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Gryphon Gold Corporation
Borealis Mining Company
Canadian NI 43-101
Technical Report on the Mineral Resources of the Borealis Gold Project Located in Mineral County, Nevada, USA

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1.0 Executive Summary

1.1 Introduction

This technical report has been prepared for filing pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators in connection with resource estimates and certain other information relating to Gryphon Gold Corporation's (Gryphon Gold) Borealis gold property. The format and content of this report are intended to conform to Form 43-101F1, Technical Report.

The purpose of this report is to update the Borealis Gold Project mineral resources based on the estimates, completed in March 2006, which have been modified and corrected. The previous resource estimate as reported in *Technical Report on the Mineral Resources of the Borealis Gold Project Located in Mineral County Nevada, USA* (May 2005) was updated based on new drilling, sampling, and geologic interpretations. This update was reported in *Technical Report on the Mineral Reserves and Development of the Borealis Gold Project, Located in Mineral County Nevada, USA* (August 2006). The effective date of the resource estimate for this report is March 31, 2006.

Based on preliminary review of the new drilling after the March 2006 date, it is evident that significant new sulfide gold resources are being defined at the north end of the Graben deposit as it is presently known. That drilling, which is not included in the resource estimate presented in this report, requires additional resource modeling, analysis, and study before any additional resources attributable to that drilling may be added to the borealis resource base.

1.1.1 Terms of Reference

Borealis Mining Company (BMC), the wholly owned Nevada operating subsidiary of Gryphon Gold Corporation, proposes to continue exploration in the search for more resources through drilling and sampling and other geological and geophysical activities. Additional potentially mineable resources are required prior to consideration of re-starting gold and silver mining and ore processing activities at the Borealis Mine Site on the Walker Lane gold belt. The principal operating permits have been granted for a future proposed mining operation.

1.1.2 Principal Contributions to this Technical Report

Ore Reserves Engineering (O.R.E.), working closely with Gryphon Gold and its other consultants, has prepared new resource models and compiled this technical report on Borealis. Additional input was provided by Knight Piésold and Co. (Knight Piésold) regarding environmental, permitting, and metallurgical issues. In addition, Dr. Roger Steininger, CPG was the Consulting Chief Geologist in regard to geology, sampling, exploration, and mineral resource estimates. The principal author of this technical report is Mr. Alan C. Noble, P.E., Principal Mining Engineer, O.R.E., a Qualified Person for the purpose of Canadian NI43-101, Standards of Disclosure for Mineral Projects. Mr. Noble and Mr. Jaye Pickarts, P.E., Principal Metallurgical Engineer, Knight Piésold and Co., individually visited the Borealis property on several occasions during 2004 and 2005 for the duration of one day in each instance; they observed the district geologic setting and existing site conditions, and Mr. Pickarts reviewed selective reverse circulation drill-sample intercepts of the mineralization for metallurgical purposes only. Dr. Steininger visited the Borealis property numerous times during 2003, 2004, 2005, and 2006.

In addition, AMEC Mining and Metals Consulting, of Lakewood, Colorado performed a suite of resource model checks to verify the resource estimates. These checks indicate that the resource estimate was done "in accordance with industry standard practices."

1.1.3 Basis of Study

The scope of work for this study includes revision of the resource estimates stated in the previous technical report dated August 15, 2006 and titled *Gryphon Gold Corporation Borealis Mining Company Canadian NI43-101 Technical Report on the Mineral Reserves and Development of the Borealis Gold Project Located in Mineral County, Nevada, USA*. References to mineral reserves and development have been removed from the above report following a decision by Gryphon management to delay development of the Borealis Gold Project.

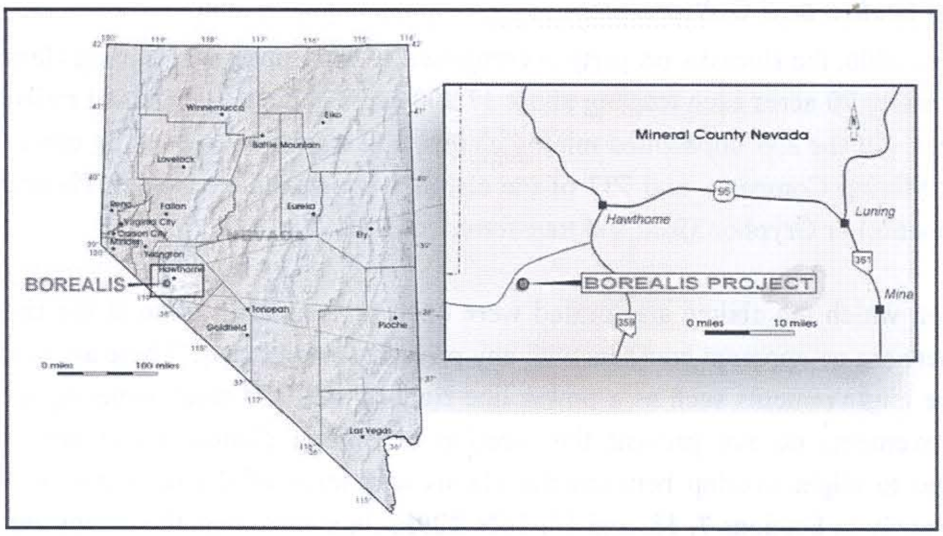
Revised resource models for each of the gold deposits have been developed for this study and are based on preexisting and new drilling in the areas of the deposits considered for mining.

Results from the 2005-06 metallurgical test program (completed by McClelland Metallurgical Laboratories in Reno, Nevada) using material collected from development drilling and surface sampling have been utilized to support assumptions based on approximate production reports of 10 years of historical heap leaching activities at the mine in the 1980s.

The units commonly used in the United States, dry short tons of 2,000 pounds (tons), troy ounces per short ton (opt), miles, feet, etc., are the major units used in this report. Where metric units are used, such is noted.

1.2 Project Description and Location

The Borealis Gold Project is located in western Nevada, approximately 16 road miles southwest of the town of Hawthorne in the Walker Lane mineral belt and 12 miles northeast of the California border; see Figure 1.1 below. Hawthorne is 133 highway miles southeast of Reno and 314 highway miles northwest of Las Vegas.



(Gryphon Gold, 2005)

Figure 1.1 - Location Map of the Borealis Project

At Borealis, it is proposed that exploration will continue for additional potentially mineable resources. If sufficient resources are found and an open-pit, heap-leach operation can be considered, gold-bearing material would be mined from potential new pits, expansion of existing pit areas, and piles of previously processed ore and dump material. The material would be excavated by a conventional mining equipment fleet suitably sized for the scale of operation. The ore would be crushed, agglomerated with lime, cyanide, and other reagents, and stacked on a lined pad where it would be leached to recover contained gold and silver.

Reclamation of the surface disturbance caused by exploration road and drill-site construction is being completed contemporaneously with the proposed exploration operations as described in the Plan of Operations approved by the U.S. Forest Service and the Reclamation permit from the Nevada Division of Environmental Protection (in June 2006). Bonds have been and will continue to be posted with the U.S. Forest Service to ensure performance under the approved reclamation plan.

The principal operating permits have been granted for the proposed mining operation. Acquisition of minor approvals, such as the artificial pond permit from Nevada Department of Wildlife (NDOW), must be accomplished prior to project development and operation. These approvals are believed to be straightforward to obtain. All approved permits are in current status and can be maintained with the appropriate fees being updated on an annual basis.

1.2.1 Land Status and Ownership

As of August 2006, the Borealis property is comprised of 859 unpatented mining claims (Plate 2) of approximately 20 acres each totaling about 17,200 acres and one unpatented millsite claim of about 5 acres. Of the 859 unpatented mining claims, 122 claims are owned by others but leased to Borealis Mining Company, and 737 of the claims were staked by Golden Phoenix Minerals (Golden Phoenix) or Gryphon Gold and transferred to BMC.

The lands on which the claims are located were open to mineral location at the time of claim staking. There are no apparent conflicts with any privately owned land. There are some overlaps with surface improvements such as a power line right-of-way and stock watering facilities, but those improvements do not prevent the location of mining claims. There are some minor conflicts due to slight overlap between the claims and some of the competitor-owned RAM claims, primarily in Sections 7, 18, and 19, T6N R29E. In some cases, the claims are senior and would control the ground in conflict, and in some cases, the opposite is true. However, all conflicts appear to be limited to the edges of adjoining claims and thus are likely insignificant. All of the claims are shown on the Bureau of Land Management (BLM) records as being in good standing.

Mineral rights, through BMC as the owner or lessee of the claims, allow BMC to explore, develop, and mine the Borealis property subject to the prior procurement of required operating permits and approvals, compliance with the terms and conditions of the mining lease, and compliance with applicable federal, state, and local laws, regulations, and ordinances.

The 122 leased claims are owned by John W. Whitney, Hardrock Mining Company, and Richard J. Cavell, who are together referred to as the "Borealis Owners." BMC leases the claims from the Borealis Owners under a Mining Lease dated January 24, 1997 and amended as of February 24, 1997. The mining lease was assigned to BMC by the prior lessee, Golden Phoenix. The mining lease contains an "area of interest" provision such that any new mining claims located or acquired by BMC within the area of interest after the date of the mining lease shall automatically become subject to the provisions of the mining lease.

The term of the mining lease extends to January 24, 2009 and continues indefinitely thereafter for so long as any mining, development, or processing is being conducted on the leased property on a continuous basis.

The remainder of the Borealis property consists of 737 unpatented mining claims and one unpatented millsite claim staked by Golden Phoenix, Gryphon Gold, or BMC. Claims staked by Golden Phoenix were transferred to BMC in conjunction with the January 28, 2005 purchase of all of Golden Phoenix's interest in the Borealis property. A total of 263 claims of the total 737 claims held by Gryphon Gold are contiguous with the claim holdings, are located outside of the area of interest, and are not subject to any of the provisions of the lease.

All of the mining claims (including the owned and leased claims) are unpatented such that paramount ownership of the land is in the United States of America. Claim maintenance payments and related documents must be filed annually with the BLM and with Mineral County, Nevada to keep the claims from terminating by operation of law. BMC is responsible for those actions. At present, the estimated annual BLM maintenance fees are $125 per claim, or $109,375 per year for all of the Borealis property claims (859 unpatented mining claims plus one millsite claim).

1.2.2 Royalty

Pursuant to the Borealis Mining Lease, a portion of the Borealis Property which includes the 122 original core claims is subject to a net smelter return (NSR) royalty which is computed as being the average monthly price of gold divided by 100 with the result expressed as a percentage. The NSR cash value is determined by applying the resulting percentage to the price of gold. The initial mining operations will be located on the 122 claims in the core group.

As described in the terms of the Borealis Mining Lease, the Borealis property is currently subject to advance monthly royalty payments of approximately $8,614.00 per month. These advance royalty payments are subject to adjustments in the Consumer Price Index. The Borealis Mining

Lease expires in 2009 but is extendible year to year thereafter so long as mining activity continues on the Borealis Property. Any commercial production from adjacent claims owned by others within the Borealis project area will be subject to a 2 percent net smelter return royalty.

1.3 Access, Climate, Local Resources, and Infrastructure

Access to the Borealis property is gained from the Lucky Boy Pass gravel road located about 2 miles south of Hawthorne from State Highway 359.

The nearest available services for both mineral exploration and possible future mine development and mine operations are in the small town of Hawthorne, located about 16 road miles to the northeast of the project area via a wide, well maintained gravel road. Hawthorne has substantial housing, adequate fuel supplies, and a sufficient infrastructure available to take care of basic needs. For other goods and services, sources in Reno and elsewhere can supply any material required for the development project or mine operations.

The Borealis project area had been reclaimed to early 1990s standards. No buildings or power lines remain on the surface although a major electrical trunk line crosses the property and lies about 2 miles from the former mine site. The pits and the project boundary are fenced for public safety. Currently, access to the pits and heap leaching areas is gained through a locked gate. All currently existing roads in the project area are two-track roads with most located on old haul roads that have been reclaimed. Water for the historical mining operations was supplied from a well field in a topographically isolated basin located approximately 5 miles south of the planned mine site.

The elevation on the property ranges from 7,200 ft to 8,200 ft above sea level. Topography ranges from moderate and hilly terrain with rocky knolls and peaks to steep and mountainous terrain in the higher elevations. This relatively high elevation produces moderate summers with high temperatures in the 90°F range. Winters can be cold and windy with temperatures dropping to 0°F. Average annual precipitation is approximately 10 inches, part of which occurs as up to 60 inches of snowfall. Historically in the 1980s, the mine operated throughout the year with only limited weather related interruptions.

The predominate vegetation species include pinion pine, Utah juniper, greasewood, a variety of sagebrush species, and crested wheat grass and fourwing saltbush from previous reclamation activities (JBR Environmental Consultants, 2004).

1.4 Property History

In 1978, the Borealis gold deposit was discovered by S. W. Ivosevic (1979), a geologist working for Houston International Minerals Company (a subsidiary of Houston Oil and Minerals Corporation). The property was acquired through a lease agreement with the Whitney Partnership, which later became the Borealis Partnership, following Houston's examination of the submitted property. Initial discovery of ore-grade gold mineralization in the Borealis district and subsequent rapid development resulted in production beginning in October 1981 as an open-pit mining and heap-leaching operation. Tenneco Minerals (Tenneco) acquired the assets of Houston International Minerals in late 1981 and continued production from the Borealis open-pit mine. Subsequently, several other gold deposits were discovered along the generally northeast-striking Borealis trend and mined by open pit methods. Also, several small deposits were discovered further to the west in the Cerro Duro area. Tenneco's exploration in early 1986 discovered the Freedom Flats deposit and then in October 1986 Echo Bay Mines (Echo Bay) acquired the assets of Tenneco Minerals.

With the completion of mining of the readily available oxide ore in the Freedom Flats deposit and other deposits in the district, active mining was terminated in January 1990, and leaching operations ended in late 1990. All eight open pit operations are reported to have produced 10.7 million tons of ore averaging 0.059 oz of gold per ton (opt Au) (Golden Phoenix Minerals, 2000). Gold recovered from the material placed on heaps was approximately 500,000 oz plus an estimated 1.5 million oz of silver. Reclamation of the closed mine began immediately and continued for several years.

Echo Bay decided not to continue with its own exploration, and the property was farmed out as a joint venture in 1990-91 to Billiton Minerals, which drilled 28 reverse circulation (RC) exploration drill holes on outlying targets for a total of 8,120 ft. Billiton quickly dropped the property with no retained interest. Santa Fe Pacific Mining, Inc. then entered into a joint venture with Echo Bay in 1992-93 (Kortemeier, 1993), compiled data, constructed a digital drill hole database, and drilled 32 deep RC and core holes, including a number of holes into the Graben deposit. Santa Fe Pacific had success in identifying new sulfide-zone gold mineralization but terminated the joint venture because of reduced exploration budgets. Echo Bay completed all reclamation requirements in 1994, showcased the reclamation, and then terminated its lease agreement with the Borealis Partnership in 1996.

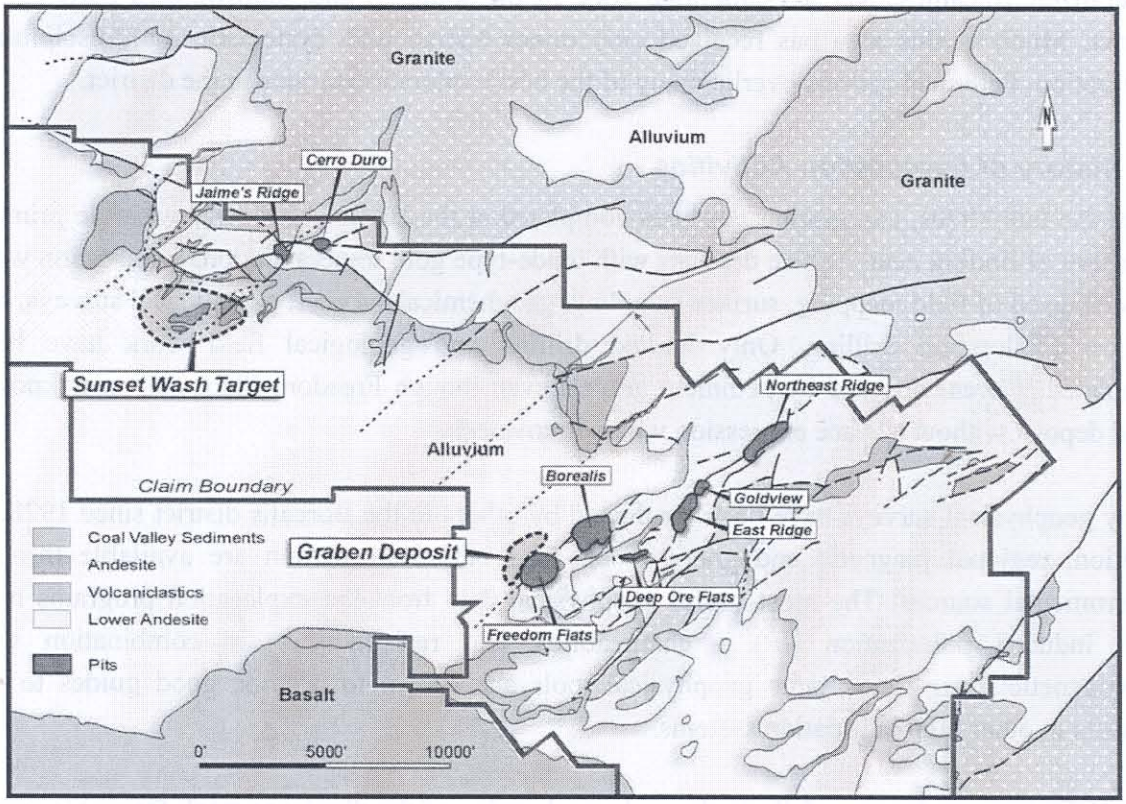
In late 1996, J.D. Welsh & Associates, Inc. negotiated an option-to-lease agreement for the Borealis property from the Borealis Partnership and immediately joint ventured the project with Cambior Exploration U.S.A., Inc (Cambior). During 1996, J.D. Welsh had drilled 11 auger holes (totaling 760 ft) into Heap 1 to determine if there was sufficient remaining gold to consider reprocessing the heap. During 1997, Cambior performed a major data compilation program and several gradient IP surveys. In 1998, the company drilled 10 holes, which succeeded in extending the Graben deposit and in identifying new zones of gold mineralization near Sunset Wash. Cambior terminated the joint venture in late 1998 because of severe budget constraints.

During the Cambior joint venture period in late 1997, Golden Phoenix entered into an agreement to purchase a portion of J.D. Welsh's interest in the property. J.D. Welsh sold his remaining interest in the property to a third party, which in turn sold it to Golden Phoenix, so that the company controlled 100 percent interest in the lease beginning in 2000 (Golden Phoenix Minerals, 2000). Golden Phoenix maintained the property during the years of low gold prices, compiled a database and validated the drill hole data, and developed new mineral resource estimates for the entire property.

In July 2003, the Borealis property was joint-ventured by Golden Phoenix with BMC, which is a wholly owned subsidiary of Gryphon Gold Corporation. BMC, the operator of the joint venture, originally controlled the property through an option agreement with Golden Phoenix whereby BMC could earn a 70 percent joint venture interest in the property. BMC had the right to acquire its interest in the Borealis property with a combination of qualified expenditures on work programs, and/or making payments to Golden Phoenix, and/or delivering a feasibility study over a period of five and one-half years beginning July 2003. In January 2005, BMC purchased 100 percent interest in the lease agreement, and Golden Phoenix surrendered its interest in the property. During 2004 and 2005-06, Gryphon Gold conducted two drilling programs, the second of which is continuing as of the date of this report.

