES. Material for duplicates was obtained from the alternate suite of drill cuttings retained on site. As in the case of blanks, these samples were given fictitious numbers, avoiding any source of confusion or error with the regular suite. They were not inserted into the regular suite (like, perforce, the blanks), but were simply added to the true 'length'.

(*)Because security was not rigorous for this alternate suite of samples used for duplicates, the results are just used for internal guidance of quality control, and have not been averaged with the corresponding results from the regular, secure suite of samples.

RESULTS. There are no problems or issues to report with respect to the quality control results in the 2001 program. Blank samples, in particular, were returned with uniformly low gold values.

12.2 2002/2003 Reverse Circulation–Diamond Drill Program

12.2.1 Procedure at drill site

In the RC-drilled pre-collar portion of the program, drill cuttings were generally composited into 20 foot samples. The exception was hole 02-23 where the intervals were 'reduced' to 5-feet samples from 400 feet down hole to the beginning of coring at 650 feet. This was done because it was suspected that mineralization might start higher in this hole than the others. In all cases, the cuttings were collected using the Johnson splitter in the same way as in the 2001 RC program, as described in detail in the Section above.

12.2.2 Procedure at core trailer

Drill core was photographed and the geotechnical logging was done before geological logging and sampling was begun. The geotechnical logging recorded recovery, RQD (Rock Quality Designation) and fracture density. After the sample intervals were marked out, and the core was geologically logged, it was sawn and sampled. The samples and remaining core were then stored securely (see below under Security in Section 13)

12.2.3 Quality Control

RC CHIPS. For quality control, blanks and duplicates were added to the sample shipments only for the 50 samples representing the chips from hole 02-23 (2 blanks, 2 duplicates). The procedure was identical to that described above for the 2001 programs. Only one or two chip samples were submitted from each of the other holes, so no extra quality control was done on these.

DRILL CORE. In general, one blank and one duplicate were submitted for every 20 samples from the drill core. Material for blanks was obtained from old drill core (not related to the 144 Zone) known from fire assay to contain no more than 5 ppb gold. Blanks were frequently inserted into the sample sequence immediately following an interval suspected of being strongly mineralized, to check for inter-sample contamination during preparation and analysis in the laboratory.

Duplicate core samples were obtained by quartering the core, i.e. re-sawing one half of the first saw cut. If possible, duplicates were not selected from intervals of poor recovery, or strongly broken chips, or friable gouge material, in order to conserve the available rock. If this was unavoidable, special care was taken to ensure a representative sample was taken.

RESULTS. With respect to the 15 blank samples submitted, 11 were at or below the gold detection limit (0.002 oz/st), indicating acceptable laboratory standards. The other four were over three times the detection limit (a conventional minimum standard), and up to 0.012 oz/st. This indicates some contamination of samples, but it cannot be determined at what stage, from the mine site to the assay laboratory, the compromise of the samples occurred. Note that blank sample material was obtained from a 1996 drill program (not 144 Zone) and was not protected from potential accidental contamination at the mine site. However, after assimilation into the present sample suite, it was completely secure.

With respect to the 14 duplicate samples submitted, correlation between each pair was generally good. However, discrepancies did range up to plus/minus 50 to 100% or more. The instance with the highest gold grades was 0.169 oz/ton vs. a duplicate value of 0.77 oz/ton. In general, lack of correlation between duplicate samples in this kind of mineralization can be attributed to a virtual 'nugget effect', i.e. sporadic gold concentrations in the rock which are undetectable because of the extremely fine grain size of the relevant minerals, making accidental sampling bias unavoidable.

13 SAMPLE PREPARATION, ANALYSES AND SECURITY

13.1 2001 Reverse Circulation Program

13.1.1 Analysis of drill samples

All samples were analyzed by Bondar Clegg, an accredited, independent geochemical services company. The sample sacks were picked up by Bondar Clegg personnel and taken to Sparks, Nevada for preparation. Samples were crushed, split and pulverized to –150 mesh. The pulps were then transferred to their laboratory in North Vancouver for gold fire assay with a lower detection limit of 5 ppb, and 35-element analysis by the ICP-OES technique, using aqua regia digestion.

Copies of the results were forwarded to the project manager in Vancouver and to the mine geologist at Sterling.

13.1.2 Security

Before delivery of the samples to the analytical laboratory, their security while on the property was ensured. The sample sacks were taken from the drill site by the end of each shift and placed in the logging trailer which was always locked when unattended by the logging geologist

The alternate suite of samples (see Section 12.1) was also stored in the locked trailer at times but some samples were removed for sample preparation and analysis at the mine, for which security cannot be guaranteed. No data from these samples has been or will be released.

There is only one access road onto the mine property. Whenever there were no personnel on site (excluding any workers in the leach pad area), the mine gate was kept locked.

13.2 2002/2003 Reverse Circulation–Diamond Drill Program

13.2.1 Analysis and preparation of drill samples

In the 2002/2003 programs, selected drill cuttings (from the RC-drilled pre-collar portion) and selected drill core intercepts were assayed for gold (only) by fire assay with a lower detection limit of 0.002 oz/st, by ALS Chemex, an accredited, independent geochemical services company.

The drill core sampling (sawing or chip collection) was done exclusively by the project manager, the logging geologist and the mine geologist. Considerable care was taken to ensure unbiased and representative material for each sample interval.

Standard sample preparation was done at Chemex's facilities in Elko, Nevada, from where they were shipped by Chemex to their assay laboratory in North Vancouver. Assay results were e-mailed to the project manager, only.

Standard sample preparation (crushed, split and pulverized to –150 mesh) was done at Chemex's facilities in Elko, Nevada, from where they were shipped by Chemex to their assay laboratory in North Vancouver. Assay results were e-mailed to the project manager, only.

A number of samples from the 2003 program were submitted to Kappes, Cassidy and Associates of Reno to obtain gold analyses for comparison with assays from Acme, and also for bottle roll tests for metallurgical properties

13.3 Security

All drill cuttings and core in these programs were removed from the drill site during drill shifts by a geologist, or by the end of a shift, and were never left unattended. The sacks or core boxes were taken to the logging trailer, or to a windowless steel container which is used for permanent storage of all 2002/3 samples and core

Core samples were placed in individual heavy duty plastic bags and closed with special plastic 'zip straps' which have a unique, alpha-numeric, non-sequenced code on each tag. Once closed, the bag cannot be opened without destroying the tag. The tag number was recorded in the sample tag booklet. Thus, any illegitimate rebagging of the samples could be demonstrated by discrepancies in sample bag closure.

All samples were transported by truck to Chemex in Elko by the Sterling mine manager personally. Coarse rejects and pulps from the sample preparation were brought back to Sterling on the return trips, and stored in the locked steel container.

14 DATA VERIFICATION

14.1 Data Management

Since 2001, project management, logging and sampling, and the analysis of the drilling results at the Sterling Property have been implemented by Imperial Metals Geological Staff, or contractors working closely under Imperial's supervision and guidelines. Operating standards and criteria have been consistent, with careful management and security of data sets. This continuity has facilitated verification of material data.

14.2 Data collection and entry

In the 2001 RC drilling programs, all logging and sample enumeration was done or supervised by Imperial Metals Geological Staff. Digital output of logs was checked line by line against original hand logs. Assay results were checked after insertion into the logs. Blank-sample values were replaced by correct assays for the corresponding sample number (see Section 12.1 for explanation of quality control procedure), and re-checked, with no surviving errors.