1.5 Geology and Mineralization

Epithermal gold and silver mineralization at Borealis is hosted by Miocene pyroclastics/tuffs, andesite flows, dacite flows, and laharic breccias. These volcanic units together exceed 1,200 ft in thickness, strike northeasterly, and dip shallowly to the northwest. Pediment gravels cover the volcanic rocks at lower elevations along the mountain front where drilling has identified large areas of hydrothermal alteration. Structures are dominantly northeast-striking faults with steep dips and generally west-northwest-striking faults with steep southerly dips. Both of these fault systems lie on regional trends of known mineralized systems; thus, Borealis appears to be at a major intersection of structural and mineralized trends. Another strong control for alteration/mineralization within the district is a series of north to north-northeast-trending structures that host the Graben deposit and other exploration targets. A number of these pre-mineral faults in the district may have been feeders for high-sulfidation hydrothermal systems. Figure 1.2 below illustrates the local geology of the Borealis district and project area.



(Source: Echo Bay Mines, circa 1989, modified to reflect new property boundaries by Gryphon Gold, 2005)

Figure 1.2 - Local Geology of the Borealis District and Project Area

Gold mineralization is often associated with hydrothermal breccias, pervasive silica, and sulfides, principally pyrite. It is likely that the higher-grade deposits may have been localized along the intersections of small second-order faults with the major feeder structures. Many of the oxide deposits at the project site, such as the Borealis deposit, have a flat-lying tabular shape and appear to have formed within gently dipping volcanic units. The pyroclastic/tuff unit is the most favorable host for gold mineralization. Alteration and mineralization closely associated with ore-grade material are fine-grained vuggy to massive silica and pyrite often with and enveloped by advanced argillic alteration including alunite-dickite. Outward from the central silica zone is kaolinite-quartz-pyrite-dickite-diaspore, surrounded by montmorillonite-pyrite, and an outermost broad propylitic halo with minor pyrite. Large bodies of opaline and microcrystalline silica occur peripheral to some mineralized zones. During its emplacement, finely disseminated gold found in the Borealis mineralizing system was enclosed in pyrite, and through natural weathering and oxidation, this gold was released and made available to extraction by cyanidation. Gold still bound in pyrite or pyrite-silica is not recovered easily by a simple cyanide heap-leach operation. Widely spaced drilling indicates that pediment gravels cover the majority of the altered-mineralized volcanics over a 7-mile-long zone in the southern and southwestern parts of the district. Much of this area has received only minor testing with systematic multidisciplinary exploration. Pediment gravels overlie many of the best exploration targets in the district.

1.6 History of Exploration Activities

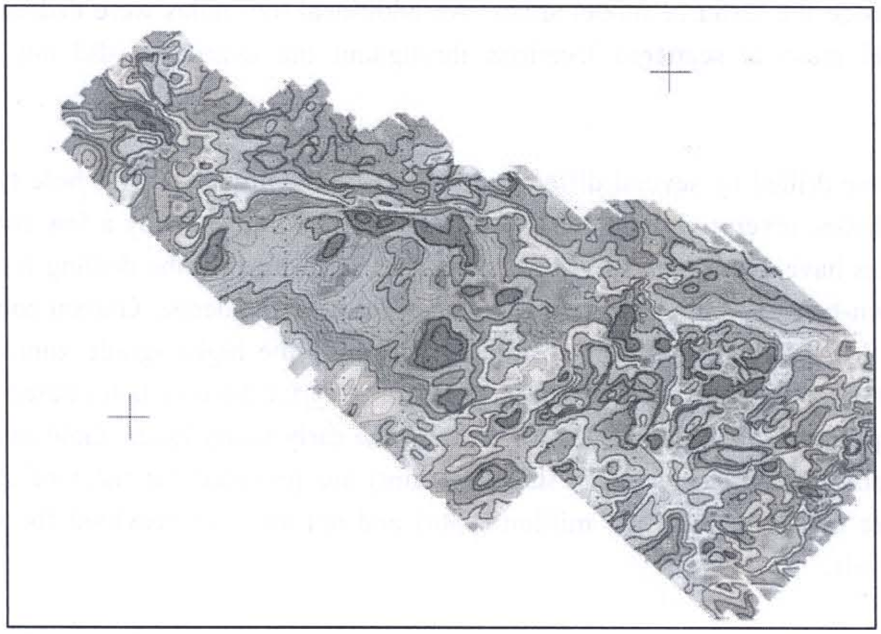
Since the late 1970s, exploration has been completed at the Borealis property with the primary objective of finding near-surface deposits with oxide-type gold mineralization. Exploration work has consisted of field mapping, surface sampling, geochemical surveys, geophysical surveys, and shallow exploration drilling. Only limited drilling and geological field work have been completed in areas covered by pediment gravels even though Freedom Flats was an unknown, blind deposit without surface expression when discovered.

Many geophysical surveys have been conducted by others in the Borealis district since 1978. In addition, regional magnetic and gravity maps and other information are available through governmental sources. The most useful geophysical data from the exploration programs have been induced polarization (IP) – chargeability and resisitivity – in combination with aeromagnetic data. These same geophysical tools are known to provide good guides to ore deposits in other high-sulfidation systems.

Resistivity was used successfully in the early exploration of the district to track favorable trends of strong silica alteration that is commonly associated with gold deposits. Chargeability anomalies were found later with the use of IP surveys that penetrated deeper to the sulfide zones and have been found to reflect strong sulfide systems, for example, the Graben. Aeromagnetic data provide a great tool to identify potential hydrothermal alteration systems as magnetic lows, many of which are shown in medium to dark blue on Figure 1.3. An example of an interpretation of resistivity data are shown on Figure 1.4.

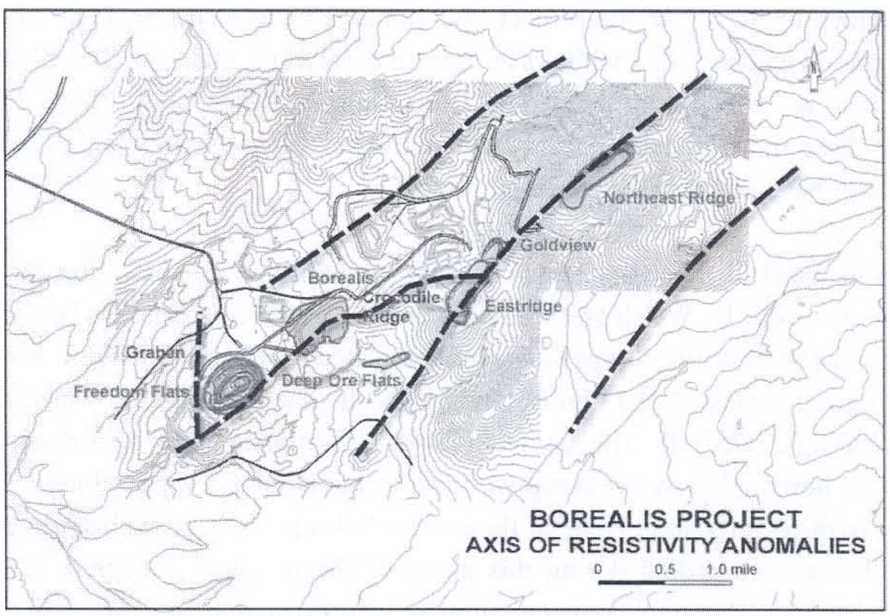
Areas with known occurrences of gold mineralization, which have been defined by historical exploration drilling and have had historical mine production include East Ridge and Gold View, Northeast Ridge, Freedom Flats, Borealis, Deep Ore Flats (also known as Polaris), Cerro Duro, and Jaimes Ridge. All of these deposits still have gold mineralization remaining in place, contiguous with the portions of each individual deposit which has been mined.

Discovery potential on the Borealis property includes oxidized gold mineralization adjacent to existing pits, new oxide gold deposits at shallow depth within the large land position, gold associated with sulfide minerals below and adjacent to the existing pits, gold in possible feeder zones below surface mined ore, and deeper gold-bearing sulfide mineralization elsewhere on the property. Both oxidized and sulfide-bearing gold deposits exhibit lithologic and structural controls for the locations and morphologies of the gold deposits



(Source: Echo Bay Mines, circa 1989)

Figure 1.3 - 1989 Borealis District Aeromagnetic Survey Map



(Source: J. Anzman and Gryphon Gold, 2005)

Figure 1.4 - Selected Resistivity Anomaly Trends of the Borealis District

1.7 Drill Hole Database

The historical drill hole database used for the Borealis project resource models contains 2,417 drill holes with a total drilled length of 671,595 ft, including 1,076 holes in the Southwest model area, 525 in the Northeast model area, and 346 in the West model area. A total of 1,947 holes were drilled inside the resource model areas. An additional 470 holes were drilled outside the resource model areas at scattered locations throughout the district or did not have collar coordinates.

These holes were drilled by several different operators on the property. Drill hole types include diamond core holes, reverse circulation (RC) holes, and rotary holes. Only a few core holes and deeper RC holes have down-hole survey information. Since most of the drilling is shallow, the absence of down-hole survey information is not significant. In the deeper Graben zone, however, non-surveyed drill holes may locally distort the shape of the higher-grade zones. Drill hole sampling lengths are generally 5 ft for the RC holes but vary for the core holes based on geologic intervals. Sampling length is up to 25 ft for some of the early rotary holes. Gold assays in parts per billion (ppb) and troy ounces per short ton (opt) are provided for most of the sampling intervals. Silver assays in parts per million (ppm) and opt are also provided for some of the sampling intervals.

Mineralized zones covered by these drill holes include the Freedom Flats, Graben, Borealis, Polaris, East Ridge, Gold View, and Northeast Ridge. Except for Graben, all have been partially mined by previous operators of the project; the Borealis and Deep Ore Flats (also known as Polaris) pits have been backfilled with waste from the Freedom Flats pit. The drill holes in the west model area are mostly in the Cerro Duro, Jaimes Ridge, and Purdy Peak area, at approximately three miles distant, northwest of the main Borealis Mine site. Cerro Duro and Jaimes Ridge also have had previous open-pit mining.

Also included in the drill hole data but in a separate electronic database, are the auger holes drilled in the heaps by J. D. Welsh and the sonic drilling of the five Borealis heaps and parts of the Freedom Flats and Borealis dumps that were completed by Gryphon Gold in May 2004. The J. D. Welsh program consisted of 11 holes totaling 760 ft. The Gryphon Gold program consisted of 32 holes totaling 2,475.5 ft. The Gryphon Gold dump holes were drilled deep enough to penetrate the soil horizon below the dump while holes on the heaps were drilled to an estimated 10 to 15 ft above the heap's liner. None of these latter holes penetrated the heap liners. Not all of the permitted holes were drilled during this phase of the program. Rather, a few holes were drilled on each heap and dump to obtain an initial and representative view of grade distribution.

Since the last update to the resource models, as reported in the May 2005 Technical Report, new drilling by Gryphon Gold from early 2005 through November 2006 was added to the drill hole database. The total Company drilling in the database currently includes 170 drill holes and 94,441 ft of drilling. Included in the Gryphon Gold drilling are 54 holes (45,131 ft) that were drilled after March 2005, the effective date of the resource models in this report. The total number of Company drill holes used in the resource models is thus 116 holes and 49,310 ft of drilling.

1.8 Sample Preparation, Analysis, and Security

1.8.1 Historical

The Borealis Mine operated from 1981 through 1990 producing 10.7 million tons of ore averaging 0.059 oz of gold per ton from eight open pits. The mined ore contained 635,000 oz of gold (Eng, 1991) of which approximately 500,000 oz of gold were recovered through a heap leach operation. This historic production can be considered a bulk sample of the deposits validating the database that was used for feasibility studies and construction decisions through the 1980s. With over 2,400 drill holes in the database that was compiled over a 20-year period by major companies, the amount of information on the project is extensive. It is primarily these data that have been used in this study as the foundation of the current mineral resource estimate. The bulk of the data were collected beginning in 1978, the year of discovery of the initial ore-grade mineralization, and was continuously collected through the final year of full production. Subsequent explorers through the 1990s added to the database.

Nothing is known of the sample security arrangements made by the previous operators, but since the mines each produced the amounts of gold predicted or higher, it has been assumed that the security was adequate and it is unlikely that sample security was a problem. The same assumption is true for most of the subsequent explorers of the property – Billiton, Santa Fe Pacific, and Cambior – which were all substantial companies and probably used sound procedures.

1.8.2 2004 Program

An exploration program was undertaken in spring 2004 to confirm the amount and grade of gold-bearing rock that exists on heaps and dumps. The exploration work provided ore samples for metallurgical testwork to define the geotechnical conditions, to obtain sufficient samples to demonstrate the geotechnical characteristics for design purposes in the waste characterization database, and to install baseline groundwater monitoring systems.

As part of this program, a sonic drill rig was used to drill exploratory holes on the five previously leached heaps as well as the Freedom Flats and Borealis Pits waste dumps. A total of 32 holes for a total of 2,475.5 ft were drilled with samples collected and composited for each hole.

Sampling intervals were originally designed to be every 10 ft but were contingent upon drilling conditions. During the drilling process, sample intervals were immediately bagged and sealed when the sample tube was extracted from the hole. Individual runs varied from 1 to 3 ft, which were then combined to produce a sample with an interval length as close to 10 ft as practicable (the combination was completed at American Assay Laboratories [AAL]). Combined intervals varied from 9 ft to 11 ft except at the bottom of a hole where the interval was as short as 4 ft.

When the sample tube was extracted from the hole, the sample was immediately slid into a plastic sleeve that was sealed and marked with the drill hole number and footage interval. These plastic sample sleeves were not reopened until they reached the analytical lab. All of the drill procedures and handover to the analytical lab were monitored by an independent geologist hired through Geotemps Inc. The contract field geologist also maintained lithologic logs for each drill hole. A non-blind standard was added as the last sample of each hole, which was obvious to the lab since the standard was in a pulp bag although the lab did not know the gold value of the standard.

All samples were submitted to American Assay Laboratories Inc. (AAL) of Sparks, Nevada. At the lab, each of the individual samples was combined into an analytical sample that approximated 10-ft intervals as outlined above per instructions from the geologist. Each analytical sample was split in a rotary splitter with one-fifth of the sample removed for assay and the remaining four-fifths retained for metallurgical testing. Each analytical split was weighed, dried, and weighed again. The difference between the two weights represents the amount of water in the original sample. Each dried sample was crushed to less than ¼ inch, and a 300- to 500-gram sample was riffle split off for assay. The remaining sample was retained at the lab. Each assay sample was pulverized and assayed for gold and silver by one-assay-ton fire assay and a two-hour 200-gram cyanide shake assay for dissolvable gold.

As part of the quality control program, standards were submitted to AAL with each drill hole, several assayed pulps and two standards were submitted to ALS Chemex, and three of the duplicates and two standards were submitted to ActLabs-Skyline. The average difference in analytical results from assays on the same pulps is less than 0.001 opt Au, and the standard deviation of the differences is 0.003 opt Au, which is extremely close and within the level of accuracy of the assaying method.

All samples were collected in plastic sample bags, sealed, and securely stored until picked up by the transport arranged under the authority of AAL. AAL maintained control of all samples from the pickup at Borealis until analytical work was completed. It is the opinion of Dr. Steininger, a Qualified Person under the terms of NI 43-101 who supervised this drilling and sampling program, that the security procedures were adequate and properly implemented during the program.

1.8.3 2005 Through November 2006 Program

Sampling procedures at the drill sites and monitoring of assays were standardized through 2005 and through November 2006. Initially, the program consisted of a limited number of standards and duplicates submitted with each drill hole.

Throughout the Borealis reverse circulation (RC) drilling program, samples were collected on 5-ft intervals from each hole starting at the surface through the end of the hole. Material from each 5-ft interval was split to about one-quarter of the original volume at the drilled, then bagged and sealed by the drilling contractor. At the completion of each hole, samples were moved to a secure site on the property where they were held until picked up by assay lab personnel. The assay facility of choice was AAL of Sparks, Nevada.

A blind standard was included at the end of each hole, and from the initial holes, a duplicate sample was collected at the drill and included in the sample sequence as a blind sample.

An assay lab truck and driver collected the drill samples from the Borealis secured storage and transported them to Sparks, Nevada. From the time that the pickup was made, the lab maintained control over the samples until coarse rejects and pulps were returned to the Borealis property. At the lab, each sample was dried and crushed to less than one-quarter inch, and a 300- to 500-gram sample was riffle split off for an assay sample. All assays were one-assay-ton fire assay. The coarse reject was retained at the lab until assaying was completed. Each assay sample was pulverized and assayed for gold and silver by one-assay-ton fire assay.

The quality control program consisted of: (1) standards included with samples from each drill hole, (2) duplicate samples collected at the drill, and (3) duplicate assays as part of the lab's internal control. The assays and these controls were monitored continually by a qualified person. If questionable assays were received, a decision on re-assaying of portions of the hole or the entire hole was made at the time of receipt of the preliminary assays. In general, the quality control samples indicate that both labs produced high-quality assays. The close correlation between assays of the original sample and the duplicate sample indicates that sampling at the drill produced representative samples.

Analytical results of the standards submitted with the drill samples were within two standard deviations of the standard's gold content, which was deemed acceptable. Generally, duplicate assays performed by the lab corresponded well with the original assay. These data indicated that AAL produced acceptable quality assays.

During the early part of the drilling program, a duplicate sample was collected at the drill, initially to ensure that a representative sample was collected. Secondly, these samples were also a check on lab assay reproducibility. Except for three samples, there is an extremely close correlation between the duplicate samples from each hole. This indicates that representative samples were collected at the drill and that the lab was able to produce similar assays for the same drill hole interval. The three samples with wider variations are probably representative of the nature of a gold deposit with occasional coarse gold and wide variations in gold content over short distances.

As a further check on AAL., six drill holes, or portions of holes, were submitted to Inspectorate America Corporation (Inspectorate) for re-assay. Except for one drill hole, there was close correlation in the assays between respective drill hole intervals between the two labs. Overall, the assays from this one hole had a good correlation between labs with a few inconsistencies between the two labs. Some of AAL's assays were higher than Inspectorate's, and for other intervals, the reverse was the case. This suggests that the variations may be related to the natural variability in a gold deposit rather than an assay problem between the labs.

1.9 Data Verification

It is the opinion of the geological Qualified Person that drilling completed by Gryphon Gold verifies historical drilling results in the East Ridge, Northeast Ridge, Borealis, Freedom Flats, and Deep Ore Flats deposit areas.

In addition, the drill hole database was verified by Mr. Steven Craig, a Qualified Person for the purpose of NI 43-101 of Golden Phoenix, during an eight-month intensive effort by reviewing every one of the 2,417 historical drill holes and over 125,000 assays on original sheets and comparing them line by line with the database, ensuring that only accurate information was in the database. Where several valid assays were found for a single interval, they were averaged to determine the grade used in the database. Drill hole collar location surveys on original sheets were also compared to the database information and improved where necessary. Down-hole survey information on original sheets for the deeper holes were also reviewed and compared with the database to ensure its accuracy.