Procedure for the 2002 and 2003 diamond drilling program consisted of entering logged sample lengths (in feet) with an attached sample number. When received, assay results were inserted against the corresponding sample number, and checked. By design, blank and duplicate assays were excluded from admission into the proper geological log-sample sequence, ensuring no corruption of actual results by quality control entries. The results of the data entry were re-checked before being incorporated into the database modeling program, and before calculation of weighted averages.

14.3 Weighted averages

Weighted averages for the 2001 program results were calculated and checked by Imperial Geological Staff, with no inconsistencies.

For the 2002 program, weighted averages were calculated for selected portions of the drill holes. Special care was taken where higher grade intersections were involved to ensure that data were entered correctly. No adjustments were made for intervals with poor recovery.

As a further check, the entire process was repeated from the outset, by re-entering assay data from original Chemex reports. No errors or discrepancies were found, and identical averages were reproduced.

14.4 Independent Laboratory Verification

To provide verification of the Chemex assay results, a suite of coarse rejects from holes 02-18 and 02-20 was submitted to Acme Analytical Laboratories, Ltd. of Vancouver, B.C., an accredited analytical facility, for gold fire assay.

Hole 02-18

For the 29 samples with significant gold values (>0.002 oz/st), the Acme results are summarized as follows.

Samples	% of Total (29)	Difference from Chemex
17	58.6	<10%
11	37.9	10 – 18%
1	3.4	23%

Highest grade samples (Chemex)	Acme	Difference
2.024 oz/st	1.662	18%
1.023 oz/st	0.947	7.4%

Notes:
All Acme results except three were lower than Chemex.
The largest difference (23%) was 0.064 oz/st (Chemex) vs. 0.049 oz/st (Acme).

In conclusion, the comparison between the laboratories is within acceptable limits.

Hole 02-20

For the 28 samples with significant gold values (>0.002 oz/st), the Acme results are summarized as follows.

Samples	% of Total (28)	Difference from Chemex
18	64.3	<10%
4	14.3	10 – 19%
6	21.4	23 - 66%

Highest grade samples (Chemex)	Acme	Difference
0.257 oz/st	0.28	9%
0.149 oz/st	0.159	7%

Notes:
All Acme results except two were higher than Chemex (one was equal).
The largest difference (66%) was 0.082 oz/st (Chemex) vs. 0.136 oz/st (Acme). Another large difference (61%) was opposite: 0.134 oz/st (Chemex) vs. 0.052 oz/st (Acme).

14.5 Comments

The majority of the results from the two laboratories compare well, and indicate satisfactory verification of gold values obtained from the exploration program. A small number of samples display larger discrepancies but are within statistically acceptable limits. The two largest discrepancies (given above under hole 02-20) might be explained by an isolated concentration of gold in one of the coarse-reject splits. We note that the Acme results are apparently not biased with respect to Chemex results, in that hole 02-18 data is generally below Chemex, while hole 02-20 is generally above.

15 ADJACENT PROPERTIES

Historical gold mining in the vicinity of the Sterling Mine included the 2,200 ton per day open pit/underground Bullfrog Mine located in Bullfrog Mining District operated by American Barrick, and the 30,000 ton per day open pit Daisy Mine operated by Rayrock Mines. Each of these mines were of a larger scale than the Sterling. The Daisy Mine utilized heap leach technology, while the Bullfrog Mine operated a carbon-in-pulp mill. Near the Daisy, Glamis also operated two small open pit leach operations, the Secret Pass and the Mother Load. (See figures 4.1 and 7.1)

The Bare Mountain Range and the general area have seen a minor amount of gold exploration in the past few years. American Barrick has drilled in the area of the inactive Gold Ace Mine and in the Rhyolite District near the Bullfrog Mine. Exploration by Rayrock Mines in the past has concentrated mostly on claim-block exploration, but an aggressive program targeted at a large tonnage, low grade gold deposits was carried out on the Gold Ace Mine property located on the western part of the Bare Mountain. Placer Dome conducted a joint venture exploration program with the Sterling Mine Joint Venture during 1995-96 to test deep sections of the Carrara Formation for gold deposition.

Imperial Metals has optioned the property to the north of Sterling by from Saga Exploration Company. This property contains the Goldspar and the Mary Claims. At the Goldspar, a high-angle fault zone close to the range front hosts altered quartz latite dike and hydrothermal breccia in Cambrian dolostone. Fluorite occurs as replacement in the breccia, and was mined from an open pit for cement manufacture by the Monolith Portland Cement Company between 1958 and 1967 (Papke, 1979). Some early production came from underground but most came from an open pit. The fluorite is in pipe-like breccia bodies in Silurian dolostone. Goldspar is about 5500 feet north of the 144 Zone, and approximately on trend of the Reudy fault. However, the similarities between the geological settings of the deposits do not prove that they are part of the same hydrothermal/mineralization system, and are not necessarily indicative of the extent of gold potential in the area.

The published information on the properties described above is provided as an information source, and has not been verified by the author of this report.

16 MINERAL PROCESSING AND METALLURGICAL TESTING

16.1 Cyanide Leach analysis

In 2001, samples from the gold-rich intervals in holes 01-7A, 9 and 13 were treated by cyanide leaching in a preliminary assessment of the recovery potential of the 144 Zone mineralization (reported in Rees and McAndless, 2001). The analysis was done by Bondar Clegg at their North Vancouver laboratory.

The method involves leaching the cyanide-leachable gold from the sample into a cyanide solution. The gold is then recovered by an organic extractant, and the concentration is determined by the atomic absorption analytical technique. This process gives results for cyanide-leachable gold only, and not necessarily the total gold content in the sample as indicated by fire assay.

The results are shown in Table 16-1. They show that on average, 90% of the gold present in the rock, as recorded by fire assay, is recoverable by cyanide leaching. This is based on pulverized rock samples, and is not necessarily representative of coarser rock that might be placed on a leach pad.

Part of the recommendations of this report involves taking a 20 ton bulk sample of the potential ore zone in the 144 zone, for a pilot heap leach test. To accomplish this, an underground exploration decline would be excavated to the bottom of the 144 zone, see Chapter 19 and Appendix 1 and 2 for details of this proposal.

Table 16.1 Gold Recovery by Cyanide Leach

HOLE	INTERVAL (feet)	GOLD Fire Assay (FA) ppb	GOLD Cyanide Leach (CL) ppb	RATIO CL / FA
01-7A	685-690	3534	3030	0.86
	690-695	4037	3500	0.87
	695-700	3763	3290	0.87
	700-705	3402	3050	0.90
	705-710	4366	3810	0.87
	710-715	5091	5080	1.00
	715-720	5151	4740	0.92
	720-725	5138	4800	0.93
	725-730	4540	3800	0.84
	730-735	Invalid sample - (blank)		
	735-740	3165	2520	0.80
	740-745	2913	2330	0.80
	745-750	2180	1890	0.87
	750-755	1279	960	0.75
	755-760	1109	1000	0.90
	760-765	4896	4680	0.96
	765-770	6861	6520	0.95
	770-775	12100	10250	0.85
	775-780	16390	16700	1.02
	780-785	6723	5980	0.89
	785-790	4808	4070	0.85
	790-795	4392	3750	0.85
01-9	730-735	61760	44600	0.72
	735-740	55320	54200	(0.98)
	740-745	11710	12500	(1.07)
	745-750	13200	14900	(1.13)
	750-755	8016	6780	0.85
	755-760	5332	4880	0.92
	760-765	6246	5560	0.89
	765-770	8019	7460	0.93
	770-775	5709	5300	0.93
	775-780	1199	960	(0.80)
	780-785	564	340	(0.60)
01-13	720-725	1954	1880	0.96
	725-730	1677	1650	0.98
	730-735	1781	1910	1.07
	735-740	3479	3260	0.94
	740-745	1544	1540	1.00
	745-750	1795	1600	0.89
	750-755	3187	2880	0.90

Note: Ratios in parentheses in hole 01-9 may not be quite accurate, as gold values were derived from different splits from the respective intervals.