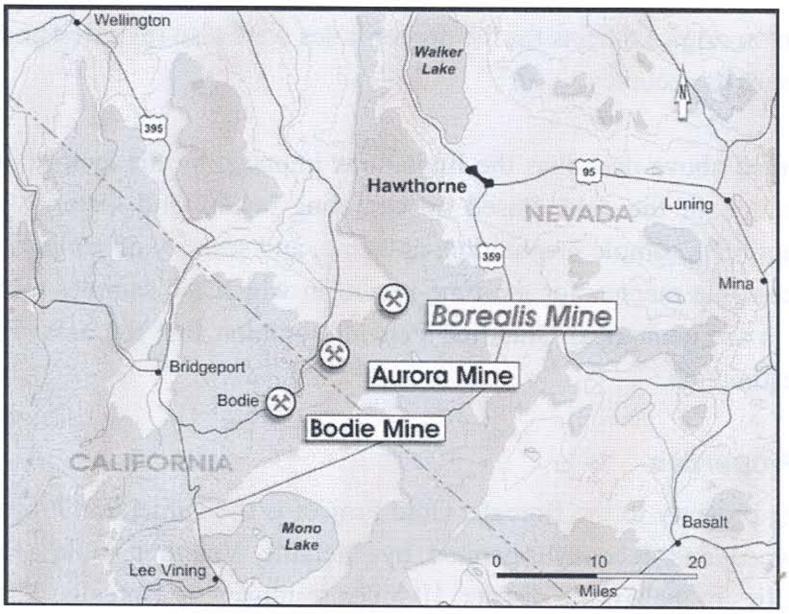
Information presented above describes the limitations imposed by the lack of certain historical records on verification of the data. Based on operating results and historical descriptions, it appears that the sampling, sample preparation, assaying, and security of samples were conducted in an industry acceptable manner for the time period in which the samples were collected and processed, and it is the geological Qualified Person's opinion that the assays are suitable for mineral resource estimation.

1.10 Adjacent Properties

The nearest mining property to the Borealis Gold Project is the Esmeralda Project (formerly the Aurora Mine) owned and recently operated by Metallic Ventures Gold (Figure 1.5). The Esmeralda Project lies in the Aurora district, 10 miles southwest of Borealis. The Aurora district has had historical production of approximately 1.9 million oz of gold and more than 2.4 million oz of silver from as many as 30 veins. Remaining mineral resources reported by Metallic Ventures in early 2003 were 1.3 million oz of gold. The mineralized system is a low-sulfidation type with gold and minor silver in banded quartz-adularia-sericite veins hosted by Tertiary volcanics.

The Bodie district is further southwest, 19 miles from the Borealis district, along the same trend and has a reported 1.5 million oz of gold and nearly 7.3 million oz of silver of past production from a series of veins in Tertiary andesite host rocks. The remaining mineral resources were reported at approximately 1.9 million oz of gold in 1991.

The Bodie, Aurora, Borealis, and other minor districts are aligned along a northeast-southwest trend of mineralized districts commonly referred to as the Aurora-Borealis trend.



(Source: Gryphon Gold, 2005)

Figure 1.5 - Adjacent Properties

1.11 Mineral Processing and Metallurgical Testing

Eight open pit mines were developed at the Borealis Project during its operating years from 1981 to 1990. They include the Borealis, East Ridge, Deep Ore Flats, Gold View, Freedom Flats, Northeast Ridge, Jaimes Ridge, and Cerro Duro mines. Each pit has associated waste rock disposal areas proximal to the mine area. Two of the pits, the Borealis and the Deep Ore Flats, were backfilled with mine waste produced from proximate pits. Processing was by conventional cyanide-agglomerated heap leaching using both permanent and reusable pads. Precious metals were recovered using a Merrill Crowe process.

Historical heap leach operations throughout the 1980s typically produced gold recoveries in the upper 70 to mid-80 percent range with silver recoveries ranging from 15 to 50 percent. These ores were primarily oxide and mixed sulfide and as such required cement agglomeration in order to achieve optimum solution percolation, pH control, and precious metal dissolution. Previous heap leach operations also processed run-of-mine (ROM) ores (uncrushed), which were typically low-grade material that was stacked on the upper lifts of the heap leach pad. Historical gold recoveries for ROM ore ranged from 20 to 50 percent, and silver recoveries were typically less than 20 percent.

1.11.1 Metallurgical Testing

In 2004, the first phase of metallurgical testwork was developed for the exploration drill samples. This work focused on determining the amenability of gold to cyanidation and the effect of particle size on gold recovery. Two hundred forty-nine samples were collected by BMC geological staff from historical leach pad areas and waste dumps for this program.

Subsequent metallurgical testing was developed in 2005 for a Phase 2 program that utilized samples collected from current exploration drilling in fresh gold mineralized zones. A total of 77 bottle roll tests were completed. In addition, four bulk samples were collected from near-surface trenches for column leach tests. There has been no current testwork performed on ROM-sized samples.

Summary Table 1.1 below shows the expected metal recovery from the respective mineralized material locations.

Table 1.1 - Estimated Gold and Silver Recoveries

Area	Range of Au Recovery	Estimated Au Recovery	Range of Ag Recovery	Estimated Ag Recovery
Borealis Upper	62 – 86	78.0	25 – 81	55.3
Borealis Main	62 – 86	78.0	25 – 81	55.3
Deep Ore Flats	59 – 85	74.1	28 – 51	39.0
Freedom Flats	20 – 80	75.0	-	23.2
Gold View/East Ridge	40 – 92	63.4	8 – 33	23.2
Northeast Ridge	37 – 85	70.0	14 – 29	28.4
Middle Ridge	46 – 92	76.3	7 – 60	44.9
Orion's Belt	55 – 94	75.3	52 – 71	54.6
Old Leach Pads	-	43.3	-	23.2
ROM Leach Pads	-	50.9	-	23.2
Dump Material	62 – 86	71.3	25 - 81	55.3

1.11.2 Processing

A typical processing flowsheet for this mineralized material would require crushing in a two-stage crushing system to achieve a size of 80 percent less than ¾ inch. After crushing, the material would be agglomerated and stacked onto the HLP. Barren cyanide solution from the ADR plant is distributed over the material with drip tubes. The pregnant leach solution is then collected pumped to the Adsorption, Desorption and Refining (ADR) Plant where the gold and silver is removed from the solution using a carbon circuit followed by stripping in a traditional pressure Zadra strip circuit. Pregnant solution from the strip circuit is pumped through electrowinning cells where the precious metals are electrically plated out of solution onto steel wool as a metallic sludge. The sludge is placed in a mercury retort for removal of residual mercury and drying. Finally, it is mixed with fluxes and smelted in an induction furnace to produce a gold/silver doré product. The doré product would be shipped offsite for further refining.

As exploration proceeds and if more recoverable silver is found than previously estimated, it is possible that a Merrill Crowe zinc precipitation process may be required in addition to or to replace the carbon adsorption process in order to efficiently recover the silver.

1.12 Mineral Resource Estimates

The mineral resource estimate for the Borealis Gold Project was prepared by Alan C. Noble, P.E. of O.R.E., a Qualified Person under the terms of NI43-101. The study area encompasses the core of the BMC holdings and the principal gold deposits with known mineral resources.

1.12.1 Mineral Resource Model

Two three-dimensional block models were used to estimate the gold resource in the main deposit area – the Northeast model and the Southwest model. A single resource model was used for the West Area deposits. The Southwest and Northeast models used 20×20×20-ft blocks and was rotated so that model north was N50°E. The models overlap slightly to more easily maintain continuity across model boundaries. The West Area model also used 20×20×20-ft blocks but was not rotated.

Drill Hole Data: As of March 2006, there are 2,533 drill holes in the database of which 1,537 intersect zones of mineralization that are included in the resource estimate. Average grades inside the mineralized zones range from 0.007 opt Au to 0.064 opt Au. Variability of assays is moderate to high with coefficients of variation ranging from 1.28 to 4.25 within zones. New drilling by Gryphon Gold during 2005 through March 2006 was added to the drill hole database for this estimate including 116 holes with 49,310 ft of drilling

Mineral Resource Classification: Resource classifications were based on the drill hole grid spacing that was believed necessary to establish the continuity of mineralization (for indicated resource) and to provide reliable estimates for production planning (measured resource).

It is observed that the drill hole spacing in the previously mined areas was generally on an approximate 100-foot grid, that the grade zones were continuous and regular at that spacing, and that estimated resources are close to mine production; therefore, it is concluded that a 100-ft drill grid was acceptable for defining measured resource. A 200-ft minimum grid was used to classify indicated resources based on the good overall continuity of the mineralization. In practice, grade zones were limited also to a small radius around drill holes unless mineralization appeared continuous regardless of drill hole spacing. There were some exceptions to the above rules: A slightly more conservative minimum grid of 75 ft was used for measured resources in the Graben deposit; no measured resource was allowed for alluvium; and no measured or indicated resources were allowed outside the grade zone boundaries. The more conservative parameters are meant to provide more conservative estimates in areas of the deposit where the geologic model is less certain.

Model Results: The mineral resource estimate for the pit areas is summarized in Tables 1.2 and 1.3. In all cases, the quantities shown are for the remaining resource, below the mined-out topography.

The mineral resource estimate for the heaps and dumps is summarized in Tables 1.4 and 1.5 and is based on the estimate of resource in the heaps and dumps completed in April 2005 and on the Gryphon Gold/Welsh drilling. The mineral resource Qualified Person has reviewed this estimate and determined that it is reasonable and complies with the NI 43-101 definitions and current resource estimating criteria.

Dump and heap resource estimates are classified as measured and indicated based on drill hole spacing of approximately 200 ft and projections of less than 200 ft beyond drill holes. Inferred resource estimates are based on metallurgical balances and tonnage estimates based on data from previous operations (Behre Dolbear, 2004) and have not been drill tested.

Table 1.2
Borealis Project March 2006 Mineral Resource Estimate
Summary of Measured and Indicated Mineral Resource - Combined Oxides and Sulfides

Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Measured	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	2,571	0.035	0.161	89,200	413,000
	Crocodile Ridge	0.010	177	0.014	0.186	2,400	33,000
	East Ridge	0.010	2,963	0.018	0.085	52,500	252,000
	Freedom Flats	0.010	2,029	0.054	0.431	108,700	875,000
	Graben	0.010	2,644	0.046	0.166	121,800	440,000
	Middle Ridge	0.010	896	0.014	0.084	12,800	75,000
	Northeast Ridge	0.010	2,400	0.018	0.133	43,800	318,000
	Deep Ore Flats	0.010	1,376	0.020	0.297	27,400	408,000
	Purdys Peak	0.010	473	0.026	0.068	12,100	32,000
	Cerro Duro	0.010	438	0.042	0.557	18,400	244,000
	Jaimes Ridge	0.010	393	0.037	0.117	14,600	46,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured		16,360	0.031	0.192	503,700	3,136,000
Indicated	Alluvium	0.005	760	0.009	0.050	6,500	38,000
	Borealis	0.010	958	0.028	0.103	26,800	99,000
	Crocodile Ridge	0.010	378	0.012	0.148	4,600	56,000
	East Ridge	0.010	3,237	0.015	0.077	49,000	248,000
	Freedom Flats	0.010	1,226	0.030	0.288	37,300	353,000
	Graben	0.010	8,410	0.049	0.171	412,100	1,439,000
	Middle Ridge	0.010	807	0.013	0.051	10,400	41,000
	Northeast Ridge	0.010	762	0.018	0.079	13,400	60,000
	Deep Ore Flats	0.010	1,101	0.019	0.153	20,800	168,000
	Purdys Peak	0.010	510	0.019	0.086	9,700	44,000
	Cerro Duro	0.010	254	0.032	0.307	8,200	78,000
	Jaimes Ridge	0.010	394	0.041	0.053	16,000	21,000
	Outside Zones	0.010	-	-	-	-	-
	Total Indicated		18,797	0.033	0.141	614,800	2,645,000
Measured + Indicated	Alluvium	0.005	760	0.009	0.050	6,500	38,000
	Borealis	0.010	3,529	0.033	0.145	116,000	512,000
	Crocodile Ridge	0.010	555	0.013	0.160	7,000	89,000
	East Ridge	0.010	6,200	0.016	0.081	101,500	500,000
	Freedom Flats	0.010	3,255	0.045	0.377	146,000	1,228,000
	Graben	0.010	11,054	0.048	0.170	533,900	1,879,000
	Middle Ridge	0.010	1,703	0.014	0.068	23,200	116,000
	Northeast Ridge	0.010	3,162	0.018	0.120	57,200	378,000
	Deep Ore Flats	0.010	2,477	0.019	0.233	48,200	576,000
	Purdys Peak	0.010	983	0.022	0.077	21,800	76,000
	Cerro Duro	0.010	692	0.038	0.465	26,600	322,000
	Jaimes Ridge	0.010	787	0.039	0.085	30,600	67,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured + Indicated		35,157	0.032	0.164	1,118,500	5,781,000

Table 1.3
Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Mineral Resource - Combined Oxide and Sulfide Material

Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Inferred	Alluvium	0.005	701	0.007	0.030	5,000	21,000
	Borealis	0.010	367	0.016	0.049	6,000	18,000
	Crocodile Ridge	0.010	233	0.012	0.069	2,800	16,000
	East Ridge	0.010	979	0.013	0.087	12,600	85,000
	Freedom Flats	0.010	314	0.023	0.239	7,100	75,000
	Graben	0.010	9,517	0.037	0.098	350,900	937,000
	Middle Ridge	0.010	104	0.012	0.058	1,200	6,000
	Northeast Ridge	0.010	47	0.021	0.106	1,000	5,000
	Deep Ore Flats (Polaris)	0.010	998	0.019	0.236	19,300	236,000
	Purdys Peak	0.010	44	0.014	0.091	600	4,000
	Cerro Duro	0.010	6	0.050	0.167	300	1,000
	Jaimes Ridge	0.010	1	0.000	0.000	-	-
	Outside Zones	0.010	3,598	0.018	0.109	63,700	391,000
	Total Inferred		16,909	0.028	0.106	470,500	1,795,000

Table 1.4 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Indicated Resource in Heap

Resource Zone	Cutoff (opt)	Tons (1000s)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold (1000s)	Contained Oz Silver (1000s)
Tailings Releach	0.005	1,328	0.019	0.05	25.0	72.7
Freedom Flats	0.005	1,028	0.026	0.24	26.8	244.4
NE Ridge ROM	0.005	3,726	0.012	0.14	43.2	503.8
Total	0	6,082	0.016	0.13	95.0	820.8

Table 1.5 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Resource in Heaps and Dumps

Resource Zone	Cutoff (opt)	Tons (1000s)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold (1000s)	Contained Oz Silver (1000s)
Secondary Leach	0.005	1,608	0.008	0.12	13.2	185.2
ROM 2	0.005	2,180	0.008	0.07	17.4	157.4
Borealis Dump	0.005	3,200	0.011	0.14	35.8	448.0
East Ridge Dumps	0.005	4,019	0.012	0.05	47.4	201.0
NE Ridge Dump	0.005	3,056	0.008	0.08	248	244.5
Total Inferred Resource	0.005	14,064	0.010	0.09	138.7	1,236.1

1.13 Other Important Considerations

The Borealis property is located on public lands partly within the Humboldt-Toiyabe National Forest, Bridgeport Ranger District, and partly within BLM administered lands. Because most activity to date has been within the U.S. Forest Service-administered lands, the Plan of Operations for this activity is subject to Forest Service approval and environmental analysis under the National Environmental Policy Act (NEPA). A project of this magnitude typically requires the preparation and approval of either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) with the EIS process generally being longer and more comprehensive. Since the Borealis Project area has been extensively affected by previous mining operations, the Forest Service determined that resuming mining operations at the Borealis property would have no significant impact to public lands and that an EA would satisfy the NEPA requirements for this project. The Cerro Duro, Jaimes Ridge, and Purdy Peak resources and the exploration targets in the Central and West Pediment areas are within the BLM ground and require BLM approval for exploring or mining.

1.13.1 Permitting

The principal operating permits required for construction, operation, and closure of a potential Borealis mine have been acquired from Nevada State and Federal regulatory agencies as of the date of this report. The approvals received cover a 10 million-ton project within the central operating area and include an exploration program within that operating area that recognizes the potential to expand the resource base with successful exploration results. Expansion of the project plans beyond 10 million tons will require routine modification of the operating permits. There are no known issues that would preclude the approval of such routine modifications by the applicable regulatory agencies.

The operating permits cover only the central operating area and exclude some of the Middle Ridge area and all of the outlying area known as Orion's Belt (encompassing the Cerro Duro, Jaimes Ridge, and Purdy Peak deposits). This outlying area has been subject to recent mining operations and has been successfully reclaimed. No fatal flaws or material concerns which would preclude the permitting and development of mining operations in this area have been identified although the timing of such permitting processes have not fully assessed.

1.13.2 Conclusions and Recommendations

Analysis of the geologic data has identified a significant in-place mineral resource that requires additional mineral resources prior to estimation of surface mineable reserves. Based on historical operational data and similar deposits and projects in the area, the field-proven process technology selected (heap leach and ADR plant, using either carbon adsorption or zinc precipitation) should be able to effectively produce gold doré for sale once a mineral reserve has been established.

Having successfully obtained the major permits from the U.S. Forest Service and the Nevada Division of Environmental Protection, environmental and permitting issues no longer represent a significant risk to future project development.

The contributing Gryphon Gold authors, Dr. Roger Steininger and Mr. Steven Craig, recommend that Gryphon Gold undertake a systematic district-scale exploration program designed to discover and delineate large gold deposits within the greater Borealis property, outside of the known mineral deposits. The program should focus along known mineralized trends that project into untested gravel-covered areas with coincident geophysical anomalies. The contributing Gryphon Gold authors agree that the greatest potential in the district lies beneath a large gravel-covered area at the mountain range front with several potential blind deposits (with no surface expression). The Graben zone is an example of this type of deposit, and other high-potential targets include North Graben area, West Pediment (including Sunset Wash and Vuggy Hill), Central Pediment (Lucky Boy), and others yet to be named.

This district-scale exploration program should include both field and compilation geology, geophysics, geochemistry, permitting and claim maintenance, road construction and drill-site preparation, reverse circulation (RC) and core drilling, drill hole assaying, sampling protocol studies and assay quality control, preliminary metallurgical testing, and database management.

In addition, further sampling of the historical heaps and dumps is recommended because of the immediate potential to move inferred resource into indicated resources that may be considered for reserves.