17 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

17.1 *Resource Statement*

Table 17.1 Sterling Mineral Resource Summary

Sterling Mine Mineral Resources, February 7, 2006						
Zone	Category	Imperial		Metric		Contained
	RESOURCES	Short Ton	Grade (Au OPT)	Tonnes	Grade (Au g/t)	Ounces
144	Indicated and Measured	214,554	0.216	194,640	7.41	46,344
Panama	Indicated and Measured	103,040	0.082	93,476	2.81	8,449

The mineral resource estimates for the 144 Zone and Panama Zone were calculated under the supervision of Greg Gillstrom, P. Eng., the designated Qualified Person on this project. Technical expertise was provided by Art Frye, Manager Project Development for Imperial Metals. No reserve estimate is presented in this report as a feasibility study will be needed before a reserve can be estimated. The mineral resource estimates presented in this report are based on drill information available as at September 30, 2005. The resources were calculated using MEDSYSTEM software A gridded seam model was chosen for the 144 Zone because of the planar shape of this zone. A standard 3D block model was used for the Panama Zone.

17.2 *144 Zone Gridded Seam Model Methodology*

The gold mineralization in the 144 zone lies on a domed (anticline) dolostone/limestone contact and is limited at a major dike contact on the one side (see figure 7.4 and 17.1). Given this bed or seam like geometry, a gridded seam model was chosen to model the resources in the 144 zone.

Gridded Seam Models (GMS) are used for statiform deposits and are similar to standard 3D block models in that they have constant block dimensions in the x and y direction, but differ in that they have only have one block per seam in the Z direction and its thickness varies with the thickness of the seam.

114 Zone GSM Details:

- Block size 10ft x 10ft x seam thickness.
- The zone was coded into the drillhole file by including all continuous assay intervals along the dolostone/limestone contact that give an average grade above 0.1 oz/st gold.
- The intervals at the upper and lower limits must be above 0.1 oz/ton unless a lower grade was required to provide a minimum zone thickness of 10 feet.
- The gold grades were capped at 1.5 oz/st.
- The volume of the zone was defined by taking the coordinates of the upper and lower limits of the coded intervals and triangulating an upper and lower zone surface.

- The edge of the surface was clipped at the dike contact.
- The drillhole data was composited into seam style composites with a single composite for the seam (zone).
- Grades were interpolated into the gridded seam model using inverse distance to the power of three(ID3).
- The search was limited to a 90 foot circle in the plane of the zone.
- The maximum distance to the nearest composite was limited to 70 feet and a single composite was only allowed to project 40 feet.
- Within the area included in this resource there was enough sample density so that all blocks are interpolated using more than a single sample.
- Composites with a grade above 0.5 oz/st had their circle of influence limited to 30 feet.

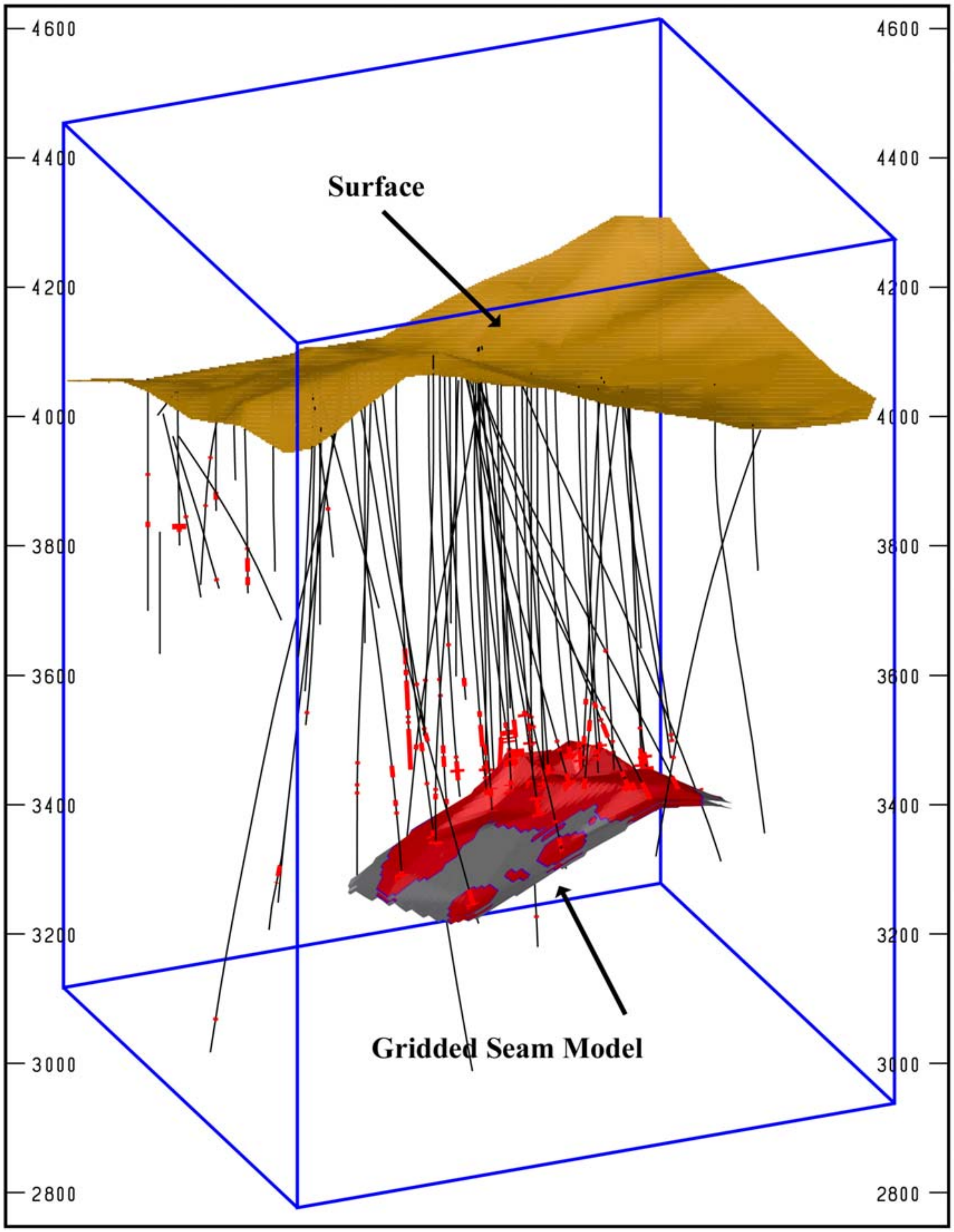
17.3 Panama Zone Model Methodology

The Panama Zone was modeled using a standard 3D block model, with the grades interpolated in each block using inverse distance to the power of three (ID3).

Panama Zone Block Model Details:

- Zone was limited to cube defined by 48500E, 48900E, 46750N, 47200N, and an upper elevation of 4150 feet. and lower elevation of 3900 feet.
- Gold assays were capped 1.0 oz/st.
- A composite drill hole file was created, with 5 ft assay composites constrained by Rock code
- A mineralization indicator was set for composite grades equal to or greater than .01 oz/st.
- These drill hole indicator values were then used to interpret an indicator probability value for each block. The values were interpolated using an ID3 weighting. A strong anisotropic elliptical search 40ft x 40 ft x 10ft was used, with a different orientation north of 47,000N (Azim. 270, dip -10) and south of 47,000N (Azim. 139, dip -37) . These values were determined from 3D modeling using Minesight software.
- An ore indicator was set in each block using a probability value of .6 as a cut-off.
- An indicator was then set in the drill hole composite file to match the indicator in the block that the composite pierces.
- Block grades were then interpolate using an ID3 method using code matching so that block grades are based on composites with the same indicator value. The same anisotropic search parameters as above were used. In blocks with non-mineralized indicator values, all composite grades above .015 Oz/Ton had their sphere of influence limited to seven feet.
- Cut-off grade for the resource estimation was .02 oz/st.

Figure 17.1 3D View: 144 Zone Gridded Surface Model, showing drilling



18 INTERPRETATION AND CONCLUSIONS

The drilling programs on the 144 Zone confirm the discovery of a distinct, deeper deposit of Carlin-style gold mineralization. The zone is not directly connected with the other ore deposits at Sterling, but their common timing-relationships indicate they belong to the same overall hydrothermal system, and possibly have a common source at greater depth.

Significant gold grades up to 2 oz/st are associated with silicified hydrothermal breccias in this zone. The main seam of mineralization lies in the contact between a silty dolostone above and an underlying limestone. The zone forms an anticlinal structure, which is bounded by a dike on the east side.

The geometry and grade distribution of the 144 zone is well understood and the new resource estimates can be relied upon to conduct a feasibility study. An underground bulk sample will have to be taken to confirm the leachability of this zone. Historically all the ore at the Sterling Mine responded well to heap leaching without crushing and yielding an average gold recovery for it's life of 88%.

These mineralization controls extend beyond the present limits of the 144 Zone. They, and the intersections between them, are prime targets for continued exploration. An underground exploration program is warranted to trace the mineralization laterally and vertically more efficiently, leading to better grade definition and more confidence for resource estimation. The potential to expand the 144 Zone is considered good. Feeders to the mined-out ore deposit at Sterling just northwest of the 144 Zone must exist in that direction. Potential beyond this area, such as north and south along the Reudy fault, and the controlling dike should be tested from an underground decline.

The controls for mineralization and the ore characteristics in the Panama Zone are the same as the Sterling and Ambrose pits. This near surface zone is sufficiently drilled off and the new resource estimate can be relied upon to design a mining plan for this zone.

19 RECOMMENDATIONS

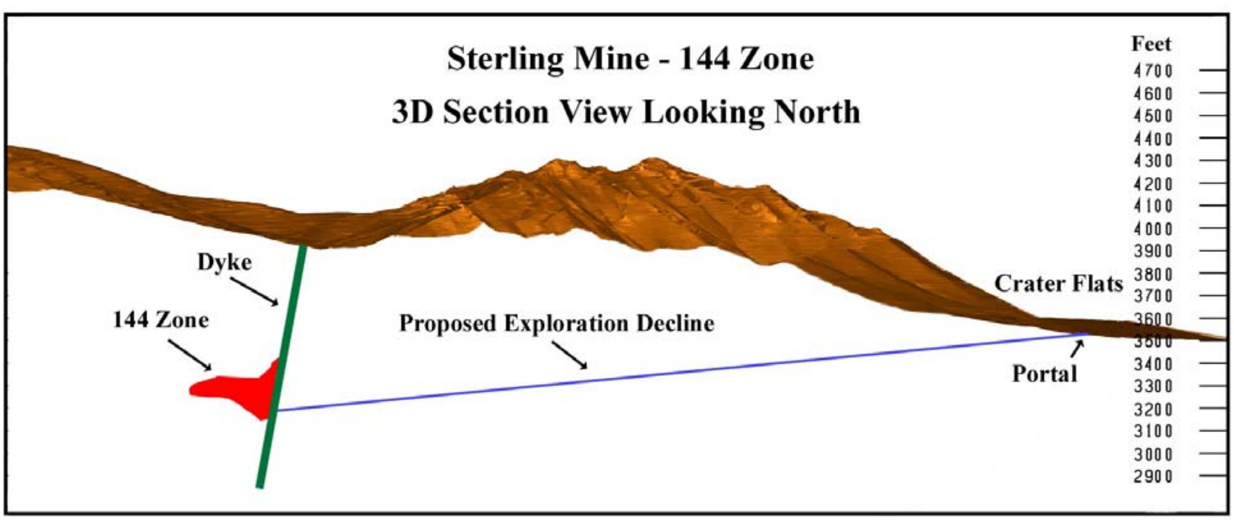
A 20 ton bulk sample of the potential ore zone in the 144 Zone should be taken for a pilot heap leach test. To accomplish this, an underground exploration decline should be driven down to the bottom of the 144 Zone. This proposed ramp should be designed for use as the main haulage route later the during mining phase. Assuming positive results from the leach tests, a feasibility study should be conducted to determine the viability of reopening the Sterling Mine. This feasibility study should also include the open pit mining of the Panama Zone and salvaging any exposed ore still remaining in the walls of the three existing pits.

Once the decline is completed to the 144 Zone orebody, it would be extended under the zone, two additional cross drifts would also be excavated north/south to the edges of the known deposit (see figures 19.1 and 19.2). Delineation and exploration fan drilling could then be conducted from these 3 drifts. Initially the drilling would concentrate on confirming the exact dimension of the ore body along with confirming the grade. Additional drilling at the end the two north/south drifts will test for additional mineralization along the dike contact. The extent of the ore body away from the dike to the east could also be tested from all three drifts as shown in figure 19.2.

Some core drilling from the remuck bays may also be conducted while the decline is being driven. This drilling will test for structures (geotechnical problems) and for mineralization in certain contacts and faults.

The estimated cost of these programs is US$3.71 million. This includes total cost of the decline and bulk sample mining (US$2.9million), exploration and delineation drilling (US$350,000), the bulk sample test leach at an outside lab (US$30,000) and survey equipment, a 10% contingency on the above costs and a reclamation bond of $US50,000 (See table 19.1 for details).