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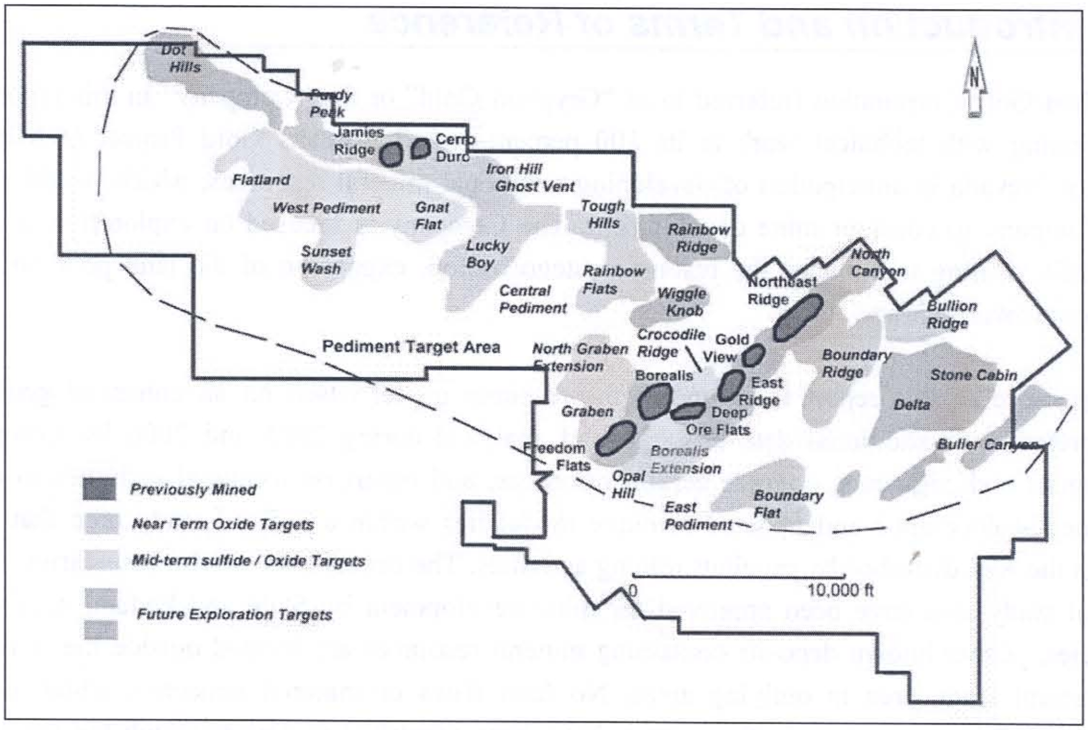
2.0 Introduction and Terms of Reference

Gryphon Gold Corporation (referred to as "Gryphon Gold" or the "Company" in this report) is progressing with technical work at its 100 percent-owned Borealis Gold Project in Mineral County, Nevada in anticipation of developing additional mineral resources, which would allow the Company to consider mine development. The Company is focused on exploration drilling and infill drilling to enhance the resource categorization, expansion of the land position, and environmental reviews.

The purpose of this report is to update the resource model based on an enhanced geologic interpretation of additional data acquired and analyzed during 2005 and 2006 by Company geologists and engineers, upgrade certain resources, and report on technical activities to date. The newly developed and updated resource model lies within a defined study area that falls within the area disturbed by previous mining activities. The deposits within the boundaries of the central study area have been approved for mine development by State and Federal regulatory agencies. Other known deposits containing mineral resources are located outside the limits of the central study area in outlying areas. No fatal flaws or material concerns, which would preclude mining operations in these areas, have been identified to date although the timing of such permitting processes has not been fully assessed.

As an important part of this work, resource models were updated for several in-place gold deposits located within the boundaries of the central and outlying study areas and include the following deposit: West Alluvial Deposit, Borealis, Crocodile Ridge, Deep Ore Flats (also known as Polaris), Graben, Freedom Flats, East Ridge, Gold View, Middle Ridge (located between Gold View and Northeast Ridge), Northeast Ridge, and also the Purdy Peak, Cerro Duro, and Jaimes Ridge deposits located further to the west. Resource estimates for deposits outside the study areas, but on claims controlled by Gryphon Gold, rely on historical estimates based on calculations which were completed prior to the promulgation of the guidelines of NI 43-101 and have not been reviewed by this study. These estimates are discussed further in Section 6.3, Previous Mineral Resource Estimates. Known gold deposits outside of the study area include the Boundary Ridge/Bullion Ridge Zone, which are located further to the east.



(Based on information from Echo Bay Mines, circa 1989, modified by Gryphon Gold 2005)

Figure 2.1 - Mineral Deposits and Prospects of the Borealis Property

Names of other deposits and exploration targets are shown on Figure 2.1, which can be used as a reference to the geographic location and place names used in this report. Some of the most important exploration targets are reviewed in Section 10.0, Exploration.

O.R.E., working closely with Gryphon Gold and its other consultants, has prepared new resource models and compiled this Technical Report on the Borealis Gold Project. Additional input was provided by Knight Piésold and Co. (Knight Piésold) regarding environmental, permitting, and metallurgical issues. In addition, Dr. Roger Steininger, CPG was the Consulting Chief Geologist in regard to geology, sampling, exploration, and mineral resource estimates. The principal author of this technical report is Mr. Alan C. Noble, P.E., Principal Mining Engineer, O.R.E., a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects. Mr. Noble and Mr. Jaye Pickarts, P.E., Principal Metallurgical Engineer, Knight Piésold and Co., individually visited the Borealis property on several occasions during 2004 and 2005 for the duration of one day in each instance; they observed the district geologic setting and existing site conditions, and Mr. Pickarts reviewed selective RC drill-sample intercepts of the mineralization for metallurgical purposes only and assisted in developing the metallurgical testing. Dr. Steininger visited the Borealis property numerous times during 2003, 2004, 2005, and 2006.

Other technical experts and qualified persons who have contributed to this study under the general direction of the principal author of this report, are:

- Ms. Barbara A. Filas, P.E., C.E.M., a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects, President and Mining/Environmental Engineer, Knight Piésold and Co.: environmental evaluations and permit acquisition

- Mr. Jaye T. Pickarts, P.E., a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects, Principal Metallurgical Engineer, Knight Piésold and Co.: metallurgical testwork evaluation and conceptual processing flowsheet

- Dr. Roger C. Steininger, Ph.D., CPG (AIPG), a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects, Consulting Chief Geologist for Gryphon Gold: mine geology. Dr. Steininger is not independent of Gryphon Gold

- Mr. Steven D. Craig, CPG (AIPG), a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects, Vice President of Exploration for Gryphon Gold: mine geology. Mr. Craig is not independent of Gryphon Gold.

Technical support has been provided by additional associates of these listed firms and individuals. Knight Piésold has provided support in the ongoing permit acquisition activities, geotechnical engineering, and metallurgical engineering. Gryphon Gold has provided staff support and assistance by drafting certain figures incorporated in the report (as credited below each illustration) and aiding in the final assembly of the report.

This mineral resource study has considered existing information contained in Gryphon Gold's Borealis Project files. This information consists of several thousand pages of documents and data gathered during more than 20 years of exploration, development, mining, and post-mining reclamation activities at Borealis and includes exploration results, geophysical surveys, mineralogical results, geologic interpretations, metallurgical testing, design engineering, operating results, technical correspondence and scientific publications. Gryphon Gold has converted this information to electronic form to allow for ease of search and recovery.

This report utilizes this archival information provided by Gryphon Gold. The database has not been independently verified by O.R.E. at this time. As the Borealis Project advances, certain additional information will be gathered which will allow for further verification of historical results and confirmation of the possible technical concepts.

O.R.E. frequently undertakes minerals property studies. O.R.E. is familiar with the mineral resource definitions and disclosure requirements of NI 43-101 to which the mineral resource classification in this report conforms. Neither O.R.E. nor any of its principals involved in this project have any direct pecuniary or contingent interests of any kind in Gryphon Gold or its mining properties. O.R.E. is to receive a fee for its work based on time expended and expenses incurred according to the Company's standard fee schedule.

The units commonly used in the United States – dry short tons of 2,000 pounds (tons), troy ounces per short ton (opt), miles, feet, etc. – are the major units used in this report. Where metric units are used, such is noted.

3.0 Disclaimer

The opinions expressed in this report are based on the available information and geologic interpretations as supplied by Gryphon Gold Corporation and other third party sources, and which were available at the time of this report. O.R.E. has exercised all due care in reviewing the supplied information and believes that the basic assumptions are factual and correct and the interpretations are reasonable. Assumptions, conditions, and qualifications are as set forth in the body of this report.

Although Gryphon Gold's consultants have independently analyzed some of the data, the accuracy of the results and conclusions from the review rely on the accuracy of the supplied data. These consultants have relied on the supplied information and have no reason to believe that any material facts have been withheld, or that a more detailed analysis may reveal additional material information. O.R.E. did not undertake a program of independent sampling, drilling, or assaying to determine or confirm gold or silver values.

The information in Section 4.2, Property Description and Ownership, has been provided by Gryphon Gold. This information has not been independently reviewed by O.R.E.; however, it is supported by a title report by Gryphon Gold's attorney Parr Waddoups Brown Gee & Loveless dated December 2005.

Estimates of mineral resources are inherently forward-looking statements subject to error. Although resource estimates require a high degree of assurance in the underlying data when the estimates are made, unforeseen events and uncontrollable factors can have significant adverse or positive impacts on the estimates. Actual results will inherently differ from estimates. The unforeseen events and uncontrollable factors include: geologic uncertainties including inherent sample variability, metal price fluctuations, variations in mining and processing parameters, and adverse changes in environmental or mining laws and regulations. The timing and effects of variances from estimated values cannot be accurately predicted.

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4.0 Property Description and Location

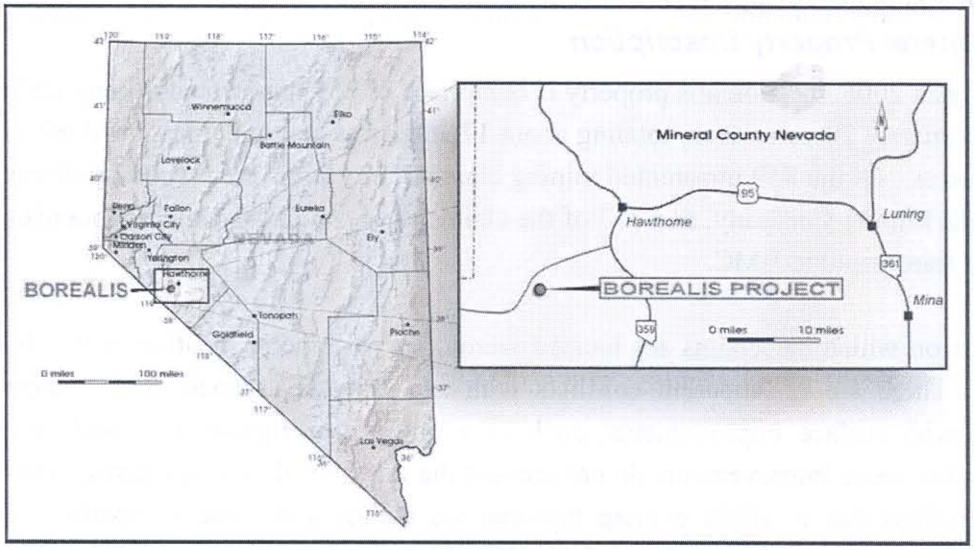
4.1 Location

The Borealis property is located in southwest Nevada, approximately 16 road miles southwest of the town of Hawthorne in the Walker Lane mineral belt and 12 miles northeast of the California border. Hawthorne is 133 highway miles southeast of Reno and 314 highway miles northwest of Las Vegas.

The project area is located in:

T6N, R28E	Sections 1-4, 11, and 12
T7N, R28E	Sections 25 – 27 and 33 – 36
T6N, R29E	Sections 2-24, and 27 – 29
T7N, R 29E	Sections 30-32

Mount Diablo Meridian, Mineral County Nevada. The approximate center of the property is at longitude 118° 45' 34" North and latitude 38° 22' 55" West. Figure 4.1 shows the location of and access to the Borealis project.



(Gryphon Gold, 2005)
Figure 4.1 - Location Map of the Borealis Project

4.2 Study Area Boundaries

The defined study area falls within the boundary of the approximately 460-acre area where operating permit acquisition and other field activities are currently taking place. An outlying area approximately three miles northwest of the central study area has also been included in the resource modeling efforts. The central and outlying study areas are wholly within the boundaries of mining claims controlled by Gryphon Gold and are coincident with the core areas disturbed by previous mining operations described in Section 18.1, Permit Acquisition and Fundamental Environmental Permitting Considerations (Plate 1).

Several known gold deposits are located within the boundaries of the area of study including, but not limited to the following: West Alluvial Deposit, Borealis, Crocodile Ridge, Deep Ore Flats (also known as Polaris), East Ridge, Freedom Flats, Gold View, Graben, Middle Ridge, Northeast Ridge, Cerro Duro, Jaimes Ridge, and Purdy Peak. Other known deposits occur outside the study area, still on mining claims controlled by Gryphon Gold. The principal gold deposit, outside of the study area, which has been subject to historical resource estimates include the Boundary Ridge/Bullion Ridge Zone.

4.3 Property Description and Ownership

4.3.1 General Property Description

As of August 2006, the Borealis property is comprised of 859 unpatented mining claims (Plate 2) of approximately 20 acres each, totaling about 17,200 acres and one unpatented millsite claim of about 5 acres. Of the 859 unpatented mining claims, 122 claims are owned by others but leased to Borealis Mining Company, and 737 of the claims were staked by Golden Phoenix or Gryphon Gold and transferred to BMC.

The lands on which the claims are located were open to mineral location at the time of claim staking. There are no apparent conflicts with any privately owned land. There are some overlaps with surface improvements, such as a power line right-of-way and stock watering facilities, but those improvements do not prevent the location of mining claims. There are some minor conflicts due to slight overlap between the claims and some competitor-owned RAM claims, primarily in Sections 7, 18, and 19, T6N R29E. In some cases the claims are senior and would control the ground in conflict, and in some cases the opposite is true. However all conflicts appear to be limited to the edges of adjoining claims and thus are likely insignificant. All of the claims are shown on the BLM records as being in good standing.

A review of federal and county land records relating to the property was done by Parr Waddoups Brown Gee and Loveless, attorneys at law, and Roger Gash, who is a Certified Professional

Landman and Nevada Commissioned Abstractor, in 2003, with subsequent updates in 2004 and January and May 2005. The review began with the 1996 conveyance of the property out of Echo Bay. The review of the claims did not go all the way back to the original location dates for the various claims (some of which dated back to 1953) because, with Echo Bay's prior operations on the property without challenge, Gryphon Gold was comfortable with the assumption that ownership up through Echo Bay was without significant problems.

4.3.2 Ownership, Purchase Agreement, and Mining Lease

Mineral rights, through Borealis Mining Company as the owner or lessee of the claims, allow BMC to explore, develop and mine the Borealis property, subject to the prior procurement of required operating permits and approvals, compliance with the terms and conditions of the mining lease, and compliance with applicable federal, state, and local laws, regulations and ordinances. The Company believes that all of its claims are in good standing.

The 122 leased claims are owned by John W. Whitney, Hardrock Mining Company and Richard J. Cavell, whom are referred to as the "Borealis Owners." Borealis Mining Company leases the claims from the Borealis Owners under a Mining Lease dated January 24, 1997 and amended as of February 24, 1997. The Borealis Mining Lease was assigned to BMC by the prior lessee, Golden Phoenix. The mining lease contains an "area of interest" provision, such that any new mining claims located or acquired by BMC within the area of interest after the date of the mining lease shall automatically become subject to the provisions of the mining lease. The term of the mining lease extends to January 24, 2009 and continues indefinitely thereafter for so long as any mining, development or processing is being conducted on the leased property on a continuous basis.

The remainder of the Borealis property consists of 737 unpatented mining claims and one unpatented millsite claim staked by Golden Phoenix, Gryphon Gold or BMC. Claims staked by Golden Phoenix were transferred to BMC in conjunction with the January 28, 2005 purchase of all of Golden Phoenix's interest in the Borealis property. A total of 263 claims of the total 737 claims held by Gryphon Gold are contiguous with the claim holdings, are located outside of the area of interest, and are not subject to any of the provisions of the Mining Lease.

All of the mining claims (including the owned and leased claims) are unpatented, such that paramount ownership of the land is in the United States of America. Claim maintenance payments and related documents must be filed annually with the Bureau of Land Management and with Mineral County, Nevada to keep the claims from terminating by operation of law. BMC is responsible for those actions. At present, the estimated annual BLM maintenance fees are $125 per claim, or $109,375 per year for all of the Borealis property claims (859 unpatented mining claims plus one millsite claim).

Required documents were submitted and the fee was paid to the BLM on August 6, 2005 totaling $93,500 fulfilling the 2006 maintenance requirements for the then existing claims. In addition, county filing fees plus document fees totaling $6,366 were paid to Mineral County on August 6, 2005, in fulfillment of the annual filing requirements. In March 2006, additional fees totaling $23,000 were paid to the BLM and the Mineral County combined to register the additional 112 newly staked claims.

4.3.3 Royalty

Pursuant to the Borealis Mining Lease, a portion of the Borealis property which includes the 122 original core claims is subject to an NSR royalty which is computed as being the average monthly price of gold divided by 100 with the result expressed as a percentage. The initial mining operations will be located on the 122 claims in the core group.

The NSR cash value is determined by applying the resulting percentage to the price of gold. For example, using an assumed average monthly price of gold of $475 the NSR royalty would be 4.75 percent (net of refinery charges), which would translate into a cash cost of slightly less than $22.56 per oz (i.e. $475 divided by 100 = 4.75 percent, 4.75 percent of $475 is $22.56 per oz less refining charges).

As described in the terms of the Borealis Mining Lease, the Borealis property is currently subject to advance monthly royalty payments of approximately $8,614.00 per month. These advance royalty payments are subject to adjustments in the Consumer Price Index. The Borealis Mining Lease expires in 2009 but is extendible year to year thereafter so long as any mining activity which continues on the Borealis Property. Any commercial production from adjacent claims owned by others within the Borealis project area will be subject to a two percent net smelter return (2 percent NSR) royalty.

5.0 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

5.1 Access

Access to the Borealis property is gained from the Lucky Boy Pass gravel road located about two miles south of Hawthorne from State Highway 359 (Figure 4.1). Hawthorne is about 133 highway miles southeast of Reno. The Borealis property is about 16 road miles from Hawthorne.

5.2 Climate and Physiography

The elevation on the property ranges from 7,200 ft to 8,200 ft above sea level. Topography ranges from moderate and hilly terrain with rocky knolls and peaks, to steep and mountainous terrain in the higher elevations. This relatively high elevation produces moderate summers with high temperatures in the 90°F range. Winters can be cold and windy with temperatures dropping to 0°F. Average annual precipitation is approximately ten inches, part of which occurs as up to 60 inches of snowfall. Historically in the 1980's, the mine operated throughout the year with only limited weather related interruptions.

The vegetation throughout the project area is categorized into six main community types: pinyon/juniper woodland, sagebrush, ephemeral drainages and areas disturbed by mining and reclaimed. Predominate species include pinyon pine, Utah juniper, greasewood, a variety of sagebrush species, with crested wheat grass and fourwing saltbush in previously reclaimed areas (JBR Environmental Consultants, 2004).

5.3 Existing Site Conditions, Infrastructure, and Available Services

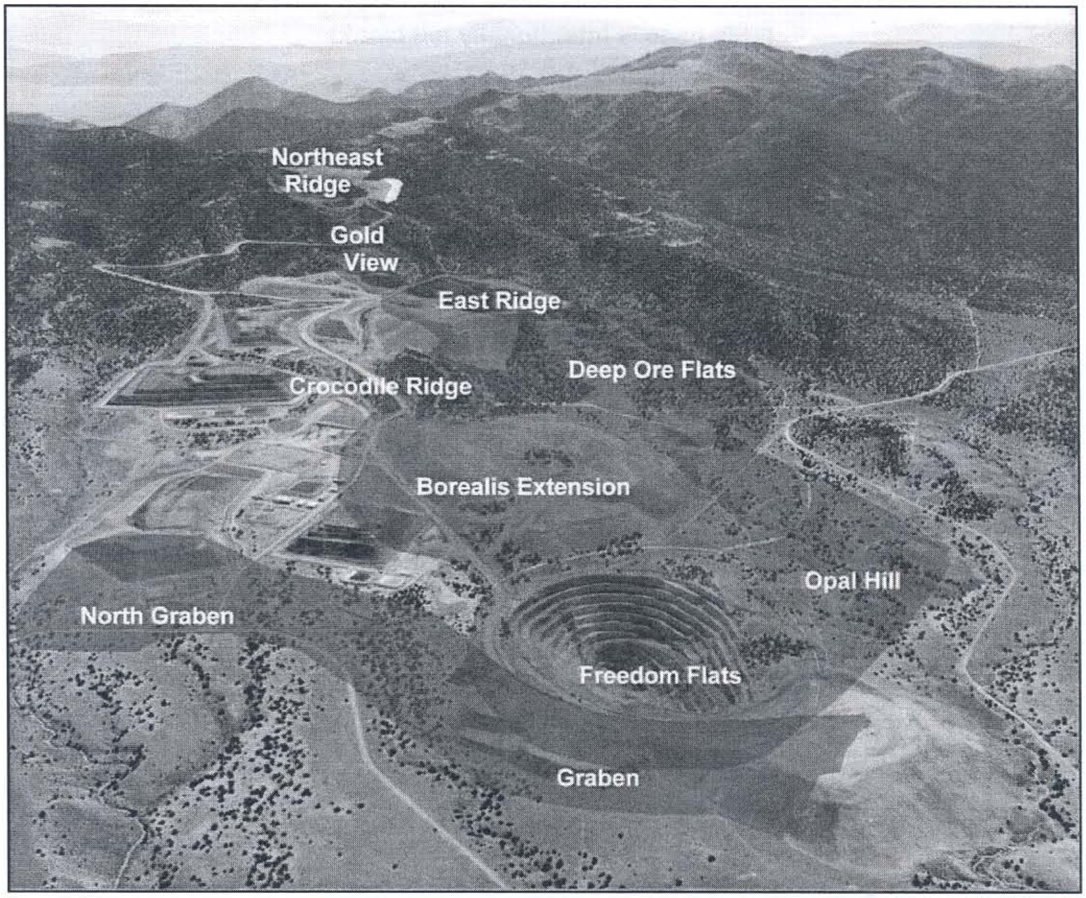
The Borealis project site (Figure 5.1) has been reclaimed to early 1990's standards, before new, more modern state regulations were promulgated. The pits and the project boundary are fenced for public safety. Currently, access to the pits and leach heap areas is gained through a locked gate. No buildings or power lines located on the surface remain, although a major electrical transmission line crosses the property and lies about two miles from the former mining area. All currently existing roads in the project area are two–track roads with most located on the old haul roads that have been reclaimed. Water for the historical mining operations was supplied from a well field in a topographically isolated basin located approximately five miles south of the former Borealis Mine site.

An assessment was made to help in the design of pit slopes, and heap and dump face angles based on information acquired from the US Geological Survey. According to USGS data, the site is assigned with a peak horizontal free-field ground acceleration of 0.295 g for an earthquake with a 475-year return period. This equates to a ten percent probability of that event being exceeded during a 50-year exposure period. For a facility with a ten-year life, this would equate to a two percent probability of exceedence during the project life. For facilities that do not impound water and their failure would not be associated with loss of life, excessive loss of property, or irreparable damage to the environment, this probability represents an acceptable level of risk.

The relatively high seismic parameters assigned to this site are due to the presence of several active faults in the area. The Wassauk Range Fault 1 and Fault 2 are located within six or seven miles of the site. The faults are assigned characteristic magnitudes of 7.1 and 7.3, respectively. The return periods for such an event would be on the order of 10,000 years.

For design of the pits, dumps, and heaps, a design earthquake event on magnitude 7.3 was used producing a peak horizontal free-field ground acceleration of 0.295 g. For the heap leach facility, the free-field peak horizontal ground acceleration would be amplified by a factor estimated to be 2 to 3 as the seismic waves propagate vertically upward through the heaps. This would result in a peak crest acceleration at the top of the heap ranging from 0.59 to 0.89 g.

The nearest available services for both mineral exploration and possible future mine development work and mine operations are in the small town of Hawthorne, located about 16 miles to the northeast of the project area via a wide, well-maintained gravel road. Hawthorne has substantial housing available, adequate fuel supplies and sufficient infrastructure to take care of basic needs. For other services, Reno is located about 133 highway miles to the northwest. Sources in Reno could supply most any material required for the development or mine operations.



(Source: Echo Bay Mines, circa 1991; modified by Gryphon Gold, 2004)

Figure 5.1 - Photograph of a Portion of the Borealis District
View to the East with Freedom Flats Pit in the Foreground
The photograph shows the site as it was circa 1991.

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6.0 History

6.1 History of the District

The original Ramona mining district, now known as the Borealis mining district, produced less than 1,000 oz of gold prior to 1981. In 1978 the Borealis gold deposit was discovered by S. W. Ivosevic (1979), a geologist working for Houston International Minerals Company (a subsidiary of Houston Oil and Minerals Corporation). The property was acquired through a lease agreement with the Whitney Partnership, which later became the Borealis Partnership, following Houston's examination of the submitted property. Initial discovery of ore-grade gold mineralization in the Borealis district and subsequent rapid development resulted in production beginning in October 1981 as an open pit mining and heap leaching operation. Tenneco Minerals acquired the assets of Houston International Minerals in late 1981, and continued production from the Borealis mine. Subsequently, several other gold deposits were discovered and mined by open pit methods along the generally northeast-striking Borealis trend, and also several small deposits were discovered further to the west in the Cerro Duro area. Tenneco's exploration in early 1986 discovered the Freedom Flats deposit beneath thin alluvial cover on the pediment southwest of the Borealis mine. In October 1986 Echo Bay Mines acquired the assets of Tenneco Minerals.

With the completion of mining of the readily available oxide ore in the Freedom Flats deposit and other deposits in the district, active mining was terminated in January 1990, and leaching operations ended in late 1990. Echo Bay left behind a number of oxidized and sulfide-bearing gold mineral resources. All eight open pit operations are reported to have produced 10.7 million tons of ore averaging 0.059 oz of gold per ton (opt Au) (Golden Phoenix Minerals, 2000). Gold recovered from the material placed on heaps was approximately 500,000 oz, plus an estimated 1.5 million oz of silver. Echo Bay chose to close the mine instead of continuing development of the remaining mineral resources, because of impending new environmental closure regulations and the desire to focus on their McCoy/Cove gold-silver deposits south of Battle Mountain. Reclamation of the closed mine began immediately and continued for several years in order to meet the deadline for the less-restrictive regulations. Echo Bay decided not to continue with its own exploration, and the property was farmed out as a joint venture in 1990-91 to Billiton Minerals, which drilled 28 RC exploration holes on outlying targets for a total of 8,120 ft. Billiton quickly dropped the property with no retained interest. Their exit was attributed to change in management direction and restructuring.

Then Santa Fe Pacific Mining, Inc. entered into a joint venture with Echo Bay in 1992-93 (Kortemeier, 1993), compiled data, constructed a digital drill hole database and drilled 32 deep RC and deep core holes, including a number of holes into the Graben deposit. Santa Fe Pacific had success in identifying new sulfide-zone gold mineralization, but terminated the joint venture because of reduced exploration budgets. Echo Bay completed all reclamation requirements in 1994, showcased the reclamation, and then terminated its lease agreement with the Borealis Partnership in 1996.

In late 1996, J.D. Welsh & Associates, Inc. negotiated an option-to-lease agreement for the Borealis property from the Borealis Partnership. J.D. Welsh performed contract reclamation work for Echo Bay and was responsible for monitoring the drain down of the leach heaps. During this time Welsh recognized the excellent remaining gold potential, and upon signing the lease, immediately joint ventured the project with Cambior Exploration U.S.A., Inc. During 1997 Cambior performed a major data compilation program and several gradient IP surveys. In 1998 the company drilled ten holes which succeeded in extending the Graben deposit and in identifying new zones of gold mineralization near Sunset Wash. Cambior terminated the joint venture in late 1998 because of severe budget constraints.

During the Cambior joint venture period in late 1997, Golden Phoenix Minerals entered an agreement to purchase a portion of J.D. Welsh's interest in the property. J.D. Welsh sold his remaining interest in the property to a third party, which in turn sold it to Golden Phoenix, so that the company controlled 100 percent interest in the lease beginning in 2000 (Golden Phoenix Minerals, 2000). Golden Phoenix personnel reviewed project data, compiled and validated a digital drill hole database (previously not in a computer-based resource modeling input form) , compiled exploration information and developed concepts, maintained the property during the years of low gold prices, and developed new mineral resource estimates for the entire Borealis property.

In July 2003, the Borealis property was joint-ventured by Golden Phoenix with Borealis Mining Company, which is a wholly owned subsidiary of Gryphon Gold Corporation. BMC, the operator of the joint venture, originally controlled the property through an option agreement with Golden Phoenix whereby BMC could earn a 70 percent joint venture interest in the property. BMC had the right to acquire its interest in the Borealis property with a combination of qualified expenditures on work programs, and/or making payments to Golden Phoenix, and/or delivering a feasibility study over a period of five and a half years beginning July 2003. In January 2005 BMC purchased 100 percent interest in the lease agreement and Golden Phoenix surrendered its interest in the property.

BMC and Gryphon Gold have expended a considerable effort consolidating the available historical data since acquiring an interest in the property. Files were located in the offices of

Whitney and Whitney, Inc. (consultants to the Borealis Partnership) and Golden Phoenix Minerals Inc., both in Reno. General information and data included, but are not limited to, a variety of historical production records, geologic reports, environmental reports, geophysical and geochemical surveys, historical land and legal documents and drill hole assay data. It is estimated that in excess of 150,000 pages of information has been located. This knowledge base has been scanned, and converted into a searchable electronic form. The electronic database has formed the basis of re-interpretation of the district geologic setting, and helped to form the foundation for a new understanding of the districts potential. Ownership of the information passed from Golden Phoenix Minerals, Inc. to Gryphon Gold at the time Gryphon Gold acquired the remaining 30 percent interest from its JV partner. During 2004 and 2005-06 Gryphon Gold conducted two drilling programs, the second of which is continuing as of the date of this report.

6.2 Past Production

In the Borealis Project area, several gold deposits have been defined by drilling and some have been only partially mined. Reports on past production vary. The past gold production from pits at Borealis, as reported by recent operating companies at Borealis, is tabulated in Table 6.1. The total of past gold production was approximately 10.6 million tons of ore averaging 0.057 oz per ton (opt) gold, although a report published in 1991 by Echo Bay Mines (Eng, 1991) indicated that 10.7 million tons of ore averaging 0.059 opt Au (635,000 oz) was mined through 1989. Mine production resulting from limited operations in 1990 is not included in either figure. Although no complete historical silver production records still exist at this time, the average silver content of ore mined from all eight pits appears in the range of 5 oz of silver for each ounce of gold. It is likely that about 1.5 million oz of silver was shipped from the property in the doré bullion.

Table 6.1 - Reported Past Borealis Production, 1981-1990

Crushed and Agglomerated Ore	Tons	Grade (opt Au)	Contained Gold (oz)
Borealis	1,488,900	0.103	153,360
Freedom Flats	1,280,000	0.153	195,800
Jaimes Ridge/Cerro Duro	517,900	0.108	55,900
East Ridge	795,000	0.059	46,900
Gold View	264,000	0.047	12,400
Total	**4,345,800**	**0.107**	**464,360**
Run of Mine Ore			
East Ridge	2,605,000	0.021	54,700
Polaris (Deep Ore Flats)	250,000	0.038	9,500
Gold View	396,000	0.009	3,500
Northeast Ridge	3,000,000	0.025	75,000
Total	**6,251,000**	**0.023**	**142,700**
Grand Total	**10,596,800**	**0.057**	**607,060**

Note: Eng (1991) reports that the material mined contained a total of 635,000 oz of gold.

6.3 Borealis Property Development Background

In October 2003, Gryphon Gold engaged Behre Dolbear & Company, Inc. (Behre Dolbear), mining consultants, to develop a preliminary assessment for the redevelopment of the Borealis Property. Behre Dolbear prepared a report titled *A Preliminary Scoping Study of Project Development, Borealis Gold Project, Nevada* dated June 2, 2004. The following information is based on the Study. Portions of the following information are based on assumptions, qualifications and procedures, which are set out only in the Behre Dolbear Study. For a complete description of assumptions, qualifications and procedures associated with the following information, reference should be made to the full text of the Study. It is the contributing Gryphon Gold author's opinion that the Study should be considered as preliminary in nature. The Study considered inferred mineral resources in its evaluations, which may be too speculative geologically to have economic considerations applied to them that would enable them to be considered as mineral reserves, and that there is no certainty the preliminary assessment will be realized.

In its report, Behre Dolbear described a resource estimate in which it identified measured and indicated mineral resources on the Borealis property and concluded that the Borealis property had excellent exploration potential. As a result of enhanced geologic interpretations based on detailed geologic analysis, re-logging of available core and RC samples, and drilling of the preexisting heaps and dumps, the mineral resources at Borealis as reported in this study were increased as presented in further detail in Section 17.0, Mineral Resource Estimate.

Behre Dolbear also analyzed the historical data on the property and produced a series of recommendations to evaluate and potentially develop the Borealis property. The principal recommendations of the Behre Dolbear Study were to:

1. Pursue a three-phase business plan to evaluate:
   a. The existing leach pads and mine dump materials for the possibility of releaching and gold production
   b. The remaining oxide ores that could be mined and transported to the new leach pad
   c. The deeper high-grade sulfide mineralization
2. Pursue the following mining scenario on the Borealis Property (assuming it is determined that development of the proposed mining scenario is commercially feasible):
   a. Process pre-existing heaps and dumps to provide initial feed to the heap leach recovery plant.
   b. Expand the mining operations to include the oxidized resources in areas outside the heaps and dumps in order to generate funds for further exploration and development.
   c. Explore and develop the deeper sulfide mineralization of the Graben area.

According to Behre Dolbear, the principal steps to the development of the Borealis Property consist of:

1. Completing the permitting process.
2. Continuing the drilling program and developing a feasibility study on the previously disturbed area of the Borealis property, also referred to as the "Borealis site."
3. Building the mine facilities, if warranted by project economics, on the Borealis Project site.

Gryphon Gold's intention is to continue with the recommendations established in the Behre Dolbear Report with the eventual objective of developing the Borealis Property, subject to discovering and developing sufficient resources to justify consideration of a mining operation. The Company has acquired the principal operating permits in the first half of 2006. As of the date of this study, drilling continues in the previously defined Graben resource area and in exploration targets further to the west.

6.4 Previous Mineral Resource Estimates

Since the termination of mining by Echo Bay Mines in 1990, several companies have made estimates of the Borealis district mineral resources. Santa Fe Pacific and Cambior Exploration attempted estimates on selected portions of the property. Comprehensive estimates of all remaining mineral resources were made first by John Whitney in 1996, Whitney and Whitney, Inc. in 1999[1], Golden Phoenix in 2000, Behre Dolbear and Company, Inc.[2] in 2004, O.R.E. in May 2005 in the Company's previous NI43-101 compliant report *Technical Report of the Mineral Resources of the Borealis Gold Project Located in Mineral County Nevada, USA* (O.R.E., 2005), and O.R.E. in August 2006 in a report, *Technical Report on the Mineral Reserves and Development of the Borealis Gold Project, Located in Mineral County Nevada, USA*.

Whitney and Whitney (1999) estimated a total of 42,778,000 tons averaging 0.036 opt Au for a total of about 1,551,000 oz Au, including 199,000 oz Au in the heaps and stockpiles/dumps. The comprehensive estimates compiled data from several previous operators of the mine and estimated other mineral resources manually. Included in the Whitney and Whitney estimate is a mineral resource identified outside the model limits of this study near the area of Deep Ore Flats which contains mineralized material estimated in the range of 8,000,000 tons with an average grade of 0.030 opt Au (approximately 240,000 oz). The data supporting this estimate has not been validated nor is the estimate to a NI 43-101 standard, and therefore not included in the resource inventory tabulated in this report.

Golden Phoenix (2000) completed a thorough compilation and review of the drill hole database and then estimated the mineral resources, primarily by manual methods with computer assistance and Inverse Distance Weighting (ID3) interpolation, but they did not include resources in the heaps and stockpiles. The Golden Phoenix estimate utilizes mining industry acceptable estimating techniques and parameters, but was not completed to NI 43-101 standards at the time

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[1] Whitney and Whitney Inc., is a well established, Reno, Nevada based management consulting firm offering business technical and management services to the minerals resource industry, assistance in the development of mining legislation taxation and investment policies and technical auditing of operations and mining reserves.

[2] Behre Dolbear and Company, Inc. is one of the oldest, continually operating mineral industry engineering and consulting firms in the world. The company specializes in performing studies and consulting for a wide range of businesses with interests in the minerals industry.

of the estimate. As reported by Golden Phoenix (2000) in their US public disclosure documents, Behre Dolbear reviewed the estimate and found it to be satisfactory.

In the report titled *A Preliminary Scoping Study of Project Development, Borealis Gold Project, Nevada* (Behre Dolbear 2004), resources were calculated by the Inverse Distance Weighting method (ID3) for Freedom Flats and Graben, by the three-pass ID2 method for Polaris (Deep Ore Flats), and by the three-pass ordinary kriging method for Borealis, East Ridge/Gold View, and Northeast Ridge. The resource estimate in the Behre Dolbear Study was certified to NI 43-101 standards by the geological Qualified Person, but was not submitted for regulatory agency review because Gryphon Gold was a private Nevada company at the time of report completion. Additionally, this estimate does not reflect the increased level of geologic understanding that has been incorporated into the current model described in this technical report.

In the NI43-101 report completed by O.R.E. in May 2005 reports a measured plus indicated mineral resource totals 44.7 million tons with an average grade of 0.028 opt Au, containing 1.25 million oz of gold. The report also documented an estimated inferred resource of 34.4 million tons with an average grade of 0.021 opt Au, containing about 0.73 million oz of gold.[3]

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[3] Cutoff assumptions range from .005 opt to .010 opt depending on the physical characteristics if each deposit modeled. The results noted are reported as partially diluted mineral resources with allowance for surface mining with conventional mining equipment (dilution for underground mining if warranted, may be more or less than these estimates); metallurgical recovery is not applied.

Table 6.2 - Comparison of Historical Post-Mining Resource Estimates

	Measured + Indicated			Inferred		
	ktons	opt	k oz	ktons	opt	k oz
In situ Resources						
Whitney & Whitney Inc.	25,038	0.054	1,351	2,700	0.022	60
Golden Phoenix Minerals, Inc.	33,399	0.044	1,455	-	-	-
Behre Dolbear & Company, Inc.	14,822	0.040	594	12,125	0.048	583
Resource in Heaps and Dumps						
Whitney & Whitney	17,750	0.011	199	-	-	-
Golden Phoenix Minerals	-	-	-	-	-	-
Behre Dolbear	-	-	-	16,312	0.019	304

Notes:

1 All estimates include resource estimates from Borealis, Freedom Flats Polaris, East Ridge, Cerro Duro, Jamies Ridge and Purdy Peak and immediately adjacent contiguous resource zones.

2 Resource estimates by Whitney and Whitney, Inc. and Golden Phoenix Minerals, Inc. are not reported to current NI 43-101 standards.

3 Behre Dolbear and Company (2004) has certified that their resource estimate is compliant with NI 43-101 standards, but the report has has not been submitted for regulatory agency review

4 Cutoff grades are not reported for Whitney and Whitney estimate, Golden Phoenix estimate cutoff is .008 opt, and Behre Dolbear cutoff is 0.010 opt. Metallurgical recovery is not applied.