Figure 19.1 144 Zone Exploration Drift



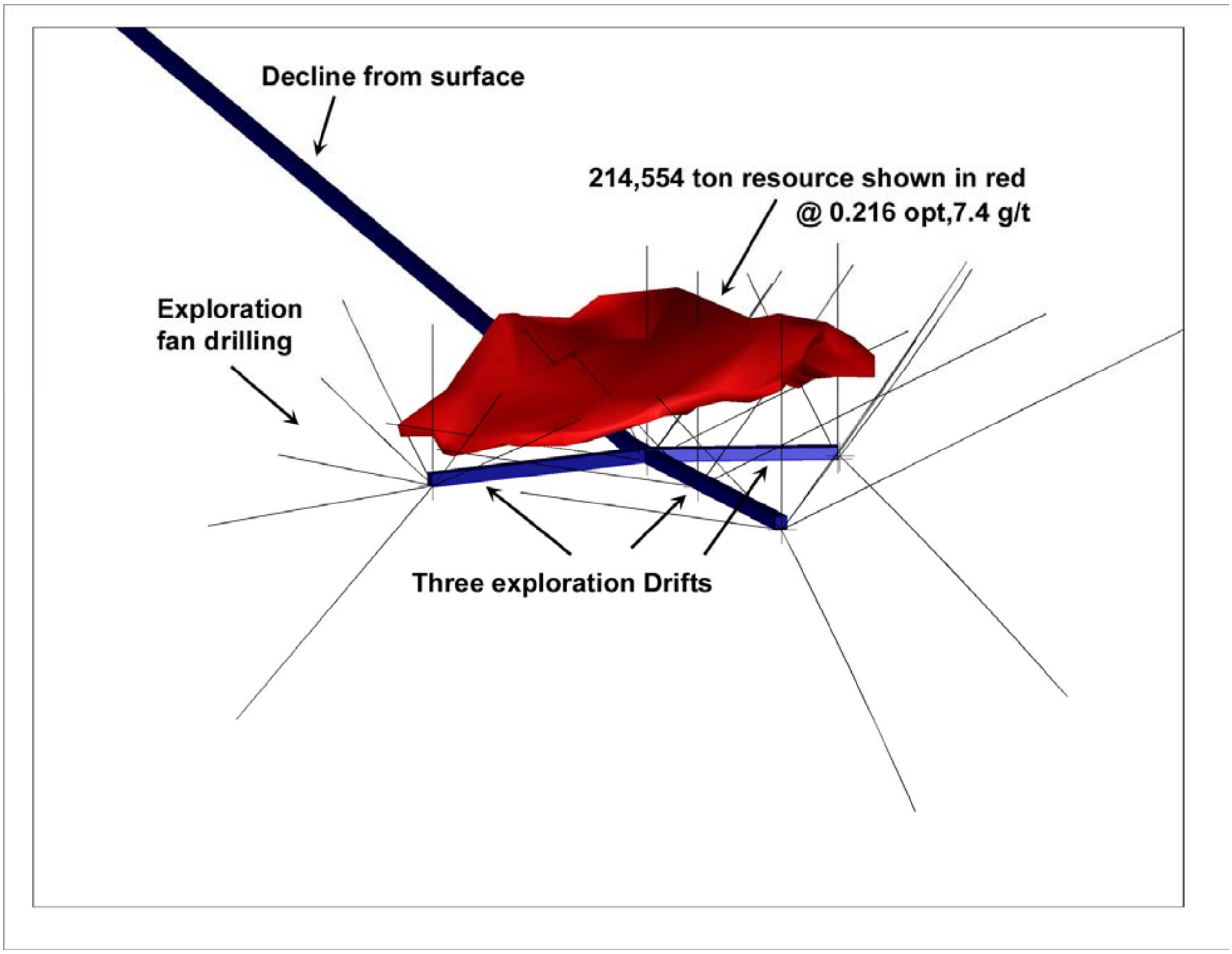
19.1 Exploration Decline and Drilling Specifics and Costs

- Decline should be designed and sized to accommodate production traffic at a later date.
- The ramp should be a direct line from approximately the 3550 ft level of creator flats to the bottom of the 144 Zone at approximately 3180 ft.
- This will result in a ramp of 3840 ft in length, at a grade of 10%, 12' wide x 12' high.
- Muck bays spaced at 500 ft intervals, (7 in total, at 40 ft each) and three short exploration drifts under the ore body (704 ft in total), leading to a total development of 4,824 ft.
- Once the decline is completed up to the 144 zone orebody at the 3180 ft level, it would be extended under the zone, two addition cross drifts would also be mined north/south to the edges of the deposit.
- The three drifts would be used for exploration drilling, and to mine a raise up into the ore body to take the 20 ton bulk sample.
- A 20 ton bulk sample would be taken in average 'grade ore' breccia. An additional sample could also be taken, at the dike contact, in the high grade clay rich zone.
- A 30 week development schedule is recommended, with a three week ramp-up period with one crew working a five day shift. Followed by a three week period of two crews working five days/week, and then a schedule of three shifts per day to the end of the project.
- Estimated total cost of the decline using a mining contractor is US$2,898,000. (See appendix 1 for details)
- Estimated total cost of the initial underground exploration drilling is US$ 400,000 with an estimated total footage of 7,000 ft @ US$ 50.00/ft including drilling, surveying, assaying and handling.
- Estimated total cost for the 20 ton bulk sample leach test, using an outside lab is US$30,000. (See appendix 2 for leaching details)

Table 19.1 144 Zone Decline and Bulk Sample Cost Estimates

144 Zone Cost Estimates for the Proposed Bulk Sample and Exploration Drilling Program	
Item	**Totals**
Mining using a contractor - see appendix 1 for details	$2,898,000
Underground exploration drilling - 7,000 ft @ US$ 50.00/ft inc.assaying and handling	$400,000
Leach Testing at an outside lab - see appendix 3 for details	$30,000
Subtotal	**$3,328,000**
Contingency costs of 10% of the above total	$332,800
State and BLM reclamation bond	$50,000
Total	**$3,710,800**

Figure 19.2 3D View: 144 Zone Exploration and Delineation Drilling



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21 APPENDIX 1: 144 Zone Decline Cost Estimates

Table 21.1 Recommended 144 Zone Exploration Decline Details	
Item	Details
Decline starting elevation	3,550 ft
Decline bottom elevation (bottom of the ore at the dike contact)	3,180 ft
Decline Grade	10%
Muck bay Spacing	500 ft
# Muck Bays	7
	Lengths
Total Muck Bay Length (7 x 40ft)	280 ft
Decline Length	3,840 ft
3 Exploration drifts (Total Length)	704 ft
Total development footage	**4824 ft**

Table 21.2 Mining Cost Estimates using a Mining Contractor				
Item		Costs		Totals
Mobilization				$42,000
Portal				$48,000
Drill/Blast	$475.00 /ft		4824 ft	$2,291,400
Ground Support	$30.00 ea	1.5 /ft	4824 ft	$217,080
4 yd mucker	$110.00 /hr	2 hr/10 ft	4824 ft	$106,128
Drill Jumbo	$80.00 /hr	2 hr/10 ft	4824 ft	$77,184
16 T Haul Truck	$90.00 /hr	2 hr/10 ft	4824 ft	$86,832
Jackleg Drill	$10.00 /hr	4 hr/10 ft	4824 ft	$19,296
Demobilization				$10,000
Total				**$2,897,920**

22 APPENDIX 2: 144 Zone Proposed Leach Test

This proposal outlines the costs to complete both pilot scale as well as smaller scale column leach tests on sample material from the Sterling Mine at an outside lab.

Bulk Sample Program Outline

One bulk sample weighing between 16 and 17 short tons will be developed from underground workings at the Sterling Mine.

At the lab the following column leach tests will be completed:

- **Test No. 1.** One column leach test of ROM ('run of mine') will be completed in a 48-inch diameter column by 24 feet tall. It is estimated that this column will hold the equivalent of 14 short tons of dry sample material. The leach period for this column will be 120 days. A head screen analysis (10 screens making 11 size fractions) with assays for gold and silver on each size fraction will be completed on one short ton of the as-received material. Following leaching, the column will be rinsed for three consecutive days with fresh tap water and then allowed to drain for a period of 7-10 days. After completion of the drain down the material will be dumped out and a grab sample weighing 400 pounds will be obtained to determine the residual moisture content of the tailings material. The remaining material will be coned three times and then split utilizing a large-scale riffle splitter into 1/8 splits. One 1/8 split (roughly 1.75 short tons of "dry" material) will be air-dried and then screened and assayed as the head material.