6.5 In-Situ Mineral Resources at Boundary Ridge / Bullion Ridge

The Boundary Ridge/Bullion Ridge zone is located about one mile east of the Northeast Ridge and East Ridge resource areas. No recent commercially scaled mining has taken place in this area. Previously the Boundary Ridge/ Bullion Ridge zone was not fully covered by the core group of mining claims controlled by Gryphon Gold, but new mining claims in this area have been located by Gryphon Gold. Geologic mapping and sampling and more than 70 drill holes have been completed in this general area by previous operators. No new mineral resource models have been constructed for this area in this study. A Boundary Ridge/Bullion Ridge zone inferred resource estimate has been completed by Whitney and Whitney (1999) as shown in Table 6.4. This estimate has not been calculated to current NI43-101 standards, nor has it been verified for this study, and should not be relied upon.

Table 6.3 - Historical Mineral Resource Estimate of the Boundary Ridge/ Bullion Ridge Zone (Whitney and Whitney, 1999)

Resource Class	Resource Zone	Cutoff (opt)	Tons (1000s)	Grade (opt)	Combined Oz Gold (1000s)
Inferred	Boundary/Bullion Ridge Zone	Not Available	2,700	0.022	60

Note: This estimate is not to NI43-101 standard and was not reviewed or audited for this report.

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7.0 Geologic Setting

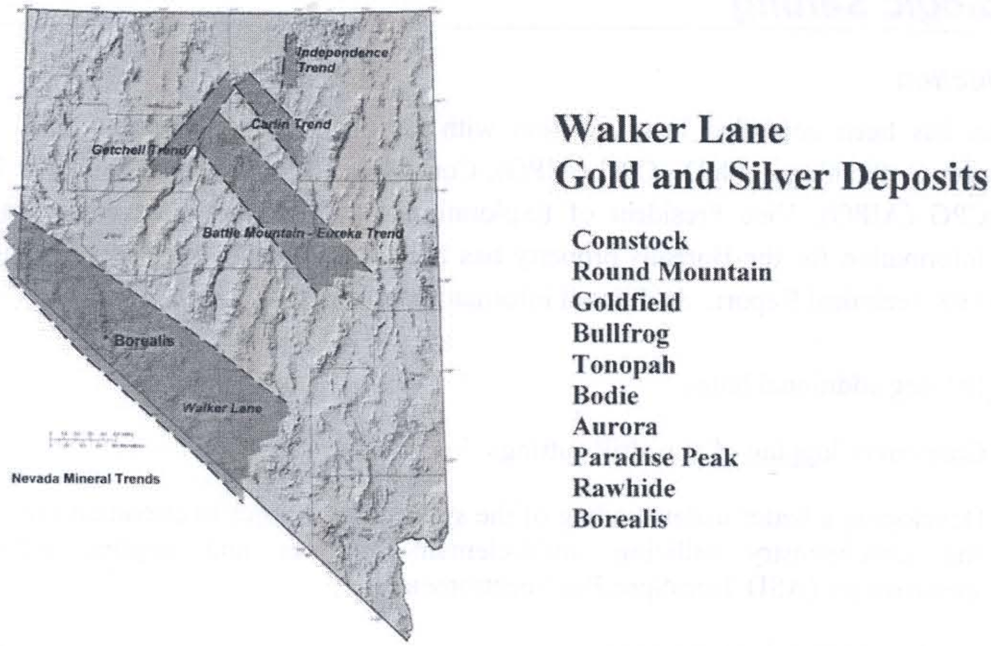
7.1 Introduction

This section has been compiled in association with Gryphon Gold's geologic staff, which includes Roger C. Steininger, Ph.D., CPG (AIPG), Consulting Chief Geologist, and Mr. Steven D. Craig, CPG (AIPG), Vice President of Exploration. Over the past year and a half, the geological information for the Borealis property has been continuously updated from the May 2005 NI43-101 Technical Report. Additional information obtained includes:

- Drilling additional holes
- Concurrent logging of new drill cuttings
- Developing a better understanding of the systematic changes in alteration mineralogy and geochemistry utilizing multi-element analyses and applied reflectance spectroscopy (ASD TerraSpec Pro Spectrometer)
- Conducting geophysical surveys
- Re-logging of historical core and drill cuttings
- Re-interpretation of historical geological and geophysical data

7.2 Regional Geology

The Borealis mining district lies within the northwest-trending Walker Lane mineral belt of the western Basin and Range province, which hosts numerous gold and silver deposits, as shown on Figure 7.1. The Walker Lane structural zone is characterized by regional-scale, northwest-striking, strike-slip faults, although none of these are known specifically in the Borealis district. Mesozoic metamorphic rocks in the region are intruded by Cretaceous granitic plutons. In the Wassuk Range the Mesozoic basement is principally granodiorite with metamorphic rock inclusions (Eng, 1991). Overlying these rocks are minor occurrences of Tertiary rhyolitic tuffs and more extensive andesite and dacite flows and pyroclastics. Near some fault zones, the granitic basement rocks exposed in the eastern part of the district are locally weakly altered and limonite stained.



(Gryphon Gold Corporation, 2005)

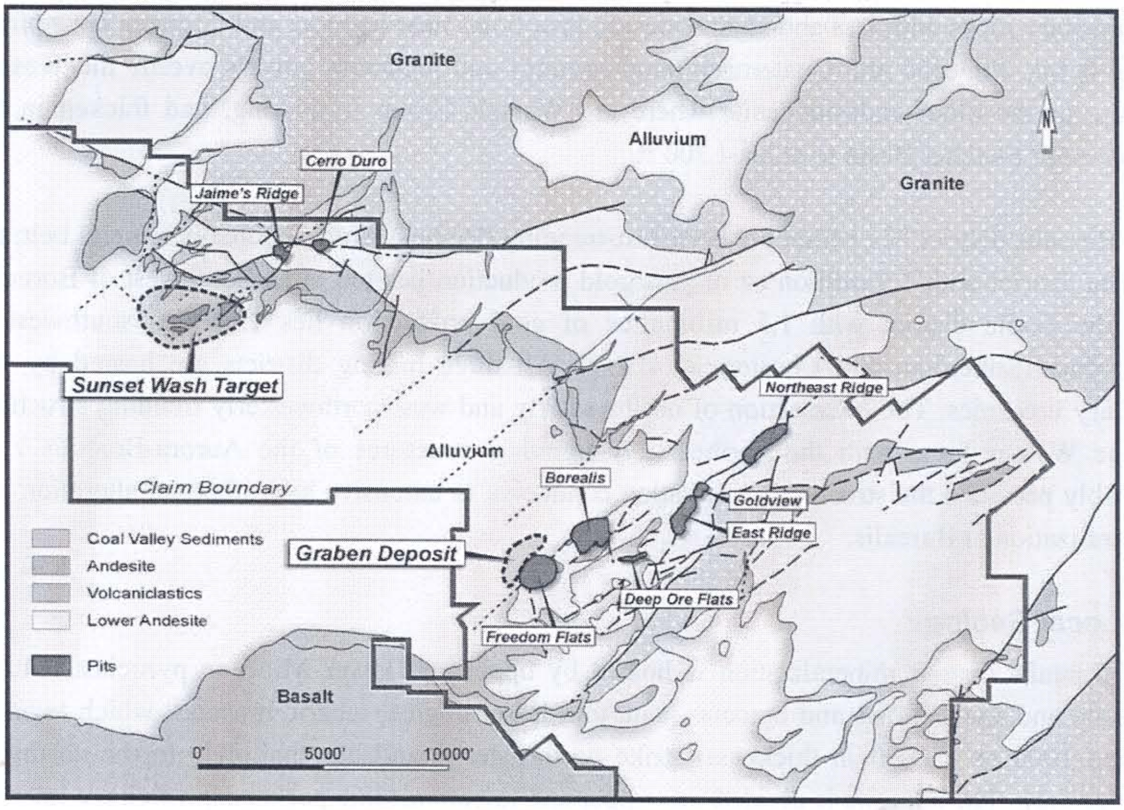
Figure 7.1 - Walker Lane Gold and Silver Deposits

The oldest Tertiary rocks are rhyolitic tuffs in small isolated outcrops, and most of these tuffs were probably eroded prior to the deposition of the younger volcanic rocks in the Borealis area. The rhyolitic tuffs may be correlative with regionally extensive Oligocene rhyolitic ignimbrites found in the Yerington area to the north and within the northern Wassuk Range. On the west side of the Wassuk Range, a thick sequence of older Miocene andesitic and dacitic volcanic rocks unconformably overlies and is in fault contact with the granitic and metamorphic rocks, which generally occur east of the Borealis district. The ages of the andesites and dacites are poorly constrained due to limited regional dating, but an age of 19 to 15 Ma is suggested. (Ma refers to million years before present.) In the Aurora district, located ten miles southwest of Borealis, andesitic agglomerates and flows dated at 15.4 to 13.5 Ma overlie Mesozoic basement rocks and host gold-silver mineralization. Based on these data, a broader age range for the andesites in the Borealis region can be considered as 19 to 13.5 Ma. Rocks of the Miocene Wassuk Group locally overlie andesites/dacites and underlie much of Fletcher Valley, a late Tertiary structural basin located west of the Borealis mine area. The Wassuk Group is up to 8,200 ft thick near its type locality, but much thinner in the Borealis district where its Coal Valley member is found. Much of the Wassuk Group sedimentary rocks in the Borealis area have been removed by erosion. The Wassuk Group consists of a sequence of interbedded, fluviolacustrine, andesitic/dacitic sedimentary rocks with less abundant andesitic lava flows near its base, and it ranges in age from 13 to 8 Ma. Pliocene and Quaternary fanglomerates and pediment gravels overlie the Wassuk Group, or the older andesite/dacite where the Wassuk Group is missing, and thicken in the direction of Fletcher Basin to at least 300 ft.

The Borealis district lies within the northeast-trending (Bodie-) Aurora-Borealis mineral belt; the Aurora district with 1.9 million oz of past gold production lies ten miles southwest of Borealis, and the Bodie district with 1.5 million oz of gold production lies 19 miles southwest in California (Silberman and Chesterman, 1991). All three mining districts are hosted by late Tertiary volcanics. The intersection of northwesterly and west-northwesterly trending structures of the Walker Lane with the northeasterly trending structures of the Aurora-Borealis zone probably provided the structural preparation conducive to extensive hydrothermal alteration and mineralization at Borealis.

7.3 Local Geology

The Borealis district mineralization is hosted by upper and lower Miocene pyroclastics/tuffs, andesite and dacite flows and breccias, and, to a lesser degree, laharic breccias, which together exceed 1000 to 1200 ft in thickness, strike northeasterly, and dip shallowly to the northwest (Figure 7.2). The andesite is divided into upper and lower volcanic packages, which are laterally extensive and constitute the predominant bedrock in the past-producing part of the district. These units host most of the gold ore deposits, and the most favorable host horizon is the pyroclastic unit at the base of the upper andesite and the tuffaceous contact zone between the two andesite/dacite units. An overlying upper tuff is limited in aerial extent due to erosion (Eng, 1991). All of these units are cut by steeply dipping northeast-trending, west-northwest-trending, and north to north-northeast-trending faults that probably provided conduits for mineralizing hydrothermal fluids in the principal mineralized trend. Pediment gravels cover the altered-mineralized volcanic rocks at lower elevations along the range front and overlie many of the best exploration targets. Wide-spaced drilling indicates that pediment gravels cover the majority of the altered-mineralized area over a seven-mile long zone in the southern and southwestern parts of the district. Much of this area has received only minor testing with systematic multidisciplinary exploration. Figure 7.2 illustrates the local geology of the Borealis district and project area.



(Source: Echo Bay Mines, circa 1989, modified to reflect new property boundaries by Gryphon Gold, 2005)

Figure 7.2 - Geologic Map of the Borealis Project Area

7.4 Miocene and Younger Rocks

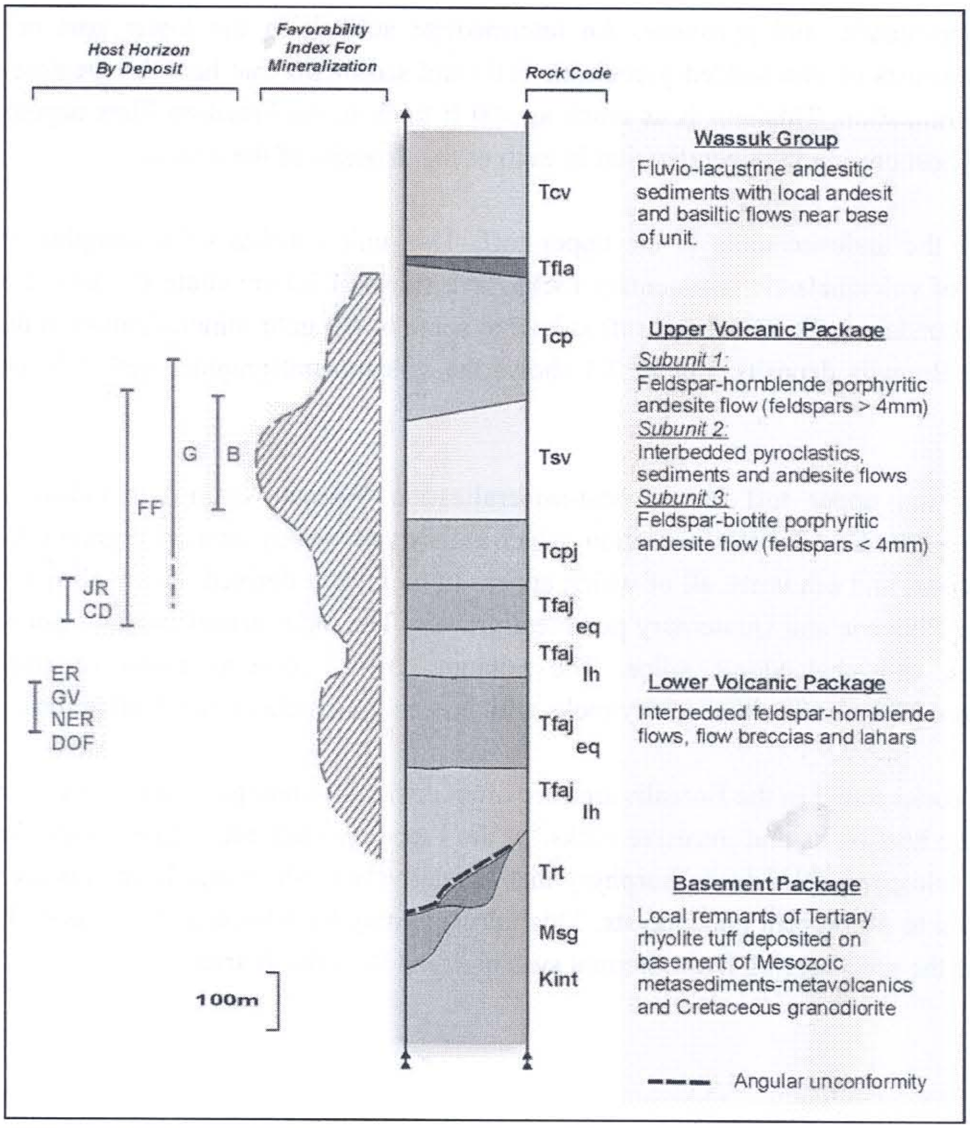
The lower andesite unit in the productive Borealis trend is the oldest volcanostratigraphic unit and is composed predominantly of andesitic flow breccias with less abundant lava flows and minor lahars. The unit is often mottled, ranging from light gray-green to purple-brown. The rocks typically are weakly porphyritic, containing phenocrysts of small feldspars and minor hornblende and biotite. Flow breccias consist of andesite clasts in the weakly altered groundmass of feldspar and clay minerals. These features cause the unit to be poorly indurated and incompetent. The lower andesite exceeds 500 ft in thickness and lies unconformably on, or is in fault contact with, Mesozoic basement rocks. The lower andesite is not a favorable host rock, and only minor gold production has been derived from it.

The upper andesite unit is composed of green-gray, weakly to moderately porphyritic andesite lava flows that are more indurated and massive than those of the underlying lower andesite. These lavas contain 10 to 25 percent phenocrysts of feldspar with less abundant phenocrysts of biotite, hornblende, and pyroxene. An intermediate subunit in the lower part of the upper andesite consists of interbedded pyroclastic tuffs and sediments that host the greatest amount of gold mineralization. This unit is as much as 300 ft thick in the Freedom Flats deposit, and it is known to host ore-grade mineralization in each of the deposits of the district.

Overlying the andesite units is the upper tuff. This unit consists of a complex interbedded sequence of volcaniclastic sedimentary rocks, lava flows of intermediate to mafic composition, and less abundant tuffs. The upper tuff is host to some of the gold mineralization in the Freedom Flats and Borealis deposits. Figure 7.3 shows the volcanostratigraphic section in the Borealis district.

Overlying the upper tuff is the post-mineralization Wassuk Group, including the clastic sediments of the Coal Valley Formation, which consists of weakly cemented gravel, sandstone to conglomerate, and ash units, all of which appear to be locally derived. Lying above the Wassuk Group are Pliocene and Quaternary pediment gravels. The older gravel contains abundant clasts of opaline and chalcedonic silica. The younger gravel contains clasts of unaltered and propylitized andesitic/dacitic country rocks with less abundant clasts of silicified rock.

Intrusive rocks found in the Borealis area are often difficult to recognize due to intense alteration of both the host rocks and intrusive rocks. In the Freedom Flats pit, a fine- to medium-grained intrusive feldspar-biotite dacite porphyry that is relatively fresh to argillized was identified and contains up to 40 percent phenocrysts. This intrusion may be related to the igneous heat engine that drove the gold-bearing hydrothermal system in the Borealis district.



(Source: Gryphon Gold Corporation, based on information from Cambior Exploration, 1998)

Figure 7.3 - Volcanostratigraphic Section in the Borealis District

7.5 Structure

Regional structural trends that are important in the district are dominantly northeast-striking normal faults with steep dips and west-northwest-striking range-front faults with steep southerly dips. In addition, north to north-northeast-striking structures that host the Graben deposit and other exploration targets occur locally within the district. A pattern of northeast-trending horsts and grabens occur in the district according to Eng (1991). Two of the fault systems lay on regional trends of known mineralized systems, and Borealis appears to be at a major intersection of these mineralized trends. A number of the pre-mineral faults of all three orientations in the district may have been conduits for higher-grade hydrothermal mineralization, which often followed the planes of the faults and formed high-grade pods or "pipes." Movement along most of the faults in the Borealis district appears to be normal although some faults also display a strike-slip component of movement. Along the Borealis trend where most mining occurred in the district, rocks are mostly down dropped on the northwest side of northeast-trending faults, which forms part of a graben in which the Graben deposit occurs beneath thick alluvial gravels. The Graben deposit appears to be controlled by a north-northeast-trending structural zone dipping steeply to the east, and structures of this orientation are being recognized as more common in the district than previously thought.

All of these major faults have acted as conduits for hydrothermal fluids or loci for development of mineralized hydrothermal breccias and silicification. Emplacement mechanisms of the ore deposits included hydrothermal brecciation concurrent with, and followed by, pervasive silicification and sulfide/precious metal introduction within or adjacent to feeder structures. It is likely that some deposits, such as the high-grade pod in the Freedom Flats deposit, may have been initially localized along the intersections of small second order faults with the major feeder structures. In plan view, these high-grade pods are relatively small, and diligent effort is required to locate and define them.

In the western part of the Borealis district where the Cerro Duro, Jaimes Ridge, and Purdy Peak deposits are found, structures are predominantly west-northwest-trending normal faults including some that separate Mesozoic granites from the Miocene volcanic rocks. These faults are responsible for localizing some of the mineralization in this part of the district along with northeast-trending faults. Post-mineral movement of a series of the west-northwest trending, range-front faults suggest a progressive down dropping of the southern blocks toward the valley floor. A secondary set of structures is northeast striking and also may control alteration and mineralization trends toward the pediment.

Speculation on the occurrence of a volcanotectonic depression or a caldera in the Borealis district is tentatively supported by aeromagnetic anomalies that form two or more circular patterns beneath the pediment. Surface geology features are not definitive in identifying these structures, however; and confirmation of these possible volcanic structures and associated distinctive volcanic stratigraphy will depend on the results of drill holes that will explore the pediment area.

Post-mineral faulting is common and needs to be identified accurately, especially where ore-grade material is terminated or offset by faulting. Post-mineral faulting may be oriented: (1) west-northwesterly paralleling the range front, (2) northeasterly paralleling the other dominant regional and district faulting, and likely (3) northerly, by reactivating pre-mineral structures that likely controlled Graben mineralization. Post-mineral faulting has displaced portions of several of the previously mined deposits.

8.0 Deposit Types

This section has been compiled in association with Gryphon Gold's geologic staff, which includes two "Qualified Persons" for the purpose of NI 43-101, Standards of Disclosure for Mineral Projects, Roger C. Steininger, Ph.D., CPG (AIPG), Consulting Chief Geologist, and Mr. Steven D. Craig, CPG (AIPG), Vice President of Exploration.

8.1 Hydrothermal Gold Deposits

The Borealis hydrothermal system is recognized as a high-sulfidation-type system, generally with high-grade gold occurring along steeply dipping structures and with lower grade surrounding the high grade and commonly controlled by volcanic stratigraphy in relatively flat-lying zones. Gold deposits with minor silver are hosted by Miocene pyroclastics/tuffs, andesitic flows and flow breccias, dacite flows, and, to a lesser degree, laharic breccias, which are all reported to strike northeasterly and dip shallowly to the northwest. In the areas of some fault zones, the granitic basement rocks are weakly altered and limonite stained. Pediment gravels cover the altered-mineralized volcanic rocks at lower elevations along the mountain front, and there is potential for discovery of more blind deposits, similar to the Graben.

The Borealis hydrothermal system is defined as high-sulfidation (acid sulfate) based on the following features: presence of advanced argillic alteration with alunite, dickite, pyrophylite, and diaspore deeper in the system; presence of large bodies of opaline silica; presence of many zones of acid leaching with feldspar phenocrysts removed leaving "vuggy" silica rock; presence of minor amounts of enargite; lack of adularia; and high iron-sulfide content, principally pyrite with minor marcasite.

Structures controlling ore deposits are both northeast-striking faults and generally west-northwest-striking faults. Another strong control within the district is a series of north to north-northeast-trending structures that host the Graben deposit and other exploration targets. Steeply dipping faults in the district may have been feeders for high-grade gold deposits. High-grade zones were likely formed by more than one episode of hydrothermal, possibly explosive, brecciation and silicification with accompanying metallic minerals. The vertical high-grade zone in the Freedom Flats deposit probably formed through this mechanism along a northeast-trending structure.

The Graben system appears to be localized along an elongate north-northeast-trending structural zone containing two or more high-grade pods that plunge steeply (45 to 60 degrees) to the east.

Hydrothermal brecciation and pervasive silicification are also common to the Graben system. The Graben deposit is somewhat different than other deposits in the district. Both the low-grade gold zone and hydrothermal brecciation are more extensive. Within the low-grade gold aureole are at least two apparently separate high-grade gold zones. Resource modeling identifies continuity of the moderate to high-grade zone for 2,000 ft in length and from 50 to 200 ft wide. There are less developed and extensive "vuggy" silica zones. Additionally, the apparent structural control has a north-northeasterly orientation, which was considered to be unusual in the district but is becoming more prominent as geophysical surverys are conducted. Due to extensive gravel cover in the pediment environment, additional blind deposits such as the Graben are expected to be discovered as exploration progresses beneath the alluvium cover.

Other gold deposits in the district have similar alteration features but may have been developed by less explosive events. In these other systems, gold-bearing mineralizing fluids migrating upward along fault zones intersected favorable lithologic horizons where the gold-bearing fluids moved laterally and deposited lower grade mineralization. This process created gold deposits that have a flat-lying attitude and appear to be lenticular in section. The original Borealis deposit and the lower-grade portions of the Graben deposit are examples. The Graben deposit has components of both styles.

The surface "footprints" of the high-grade pods found to date are rather small, and they can be easily missed with patterns of too widely spaced geophysical surveys and drill holes. Once a higher-grade zone is suspected, fences of drill holes with a 100-ft spacing should be conducted and a 50-ft spacing may be required, but even this spacing may not be adequate to accurately define the high grade within the zones. Eng (1991) describes the underestimation of grades in the Freedom Flats deposit due to the drill holes missing small very high-grade pods (>0.5 opt Au) of mineralization and to possible loss of fines during drilling. Another aspect not covered by Eng, but one that has become extremely important, is the orientation of drill holes with respect to controls of the mineralized zones. Because much of the high-grade gold occurs along steeply dipping structures, the mineralized zones can best be defined by angle drill holes oriented approximately normal to the dip of the controlling features. Most of the drilling on the property, including the Graben deposit, is vertical and therefore did not sample adequately the steep higher-grade zones. Drill hole orientation has compounded the underestimation of grades within the district. A coarse gold component has been considered but not proven, and if present, it can be captured with very careful sampling of drill cuttings and core, collecting large samples, and special assaying techniques.

Most deposits mined in the district, including the Borealis, have a generally flatter tabular shape, and they may have formed parallel to, and within, permeable portions of gently dipping pyroclastic/tuff units, volcanic flows and flow breccias and along contact zones between lithologies. Beneath the northwest margin of the Borealis pit, additional flat-lying gold zones of the Borealis Extension and another deeper zone are found. Steeply dipping high-grade feeder structures have been identified within the original Borealis deposit and extend beneath the pit. Similarly, other steeply dipping high-grade feeder structures have been identified within other deposits and can be projected below the limit of drilling. Substantial drilling is required to define the extent of these mineralized zones.

8.2 Graben Breccias

The core of the Graben deposit is characterized by a complex hydrothermal breccia that hosts most of the gold mineralization and extends vertically and laterally beyond the limits of the deposit. The form of the breccia is imperfectly known, but there are indications that it has steeply dipping roots and flares near its top into a subhorizontal zone that may be controlled by lithology or contact zones. Several varieties of breccia are present, many of which may be variations of the same event. Two units seem to have consistent crosscutting relationships in several core holes; therefore, at least two periods of brecciation are present. The younger unit is light gray, and it intrudes the older black breccia. The light-gray breccia contains about 40 percent clasts that are matrix supported. Typically, the clasts are from a few millimeters to a few centimeters across in an extremely fine-grained light-gray siliceous matrix. The majority of the clasts contain 100 percent texture destructive secondary silicification. In a few areas, clasts of moderately silicified and weakly argillized welded tuff and siltstone occur. This breccia commonly contains 1 to 5 percent pyrite, most of which is in the matrix.

The black breccia contains a variety of sub-textures that will be described together as part of this breccia, but it is recognized that some, or all, of these could be separate brecciation events. Black breccia contains 40 to 60 percent clasts up to 10 cm across in a dense siliceous matrix. Clasts are matrix supported and consist primarily of dark gray to black highly siliceous material of unknown origin with lesser amounts of silicified andesite, welded tuff, and massive iron sulfide clots. In places, the unit is extremely black and sooty as if there is an organic component or, alternatively, very fine-grained sulfides. Several of the drill holes pass from the breccia into altered andesite. The contact zone is characterized by a gradational decrease in brecciation into unbrecciated silicified andesite over distance of a few feet. There is also a corresponding decrease in the amount of silicification into argillized andesite.

Two of the more common textures within the black breccia are zones of banded matrix with few, if any, clasts and areas of vuggy textures. The banded zones typically occur with the banding at high-angles to the core axis. The areas of vuggy texture appear similar to other areas of "acid leaching" on the property. Generally, the cavities are lined with quartz and pyrite. All of the breccias are cut by at least two periods of quartz veins, the oldest of which are white quartz up to 10 mm wide, and the younger are dark quartz-pyrite veins that are up to 5 mm wide and cut the white quartz veins. Pyrite and minor marcasite are concentrated in the matrix where clots of >50 percent iron sulfides are common. Generally, the matrix contains 5 to 25 percent iron sulfides while the clasts contain 1 to 5 percent iron sulfides. The only feature within the breccia that seems to correlate with high grades of gold mineralization is the abundance of quartz veining of either type. While all of the breccias contain iron sulfides, not all breccias contain gold.

8.3 Gold in Alluvium

Several drill holes to the north and northeast of Freedom Flats and west of Borealis encountered gold within the alluvium and generally at the contact and above the Coal Valley Formation sediments. These holes trace a gold-bearing zone that in plan appears to outline a paleochannel of a stream, or a gently sloping hillside, that may have had its origin in the eroding Borealis deposit. The zone is at least 2,500 ft long, up to 500 ft wide, and several tens to a hundred ft thick. An initial estimate of the average grade of this zone is about 0.005 opt Au. At this point, it is unknown if this is a true placer deposit and alluvial deposit of broken ore or some combination of both. Additional drilling and beneficiation tests are needed to determine if an economic concentration of gold exists in the alluvium.

9.0 Mineralization

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9.1 Introduction

Alteration and mineralization most closely associated with ore-grade material are vuggy fine-grained silica, iron sulfides, and quartz veining, and hydrothermal breccia is also common. Alteration patterns grade outward from the central vuggy silica zone with variable alunite and dickite to kaolinite-quartz-pyrite-dickite-diaspore, which grades outward into montmorillanite-pyrite, and then to outermost propylitic halo with minor pyrite (Figure 3.4). Advanced argillic alteration with alunite-dickite may overlap the kaolinite-bearing zones. The silver to gold ratio generally averages 5:1 in the ore zones, and silver commonly forms a discontinuous halo around, and overlaps, the central gold mineralization. In addition gold deposits are commonly surrounded by a halo of much lower grade gold mineralization that generally exceeds 0.002 opt Au. Arsenic and antimony are strongly anomalous in a broad envelope. Recent fieldwork has identified an early stage of chalcedonic silica alteration with pyrite containing elevated trace elements such as arsenic, antimony, and mercury, but it is largely devoid of precious metals mineralization. Recognition of this early, barren silica alteration is important so that it can be avoided when locating and optimizing drilling programs, although blind gold-bearing systems could underlie the barren silica. Post-mineral faulting is common, and needs to be identified accurately, especially where ore-grade mineralization is displaced or terminated by faulting.

Finely disseminated gold found in the Borealis mineralized system was initially enclosed within pyrite. In some portions of the deposits, through natural oxidation, the pyrite was oxidized to limonites and the gold was released; thus gold was made available to extraction by cyanidation. Limited evidence suggests coarse gold exists, probably in the high-grade zones. Gold still bound in pyrite or pyrite-silica is not easily recovered by a simple cyanide heap leach operation, and some type of milling operation would be anticipated.

9.2 Oxide Gold Mineralization

Oxide deposits in the district have goethite, hematite, and jarosite as the supergene oxidation products after iron sulfides, and the limonite type depends primarily on original sulfide mineralogy and abundance. Iron oxide minerals occur as thin fracture coatings, fillings, earthy masses, as well as disseminations throughout the rock.

"Barite occurs as both fine- and coarse-grained crystals, and frequently lines voids and coats iron oxide minerals. These textures indicate that barite is very late in the paragenetic sequence. Alunite is very fine grained and has been identified only by x-ray and petrographic work," according to Eng (1991). At least part of the near-surface alunite is supergene in origin. Grains of free gold are occasionally found in oxidized high-grade rock samples.

Depth of oxidation is variable throughout the district and is dependent on alteration type, structure, and rock type. Oxidation ranges from approximately 250 ft in argillic and propylitic altered rocks to over 600 ft in silicified rocks that are also fractured. A transition zone from oxides to sulfides with depth is common with a mixing of zones containing oxide and sulfide minerals.

Except for the Graben deposit, all of the known gold deposits are at least partially oxidized. Typically the upper portion of a deposit is totally oxidized and the lower portion is unoxidized, and there is an extensive transition zone of partially oxidized sulfide-bearing gold mineralization. Oxidation has been observed as deep as 1,000 ft below the surface. Therefore, there is reason to believe that if additional gold deposits are found under gravel cover, some portion of them may be oxidized.

9.2.1 Sulfide Gold Mineralization

Sulfide deposits in the district are mostly contained within quartz-pyrite alteration with the sulfides consisting mostly of pyrite with minor marcasite, and lesser arsenopyrite and cinnabar. Many trace minerals of copper, antimony, arsenic, mercury, and silver have also been identified. Pyrite content ranges from 5 to 20 volume percent with local areas of nearly massive sulfides in the quartz-pyrite zone and it occurs with grain sizes up to 1mm. Euhedral pyrite grains are commonly rimmed and partially replaced with a later stage of anhedral pyrite overgrowths (Eng, 1991). Study of this phenomenon in other epithermal districts in Nevada has shown that gold occurs only in the late overgrowths.

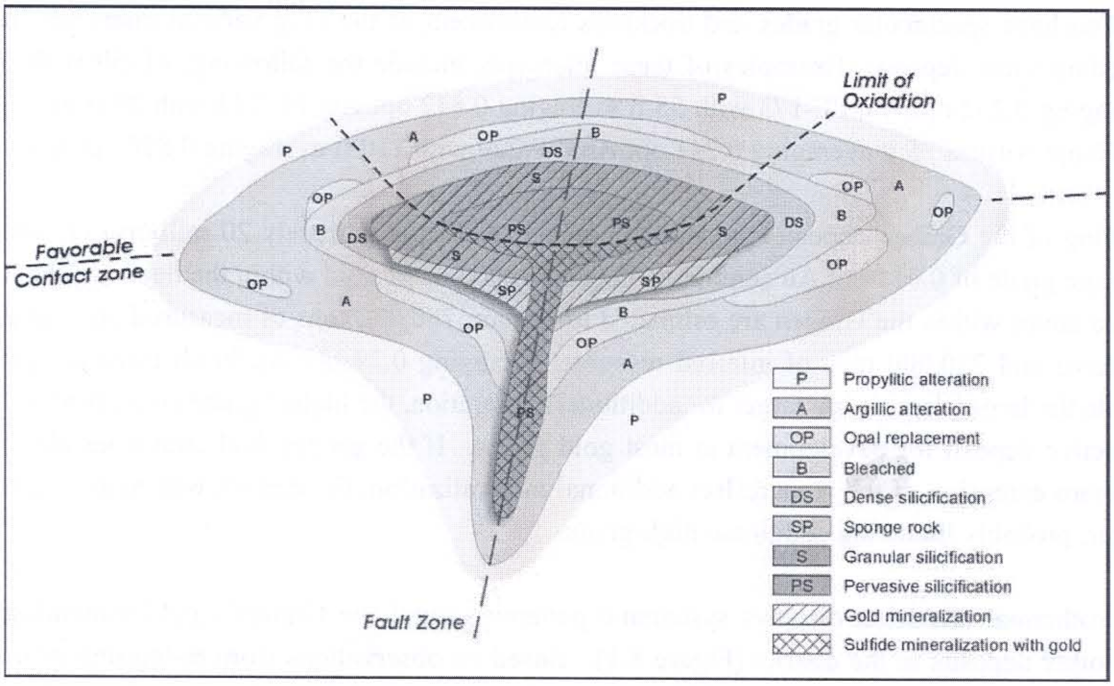
The Graben deposit is the best example found to date of the size and quality of sulfide deposits within the district. In addition sulfide resources occur in the bottoms of most of the pits, but the most significant resource in a pit environment is found beneath the Freedom Flats pit. Potential targets below most pits would include the feeder structures, many of which would be expected to have high-grade sulfide gold mineralization.

Within the lower-grade zone of gold mineralization in the Graben deposit there are at least two large pods of high-grade gold, based on a 0.10 opt Au cutoff. The shape and extent of each is imperfectly known. These pods plunge 45^0 to 60^0 to the east-southeast, are traceable for at least 400 ft down plunge, and are part of a zone of intermediate to high grade that is continuous throughout the length of known Graben mineralization. Some of the holes intercepting the Graben have spectacular grades and thickness reminiscent of the long vertical intercepts in the Freedom Flats deposit. Examples of these intercepts include the following: FF-50 with 60 ft averaging 0.232 opt Au; FF-173 with 55 ft averaging 0.512 opt Au; FF-223 with 20 ft averaging 0.470 opt Au and 75 ft averaging 0.241 opt Au; FF 229 with 110 ft averaging 0.856 opt Au.

Drilling of the Graben deposit has defined a resource of approximately 20 million tons with an average grade of 0.044 opt Au containing about 880,000 oz of gold within the deposit. The high-grade zones within the Graben are estimated to contain 780,000 tons of measured and indicated resource and 220,000 tons of inferred resource, averaging 0.29 opt Au in all three categories. While the larger deposit is a target for additional exploration, the higher-grade zones represent an attractive deposit for development at most gold prices. If the geophysical anomalies along the northern extension of the zone reflect additional mineralization, the deposit will be substantially larger, probably including additional high-grade.

Hydrothermal alteration displays systematic patterns around the Graben's gold mineralization and other deposits in the district (Figure 8.1). Based on observations from re-logging drill core and sample cuttings from the Coal Valley Formation above the mineralized zone in the Graben, there is abundant opal alteration and hematite that probably represents the upper portion and the last stage of the hydrothermal system. This changes downward into an argillic zone that contains alunite-dickite in the inner portion of the zone. The base of the argillic zone, above sulfide mineralization, is commonly the base of the oxidized zone, suggesting that at least a portion of the clay minerals may be supergene. Below the limit of oxidization, within areas of gold mineralization, silicification is the most common alteration type. Drill holes at the margin of the deposit commonly intersect sulfide-bearing argillic alteration. The lack of silicification above the oxide boundary and argillization below the limit of oxidization indicates that at least a portion of the argillic alteration is hypogene. The upper portions of the silicified zone are commonly dense chalcedonic quartz with pyrite. Toward the center of the silicified zone quartz becomes grainy and in places is gray spongy or vuggy silica typical of "acid leached" alteration.

As noted above, the Graben deposit has a large subhorizontal low-grade zone surrounding steeply dipping high-grade zones. Whereas gold is mostly restricted to the breccia, not all of the breccia is gold bearing. Most of the pyrite occurs as disseminations in silicified rock, which is mostly in the hydrothermal breccia. Minor amounts of iron sulfide occur in veins and on rims of clasts. Iron sulfides extend beyond gold mineralization. Limited attempts at ore microscopy have identified only a few grains of free gold, generally <1 mm across (Bloomstein, 1992). Most of the gold in the sulfide zone is reported to be within pyrite grains.



(Source: Echo Bay Mines, circa 1989)

Figure 9.1 - Typical Alteration Patterns of the Borealis District Gold Deposits

10.0 Exploration

This section has been compiled in association with Gryphon Gold's geologic staff, which includes "Qualified Persons" for the purpose of NI 43-101, Standards of Disclosure for Mineral Projects, Roger C. Steininger, PhD, CPG (AIPG), Consulting Chief Geologist, and Mr. Steven D. Craig, CPG (AIPG), Vice President of Exploration.

10.1 Introduction

Since the late 1970s, exploration has been completed at the Borealis Property with the primary objective of finding near surface deposits with oxide type gold mineralization. Exploration work has consisted of field mapping, surface sampling, geochemical surveys, geophysical surveys, and shallow exploration drilling. Only limited drilling and geological field work has been completed in areas covered by pediment gravels, even though Freedom Flats was an unknown, blind deposit, without surface expression when discovered.