- **Test No. 2.** One column leach test will be completed on material stage crushed to 100% minus 2-1/2 inches. This column leach test will be completed in a nominal 12-inch diameter column by 10 feet tall. It is estimated that this column will hold the equivalent of 850 pounds of the crushed material. The leach period for this column leach test will be 90 days. A head screen analysis (6 screens making 7 size fractions) with assays for gold and silver on each size fraction will be completed on a 400 pound portion of the crushed material. Following leaching, the column will be rinsed for three consecutive days with fresh tap water and then allowed to drain for a period of 7 days. After completion of the drain down the material will be dumped out and a grab sample weighing 200 pounds will be obtained to determine the residual moisture content of the tailings material. The remaining material will be coned three times and then quartered. Two (2) opposite 1/4 splits (roughly 425 pounds of "dry" material) will be combined, air-dried and then screened and assayed as the head material.

- **Test No. 3.** One column leach test will be completed on material stage crushed to 100% minus 1/2 inches. This column leach test will be completed in a nominal 12-inch diameter column by 10 feet tall. It is estimated that this column will hold the equivalent of 850 pound of the crushed material. The leach period for this column leach test will be 90 days. A head screen analysis (five screens making six size fractions) with assays for gold and silver on each size fraction will be completed on a 400 pound portion of the crushed material. A head analysis for gold and silver will also be completed on a portion of the crushed material. In addition to the gold and silver head assays, a multi-element head analysis including 15 separate base metals, carbon, sulfur and sulfide sulfur will be conducted. A bottle roll leach test at a grind size of nominal 0.15mm will also be completed on the head material. Following leaching, the column will be rinsed for three consecutive days with fresh tap water and then allowed to drain for a period of seven days. After completion of the drain down the material will be dumped out and a grab sample weighing 200 pounds will be obtained to determine the residual moisture content of the tailings material. The remaining material will be coned three times and then quartered. Two opposite 1/4 splits (roughly 425 pounds of "dry" material) will be air-dried and then screened and assayed as the head material. After completion of the program, a final report will then be generated.

Table 22.1 144 Zone Bulk Sample Cost Estimates

Item	Description	US$ Cost
1	Test No. 1 – ROM, 120 days	$17,000
2	Test No. 2 – minus 2 ½ inch, 90 days	$5,000
3	Test No. 3 – minus ½ inch, 90 days	$5,000
4	Waste Management	$2,700
Total	Overall cost for testing	$29,700

23 APPENDIX 3: 144 Zone Drilling Results

Table 23.1 144 Zone Drilling Results (2001-2003)

Hole #	Interval				Length		Gold Assay	
	feet *from/to*		metres *from/to*		feet	metres	oz/t	g/t
2001								
2001-7A	685.0	795.0	208.8	242.3	110.00	33.60	0.154	5.28
including	765.0	785.0	233.2	239.3	20.00	6.10	0.316	10.83
including	770.0	780.0	234.7	237.7	10.00	3.00	0.415	14.25
2001-8	no significant mineralization							
2001-9	730.0	775.0	222.5	236.2	45.00	13.70	0.57	19.54
including	730.0	750.0	222.5	228.6	20.00	6.10	1.03	35.3
including	730.0	740.0	222.5	225.6	10.00	3.00	1.71	58.62
2001-10	825.0	855.0	251.5	260.6	30.00	9.10	0.08	2.71
including	825.0	835.0	251.5	254.5	10.00	3.00	0.11	3.91
2001-11	no significant mineralization							
2001-12	no significant mineralization							
2001-13	710.0	755.0	216.4	230.1	45.00	13.70	0.056	1.92
2001-14	640.0	680.0	195.1	207.3	40.00	12.20	0.056	1.92
2002								
Hole #	Interval				Length		Gold Assay	
	feet *from/to*		metres *from/to*		feet	metres	oz/t	g/t
2002-18	633.0	762.0	193.0	232.3	129.00	39.30	0.2	6.86
including	705.5	762.0	215.1	232.3	56.50	17.20	0.4	13.71
including	720.0	757.0	219.5	230.8	37.00	11.30	0.54	18.51
including	723.7	738.5	220.6	225.1	14.80	4.50	0.99	33.94
including	723.7	728.0	220.6	221.9	4.30	1.30	2.02	69.26
and	750.0	752.0	228.7	229.3	2.00	0.60	1.02	34.97
2002-19	669.0	794.0	203.9	242.0	125.00	38.10	0.13	4.4
including	673.5	692.5	205.3	211.1	19.00	5.80	0.19	6.64
including	683.0	692.5	208.2	211.1	9.50	2.90	0.27	9.25
including	687.0	692.5	209.4	211.1	5.50	1.70	0.31	10.7
and	719.5	729.5	219.4	222.4	10.00	3.00	0.22	7.59
including	719.5	724.5	219.4	220.9	5.00	1.50	0.3	10.39
and	745.0	764.0	227.1	232.9	19.00	5.80	0.18	6.04
including	750.0	753.5	228.6	229.7	3.50	1.10	0.28	9.46
and	781.0	794.0	238.1	242.1	13.00	4.00	0.17	5.78
2002 20	675.5	675.5	205.9	230.8	81.70	24.90	0.08	2.74
including	694.5	694.5	211.7	213.1	4.50	1.40	0.13	4.46
and	728.0	728.0	211.9	230.8	29.20	8.90	0.11	3.77
including	733.5	733.5	223.6	228.1	15.00	4.60	0.14	4.8
including	733.5	733.5	223.6	225.4	6.00	1.80	0.2	6.86
including	736.5	736.5	224.5	225.4	3.00	0.90	0.26	8.91
and	778.2	778.2	237.2	239.2	6.60	2.00	0.15	5.14

2002-21	693.0	740.5	211.3	225.8	47.50	14.50	0.51	17.56
including	706.7	740.5	215.5	225.8	33.80	10.30	0.7	23.86
including	721.0	740.5	219.8	225.8	19.50	5.90	1.08	37.03
2002-22	730.0	757.0	222.5	230.7	27.00	8.20	0.08	2.74
including	733.0	740.0	223.4	225.6	7.00	2.10	0.09	3.09
and	749.2	757.0	228.4	230.7	7.80	2.40	0.13	4.46
2002-23	717.8	749.7	218.8	228.5	31.90	9.70	0.13	4.46
including	722.0	725.7	220.1	221.2	3.70	1.10	0.21	7.2
and	742.0	748.6	226.2	228.2	6.60	2.00	0.21	7.2
including	746.0	748.6	227.4	228.2	2.60	0.80	0.41	14.06
2003								
Hole #	Interval				Length		Gold Assay	
	feet *from/to*		metres *from/to*		feet	metres	oz/t	g/t
2003-24	671.7	810.7	204.7	247.1	139.00	42.40	0.26	9.06
including	685.2	768.3	208.9	234.2	83.10	25.30	0.39	13.36
including	729.1	751.0	222.2	228.9	21.90	6.70	0.82	27.96
including	737.0	748.3	224.6	228.0	11.30	3.40	0.93	31.95
including	743.0	748.3	226.4	228.0	5.30	1.60	1.41	48.35
2003 *25*	701.1	755.0	213.7	230.1	53.90	16.43	0.05	1.8
including	710.2	730.6	216.5	222.7	20.40	6.22	0.1	3.3
including	717.0	726.4	218.5	221.4	9.40	2.87	0.14	4.6
2003-26	695.0	750.0	211.8	228.6	55.00	16.80	0.05	1.82
including	740.0	745.0	225.6	227.1	5.00	1.50	0.16	5.61
2003-27	700.0	740.0	213.4	225.6	40.00	12.20	0.04	1.27
	800.0	810.0	243.9	246.9	10.00	3.00	0.06	1.9
2003-28	705.0	750.0	214.9	228.6	45.00	13.70	0.25	8.72
including	725.0	745.0	221.0	227.1	20.00	6.10	0.5	17.14
	730.0	740.0	222.5	225.6	10.00	3.00	0.75	25.85
	730.0	735.0	222.5	224.0	5.00	1.50	0.99	33.95
2003-29	640.0	678.2	195.1	206.7	38.20	11.60	0.1	3.38
including	655.0	678.2	199.6	206.7	23.20	7.10	0.16	5.33
	655.0	664.4	199.6	202.5	9.40	2.90	0.28	9.56
	700.9	744.0	213.6	226.8	43.10	13.10	0.08	2.66
including	705.0	728.0	214.9	221.9	23.00	7.00	0.1	3.51
	710.3	721.9	216.5	220.0	11.60	3.50	0.14	4.66
	752.7	787.7	229.4	240.1	35.00	10.70	0.1	3.34
including	771.0	778.0	235.0	237.1	7.00	2.10	0.3	10.34
	775.0	778.0	236.2	237.1	3.00	0.90	0.5	17.15
2003-30	no significant mineralization							
2003-31	665.0	745.0	202.7	227.1	80.00	24.40	0.06	1.95
including	710.0	720.0	216.4	219.5	10.00	3.00	0.1	3.56
2003-32	705.0	730.0	214.9	222.5	25.00	7.60	0.03	1.12
including	715.0	720.0	217.9	219.4	5.00	1.50	0.06	2.08
2003-33	no significant mineralization							
2003-34	800.0	815.0	243.8	248.4	15.00	4.60	0.07	2.43
including	810.0	815.0	246.9	248.4	5.00	1.50	0.14	4.89

2003-35	725.0	730.0	221.0	222.5	5.00	1.50	0.03	1.07
	740.0	745.0	225.6	227.1	5.00	1.50	0.04	1.51
2003-36	no significant mineralization							
2003-37	865.0	885.0	263.7	269.7	20.00	6.10	0.11	3.81
2003-38	680.0	775.0	207.3	236.2	95.00	29.00	0.07	2.56
including	745.0	765.0	227.1	233.2	20.00	6.10	0.1	3.42
2003-39	805.0	825.0	245.4	251.5	20.00	6.10	0.09	3.21
including	805.0	815.0	245.4	248.4	10.00	3.00	0.12	4.03
including	805.0	810.0	245.4	246.9	5.00	1.50	0.17	5.76
2003-40	590.0	605.0	179.8	184.4	15.00	4.60	0.05	1.61
including	590.0	595.0	179.8	181.4	5.00	1.50	0.08	2.61
2003-41	625.0	650.0	190.5	198.1	25.00	7.60	0.05	1.7
	730.0	760.0	222.5	231.6	30.00	9.10	0.12	4.28
including	735.0	755.0	224.0	230.1	20.00	6.10	0.17	5.7
including	740.0	750.0	225.6	228.6	10.00	3.00	0.22	7.66
2003-42	580.0	590.0	176.8	179.8	10.00	3.00	0.09	3.2
including	585.0	590.0	178.3	179.8	5.00	1.50	0.13	4.31
	735.0	785.0	224.0	239.3	50.00	15.20	0.07	2.37
including	765.0	780.0	233.2	237.7	15.00	4.60	0.1	3.29
2003-43	765.0	820.0	233.2	249.9	55.00	16.80	0.05	1.58
including	785.0	790.0	239.3	240.8	5.00	1.50	0.1	3.36
2003-44	no significant mineralization							
2003-45	no significant mineralization							
2003-46	570.0	595.0	173.7	181.4	25.00	7.60	0.03	1.14
	675.0	700.0	205.7	213.4	25.00	7.60	0.03	1.08
2003-47	1125.0	1130.0	342.9	344.4	5.00	1.50	0.05	1.58
2003-48	790.0	820.0	240.8	249.9	30.00	9.10	0.05	1.69
including	815.0	820.0	248.4	249.9	5.00	1.50	0.08	2.77
2003-49	740.0	785.0	225.6	239.3	45.00	13.70	0.05	1.77
including	775.0	780.0	236.2	237.7	5.00	1.50	0.09	3.18
2003-50	600.0	605.0	182.9	184.4	5.00	1.50	0.04	1.34
2003-51	905.0	945.0	275.8	288.0	40.00	12.20	0.08	2.88
including	915.0	940.0	278.9	286.5	25.00	7.60	0.1	3.49
including	930.0	940.0	283.5	286.5	10.00	3.00	0.14	4.87
including	935.0	940.0	285.0	286.5	5.00	1.50	0.18	6.11
2003-52	645.0	710.0	196.6	216.4	65.00	19.80	0.1	3.39
including	670.0	705.0	204.2	214.9	35.00	10.70	0.14	4.68
including	670.0	685.0	204.2	208.8	15.00	4.60	0.19	6.6
including	675.0	685.0	205.7	208.8	10.00	3.00	0.23	8.03
2003-53	no significant mineralization							

24 APPENDIX 4: List of the Sterling Claims

Table 24.1 List of the Sterling Property Claims

Name	BLM Title Number	County Record
B. BRUCE	821257	499729
HOPE 1	187937	BOOK 301 PAGE 342
HOPE 2	187938	BOOK 301 PAGE 343
HOPE 3	187939	BOOK 301 PAGE 344
HOPE 4	187940	BOOK 301 PAGE 345
HOPE 5	187941	BOOK 301 PAGE 346
HOPE 6	187942	BOOK 301 PAGE 347
HOPE 7	187943	BOOK 301 PAGE 348
HOPE 8	187944	BOOK 301 PAGE 349
HOPE 9	187945	BOOK 301 PAGE 350
HOPE 10	187946	BOOK 301 PAGE 351
HOPE 11	187947	BOOK 301 PAGE 352
HOPE 12	187948	BOOK 301 PAGE 353
HOPE 13	187949	BOOK 301 PAGE 354
HOPE 14	155225	BOOK 272 PAGE 608
HOPE 15	155226	BOOK 272 PAGE 609
HOPE 16	155227	BOOK 272 PAGE 610
HOPE 17	187950	BOOK 301 PAGE 355
HOPE 18	187951	BOOK 301 PAGE 356
HOPE 19	155228	BOOK 272 PAGE 611
HOPE 20	187952	BOOK 301 PAGE 357
HOPE 21	187953	BOOK 301 PAGE 358
HOPE 22	155229	BOOK 272 PAGE 612
HOPE 24	187954	BOOK 301 PAGE 359
HOPE 25	187955	BOOK 301 PAGE 360
HOPE 26	187956	BOOK 301 PAGE 361
HOPE 27	187957	BOOK 301 PAGE 362
HOPE 28	187958	BOOK 301 PAGE 363
HOPE 29	187959	BOOK 301 PAGE 364
HOPE 30	187960	BOOK 301 PAGE 365
HOPE 31	187961	BOOK 301 PAGE 366
HOPE 32	187962	BOOK 301 PAGE 367
HOPE 33	187963	BOOK 301 PAGE 368
HOPE 34	155230	BOOK 272 PAGE 613
HOPE 36	155231	BOOK 272 PAGE 614
HOPE 37	155232	BOOK 272 PAGE 615
HOPE 38	155233	BOOK 272 PAGE 616
HOPE 39	155234	BOOK 272 PAGE 617
HOPE 40	155235	BOOK 272 PAGE 618
HOPE 47	155236	BOOK 272 PAGE 619
HOPE 48	155237	BOOK 272 PAGE 620
HOPE 49	155238	BOOK 272 PAGE 621
HOPE 50	155239	BOOK 272 PAGE 622

Name	BLM Title Number	County Record
HOPE 51	155240	BOOK 272 PAGE 623
HOPE 52	155241	BOOK 272 PAGE 624
HOPE 53	155242	BOOK 272 PAGE 625
HOPE 59	155243	BOOK 273 PAGE 1
HOPE 60	155244	BOOK 273 PAGE 2
HOPE 61	155245	BOOK 273 PAGE 3
HOPE 62	155246	BOOK 273 PAGE 4
HOPE 63	155247	BOOK 273 PAGE 5
LC#01	883243	606785
LC#02	883244	606786
LC#03	883245	606787
LC#04	883246	606788
LC#05	883247	606789
LC#06	883248	606790
LC#07	883249	606791
LC#08	883250	606792
LC#09	883251	606793
LC#10	883252	606794
LC#11	883253	606795
LC#12	883254	606796
LC#13	883255	606797
LC#14	883256	606798
LC#15	883257	606799
LC#16	883258	606800
LC#17	883259	606801
LC#18	883260	606802
LC#19	883261	606803
LC#20	883262	606804
LC#21	883263	606805
LC#22	883264	606806
LC#23	883265	606807
LC#24	883266	606808
LC#25	883267	606809
LC#26	883268	606810
LC#27	883269	606811
LC#28	883270	606812
LC#29	883271	606813
LC#30	883272	606814
LC#31	883273	606815
LC#32	883274	606816
LC#33	883275	606817
LC#34	883276	606818
LC#35	883277	606819
LC#36	883278	606820
LC#37	883279	606821
LC#38	883280	606822
LC#39	883281	606823
LC#40	883282	606824

Name	BLM Title Number	County Record
LC#41	883283	606825
LC#42	883284	606826
LC#43	883285	606827
LC#44	883286	606828
LC#45	883287	606829
LC#46	883288	606830
LC#47	883289	606831
LC#48	883290	606832
LC#49	883291	606833
LC#50	883292	606834
LC#51	883293	606835
LC#52	883294	606836
LC#53	883295	606837
LC#54	883296	606838
LC#55	883297	606839
LC#56	883298	606840
LC#57	883299	606841
LC#58	883300	606842
LC#59	883301	606843
LC#60	883302	606844
LC#61	883303	606845
LC#62	883304	606846
M. CIGAR	821259	499731
NANCY 1	348784	BOOK 504 PAGE 386
NANCY 2	348785	BOOK 504 PAGE 387
NANCY 3	348786	BOOK 504 PAGE 388
NANCY 4	348787	BOOK 504 PAGE 389
NANCY 5	348788	BOOK 504 PAGE 390
NANCY 6	348789	BOOK 504 PAGE 391
NANCY 7	348790	BOOK 504 PAGE 392
NANCY 8	348791	BOOK 504 PAGE 393
NANCY 9	348792	BOOK 504 PAGE 394
NANCY 10	348793	BOOK 504 PAGE 395
NANCY 11	348794	BOOK 504 PAGE 396
NANCY 12	348795	BOOK 504 PAGE 397
P. BOB #1A	368265	-
RF #01	821260	499732
RF #02	821261	499733
RF #03	821262	499734
RF #04	821263	499735
RF #05	821264	499736
RF #06	821265	499737
RF #07	821266	499738
RF #08	821267	499739
RF #09	821268	499740
RF #10	821269	499741
RF #11	821270	499742
RF #12	821271	499743

Name	BLM Title Number	County Record
RF #13	821272	499744
RF #14	821273	499745
RF #15	821274	499746
RF #16	821275	499747
RF #17	821276	499748
RF #18	821277	499749
RF #19	821278	499750
RF #20	821279	499751
RF #21	821280	499752
RF #22	821281	499753
RF #23	821282	499754
RF #24	821283	499755
S. AL	821258	499730
S. BILLIE	821256	499728
SMJV # 1	543849	BOOK 676 PAGE 196
SMJV # 2	543850	BOOK 676 PAGE 197
SMJV # 3	543851	BOOK 676 PAGE 198
SMJV # 4	543852	BOOK 676 PAGE 199
SMJV # 5	543853	BOOK 676 PAGE 200
SMJV # 6	543854	BOOK 676 PAGE 201
SMJV # 7	543855	BOOK 676 PAGE 202
SMJV # 8	543856	BOOK 676 PAGE 203
SMJV # 9	543857	BOOK 676 PAGE 204
SMJV #10	543858	BOOK 676 PAGE 205
SMJV #11	543859	BOOK 676 PAGE 206
SMJV #12	543860	BOOK 676 PAGE 207
SMJV #13	543861	BOOK 676 PAGE 208
SMJV #14	543862	BOOK 676 PAGE 209
SMJV #15	543863	BOOK 676 PAGE 210
SMJV #16	543864	BOOK 676 PAGE 211
SMJV #17	543865	BOOK 676 PAGE 212
SMJV #18	543866	BOOK 676 PAGE 213
SMJV #19	543867	BOOK 676 PAGE 214
SMJV #20	543868	BOOK 676 PAGE 215
SMJV #21	543869	BOOK 676 PAGE 216
SMJV #22	543870	BOOK 676 PAGE 217
SMJV #23	543871	BOOK 676 PAGE 218
SMJV #24	543872	BOOK 676 PAGE 219
STIRLING 1	119188	BOOK 162 PAGE 366
STIRLING 2	119189	BOOK 162 PAGE 367
STIRLING 3	119190	BOOK 162 PAGE 368
STIRLING 4	119191	BOOK 162 PAGE 369
STIRLING 5	119192	BOOK 162 PAGE 370
STIRLING 6	119193	BOOK 162 PAGE 371
STIRLING 7	119194	BOOK 162 PAGE 372
STIRLING 8	119195	BOOK 162 PAGE 373
STIRLING 9	119196	BOOK 162 PAGE 374
STIRLING 10	119197	BOOK 162 PAGE 375

Name	BLM Title Number	County Record
STIRLING 11	119198	BOOK 162 PAGE 376
STIRLING 12	119199	BOOK 162 PAGE 377
STIRLING 13	119200	BOOK 162 PAGE 378
STIRLING 14	119201	BOOK 162 PAGE 379
STIRLING 15	119203	BOOK 162 PAGE 381
STIRLING 15A	119202	BOOK 162 PAGE 380
STIRLING 16	119204	BOOK 162 PAGE 382
STIRLING 17	119205	BOOK 162 PAGE 383
STIRLING 18	119206	BOOK 162 PAGE 384
TC #01	821284	499756
TC #02	821285	499757
TC #03	821286	499758
TC #04	821287	499759
WILLIE 1	155248	BOOK 272 PAGE 596
WILLIE 2	155249	BOOK 272 PAGE 597
WILLIE 3	155250	BOOK 272 PAGE 598
WILLIE 4	155251	BOOK 272 PAGE 599
WILLIE 5	155252	BOOK 272 PAGE 600
WILLIE 6	155253	BOOK 272 PAGE 601
WILLIE 7	155254	BOOK 272 PAGE 602
WILLIE 8	155255	BOOK 272 PAGE 603
WILLIE 9	155256	BOOK 272 PAGE 604
WILLIE 10	155257	BOOK 272 PAGE 605
WILLIE 11	155258	BOOK 272 PAGE 606
WILLIE 12	155259	BOOK 272 PAGE 607