Many geophysical surveys have been conducted by others in the Borealis district since 1978. In addition, regional magnetics and gravity maps and information are available through governmental sources. The most useful geophysical data from the exploration programs has been induced polarization (IP) (chargeability), aeromagnetics, and, to a lesser degree, resistivity.

Areas with known occurrences of gold mineralization, which have been defined by historical exploration drilling, and have had historical mine production include: East Ridge and Gold View, Northeast Ridge, Freedom Flats, Borealis, and Deep Ore Flats (also known as Polaris). All of these deposits still have gold mineralization remaining in place, contiguous with the portions of each individual deposit that has been mined.

Discovery potential on the Borealis property includes oxidized gold mineralization adjacent to existing pits, new oxide gold deposits at shallow depth within the large land position, gold associated with sulfide minerals below and adjacent to the existing pits, in possible feeder zones below surface mined ore and deeper gold-bearing sulfide mineralization elsewhere on the property. Both oxidized and sulfide-bearing gold deposits exhibit lithologic and structural controls for the locations and morphologies of the gold deposits.

10.2 Historical Exploration

The following areas have not been subject to historic mine production, but have been subject to historical exploration that has identified gold mineralization.

10.2.1 Borealis Extension

The Borealis Extension deposit occurs at shallow to intermediate depth beneath the northern and western parts of the former Borealis pit. Most of the mineralization begins at 110 to 375 ft below the surface. Generally the top of this target occurs at or slightly below the 7,000-ft elevation. The primary target is defined by 16 contiguous drill holes completed by previous operators that have potential ore-grade intercepts and that penetrate beneath the 7,000-ft elevation. Thickness of low-grade mineralized intercepts ranges from 15 to 560 ft with nine holes having from 155 to 560 ft of +0.01 opt of gold; average thickness of the zone is 236 ft. We have drilled an additional 16 holes into the deposit. The drilling results were generally marginal. Further evaluation work is in progress.

10.2.2 Graben Deposit

The Graben deposit has been defined with approximately 36 historical RC holes and 19 historical core holes. This drilling defined a zone of gold mineralization, using an 0.01 opt Au boundary, that extends at least more than 2,000 ft in a north-south direction and between 200 and 750 ft east-west, and up to 300 ft thick. The top of the deposit is from 500 to 650 ft below the surface. Near its southern margin the axis of the deposit is within 800 ft of the Freedom Flats deposit and along one portion of the southeastern margin low-grade mineralization may connect with the Freedom Flats mineralization through an east-west trending splay. Drilling data appears to confirm mineralization at the southern margin of the deposit is closed off. Along the western margin a suspected post-mineralization fault may have down-dropped the deposit and apparently serves as an effect western boundary to mineralization and brings tertiary gravels in contact with the Graben zone. Much of the eastern margin has not been defined by drilling. To the north mineralization remains open. An airborne magnetic survey and a gradient IP survey reveal anomalies along the northern extension of the Graben zone, suggesting that the deposit continues in that direction.

Through March 2006, Gryphon Gold has drilled an additional 10 RC drill holes into the Graben zone. All holes reported mineralized intervals. The Company has also recently completed a fence of four drill holes, each spaced about 200 ft apart. These holes are located at the northern end of the Graben zone. Drill hole GGC-G-07, which intercepted 556 ft of 0.10 opt Au represents an excellent length of gold mineralization which also had significant silver values. The hole ended in mineralization with a grade of 0.60 opt Au at 1071 ft.

Exploration drilling in the Graben will be continuing as recent drill results are indicating that gold mineralization continues at the north end of the zone. The entire Graben zone has now expanded over a strike length of more than 1,800 ft. Future drilling will both fill in gaps between widely spaced holes in the Graben, and step out from the Graben zone in a north, east and west direction in order to delineate more gold mineralization and to determine the boundaries of the zone.

10.2.3 North Graben Prospect

The North Graben prospect is defined by the projection of known mineralization, verified by drilling sampling and coincident with a large intense aeromagnetic low and an elongate chargeability (IP) high. This blind target lies on trend of the north-northeast-elongate Graben mineralized zone. In 1989, Echo Bay had completed a district-wide helicopter magnetic/electromagnetic survey, which identified a large, intense type aeromagnetic low in the North Graben area. This coincident magnetic low/chargeability high is now interpreted as being caused by an intensive and extensive hydrothermal alteration-mineralization system. Four drill holes completed in the North Graben by Gryphon Gold encountered a permissive geologic setting and trace levels of gold mineralization, but a deposit in the area might be on the magnetic low's flanks rather than at the center of the low.

Cambior conducted a gradient IP survey in 1997, which identifies a deep-source broad chargeability anomaly that extends northerly from the northern margin of the Freedom Flats deposit, covers only part of the Graben zone and most of the North Graben area, and extends to the limit of the surveyed area. This anomaly is interpreted to be caused by high-sulfide mineralization. The North Graben prospect area thus represents the possible extension of known mineralization of the Graben zone and it remains open to the north.

One angle hole was drilled by Cambior in 1998 to test the southernmost portion of the North Graben target chargeability anomaly, and it was well south of a large aeromagnetic low. The upper 725 ft of this hole contained post-mineral gravel and sediments and relatively unaltered andesitic volcanics, before intersecting altered and mineralized andesite near the bottom of the drill hole. The pre-mineral andesite flows contain alteration ranging from propylitic to chalcedonic silica down the hole. Hole 98005 was lost at a depth of 780 ft due to drill hole caving. Although no significant gold mineralization was encountered in the drill hole, alteration was most intense at the bottom. Hydrothermal alteration noted in samples from the hole fits better with patterns found at the margin of a Graben-type deposit.

In early 2006 the Company completed four holes into the North Graben geophysical anomaly. All the holes intercepted a deep hydrothermal system as indicated by several zones of silicification, and pyrite up to 20 percent. None of the holes contained significant amounts of gold, but were geochemically anomalous in gold and silver. Additional drilling is planned.

10.2.4 Sunset Wash Prospect

The Sunset Wash prospect consists of a gravel-covered pediment underlain by extensive hydrothermal alteration in the western portion of the Borealis district. Sixteen holes drilled by Echo Bay Mines indicate that intense alteration occurs within a loosely defined west-southwest belt that extends westerly from the Jaimes Ridge/Cerro Duro deposits. At the western limit of the west-southwest belt, Cambior's IP survey and drilling results can be interpreted to indicate that the alteration system projects toward the southeast into the pediment along a mineralized northwest-oriented fault. Cambior conducted a gradient array induced polarization (IP) survey over the Sunset Wash area effectively outlining a 1,000 by 5,000 ft chargeability anomaly. The anomaly corresponds exceptionally well to alteration and sulfide mineralization identified by Echo Bay's drill hole results. Two structures appear to be mapped by the chargeability anomaly; one is a 5,000-ft long west-southwest-trending structure and the other is a smaller, northwest-trending structure that cuts off the W-SW structure at its western limit. Alteration types and intensity identified by the drilling, combined with the strong IP chargeability high and the aeromagnetic low, strongly suggest that the robust hydrothermal system at Sunset Wash is analogous to the mineralized systems at Graben and Freedom Flats.

Geologic observations based on mapping and drill hole logging indicate that both the Freedom Flats and the Graben deposits are localized along a favorable horizon near the contact between the upper and lower volcanic units. This same contact zone appears to underlie the Sunset Wash pediment at a shallow depth. The target concept suggests that mineralization should favor zones where mineralizing structures crosscut the upper and lower volcanic contact. Cambior drilled three holes to test portions of the Sunset Wash geophysical anomaly and to offset other preexisting drill holes with significant alteration. Each of the three holes was drilled vertically to maximize the depths tested. The three holes were collared in the upper volcanic unit, but only one crossed the contact.

The westernmost of Cambior's three holes encountered the most encouraging alteration and best gold mineralization suggesting that this drillhole is near the most prospective area. This drill hole intercepted hydrothermally altered rock from the bedrock surface to bottom of the hole, including an extremely thick zone of chalcedonic replacement in the lower two-thirds of the hole.

10.2.5 Boundary Ridge/Bullion Ridge Prospect

The northeast-trending alteration zone extending along Boundary Ridge into Bullion Ridge contains intense silicification that is surrounded by argillization, with abundant anomalous gold. Widely spaced shallow holes completed by previous operators have tested several of the alteration/anomalous gold zones defining discrete zones of mineralized material.

10.2.6 Central Pediment (Lucky Boy) Prospect

Another prospect area similar to North Graben and Sunset Wash is the Lucky Boy area, which may be in a shallower pediment environment in the central portion of the district near the range front. Drill holes in the periphery have thick zones of silicification and traces of gold mineralization. Echo Bay's aeromagnetic map shows another magnetic low and Cambior's IP map shows a coincident chargeability high in the area of the silicification.

10.3 Activities Planned to Expand Mineralized Zones and Explore Prospects

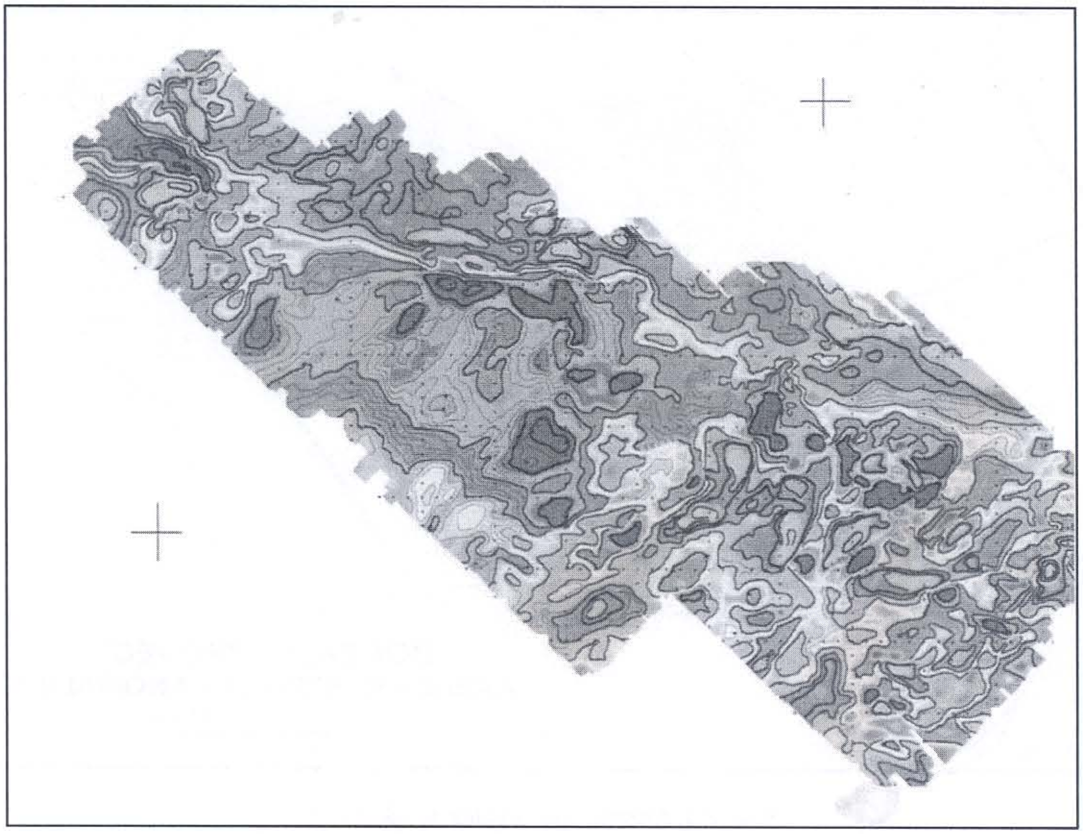
The Borealis property embraces numerous areas with potential for discovery of mineable gold deposits. The defined target areas can be grouped into categories based on the expectation for deposit expansion or potential for discovery. The current emphasis is focused on targets, which are the extensions of previously mined deposits, specifically the East Ridge-Gold View-Northeast Ridge mineralized trend, and around the margins of the Borealis, Freedom Flats, and Deep Ore Flats/Polaris deposits. Each has the potential to add to the material that can be developed as part of the initial mine plan. To date the Company has drilled 181 holes on the Borealis property. These holes have been completed primarily in areas where resources are known to exist. In addition to advancing existing resources to a higher level of confidence, this drilling program has further information gathering objectives for metallurgical assessment, waste characterization, and hydrological analyses that are required in support of the operating permit applications, environmental assessment, and engineering design. Assay results from these holes received to date have not been fully interpreted and integrated into a new resource model. Results from drilling will be incorporated into the preparation of the feasibility study.

A systematic district-scale exploration program designed to discover and delineate large gold deposits within the greater Borealis Property, outside of the known mineral deposits, will focus along known mineralized trends that project into untested gravel-covered areas with coincident geophysical anomalies. The greatest potential in the district lies beneath a large gravel-covered area at the mountain front with several potential blind deposits (with no surface expression). The Graben zone is an example of this type of deposit, and other high-potential targets include North Graben, Sunset Wash, Central Pediment (Lucky Boy), and others yet to be named.

Planned activities and expenditures include both field and compilation geology, geophysics, geochemistry, permitting and claim maintenance, road construction and drill-site preparation, RC and core drilling, drill hole assaying, sampling protocol studies and assay quality control, preliminary metallurgical testing, and database management. Plans call for nearly 50 percent of the exploration budget to be spent directly on drilling (mostly on RC drilling) with approximately 13 percent on geologists, 10 percent on assaying, and the remainder divided among the other items, including enhanced geophysical surveys. The budget is expected to be sufficient to discover and delineate one or more deposits, but additional funding will be required for detailed development drilling and other development activities following discovery.

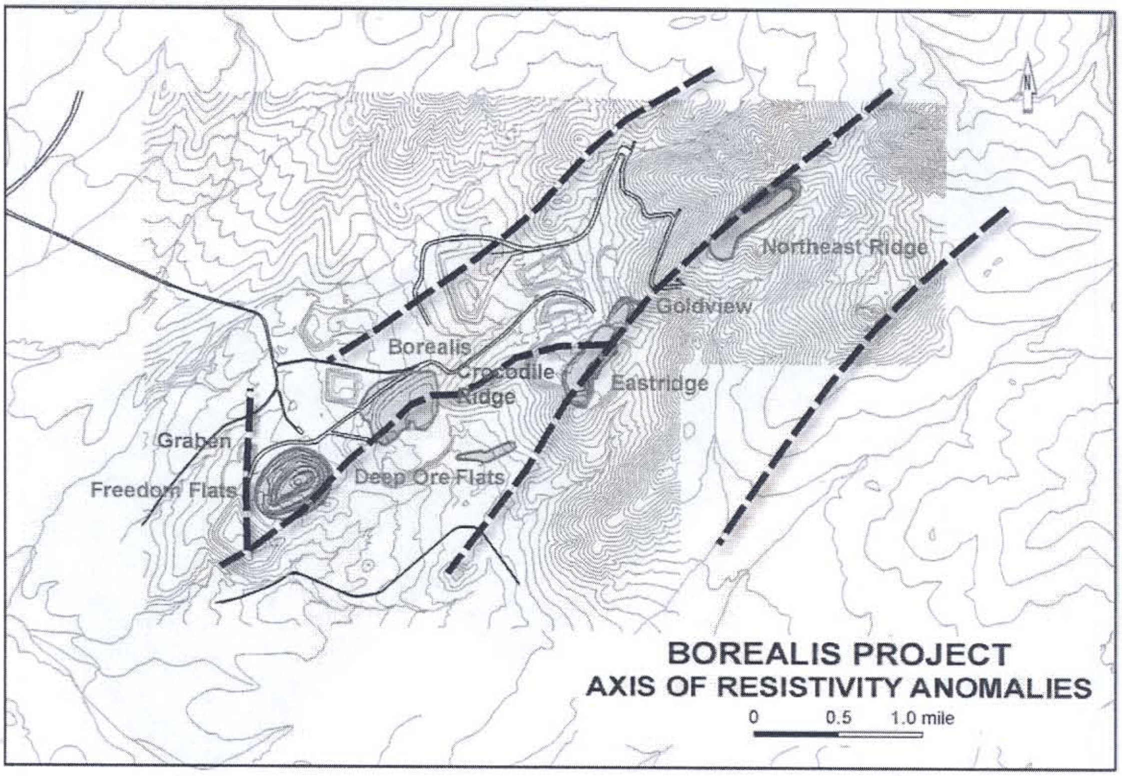
10.3.1 Area Geophysical Surveys

Many geophysical surveys have been conducted in the Borealis district since 1978, including the following: ground magnetics, VLF, IP/resistivity, seismic, CSAMT, helicopter magnetics and EM, e-scan, and gradient IP/resistivity. In addition regional magnetics and gravity maps and information are available through governmental sources. Geophysical data most useful in exploration programs have been resistivity, aeromagnetics, and chargeability. Resistivity was used successfully in the early exploration of the district to track favorable trends of strong silica alteration and associated gold deposits. The types of geophysical surveys currently found to be most useful in the Borealis area is chareability and aeromagnetics, an example of which is shown on Figure 10.1.



(Source: Echo Bay Mines, circa 1989)
Figure 10.1 - 1989 Borealis District Aeromagnetic Survey Map

In addition to projections of known alteration and mineralization trends into pediment environments, geophysics is being used to define and prioritize the pediment targets. In particular aeromagnetic (lows) and induced polarization (resistivity and chargeability highs) data identify the most favorable covered targets and help site drill holes, especially where magnetics and IP show coincident anomalies. Resistivity highs are used to identify extensive silicification in covered areas. Other geophysical methods will be used where appropriate, possibly including ground magnetics, CSAMT, e-scan, VLF, electromagnetics, gravity, and seismic. Each of these methods provides information that may be used in determining the subsurface geologic conditions and how and where to test exploration targets. An example of an interpretation of resistivity data are shown on Figure 10.2.



(Source: J. Anzman and Gryphon Gold, 2005)

Figure 10.2 - Selected Resistivity Anomaly Trends of a Portion of the Borealis District

10.3.2 Applied Reflectance Spectroscopy

As Gryphon Gold explores for gold deposits in the Borealis district, it can enhance the odds of discovery by developing a better understanding of the outward signatures of mineralization. Hydrothermal mineral deposits commonly contain halos of alteration and geochemistry that surround the metals of interest. By understanding the systematic changes in alteration mineralogy and geochemistry as economic mineralization is approached, vectors can be developed that can turn near-misses into successes. The initial step in this understanding was taken with the discussion of the alteration patterns around the Graben deposits found in Steininger and Ranta, 2006. This understanding of mineralogical and geochemical changes as gold mineralization is approached was enhanced recently. Several new holes were drilled in, and around, Graben and North Graben and produced fresh drill cuttings that allow identification of geologic changes surrounding hydrothermal systems. Several of these holes were used to supply material for multi-element analyses to define geochemical changes. Finally, acquisition of the ASD TerraSpec Pro Spectrometer and the services of Ms. Susan Judy in the interpretation of spectrometer results produced a better definition of alteration mineralogical changes.

Four lines of drill holes were used to develop detailed information about alteration and geochemical patterns around Borealis-type gold deposits. Since only drill hole RC chips and core were available, TerraSpec alteration analyses was only collected for the Freedom Flats section. No pulps were available that would permit collection of geochemical data. A drill hole section through the center of the Graben deposit was also analyzed for alteration mineralogy, but again no pulps are available for geochemical analyses. The recently drilled fence of holes across the northern extension of the Graben deposit gives a unique opportunity to understand alteration and geochemistry surrounding gold mineralization. Therefore, both TerraSpec and geochemical analyses were undertaken on the four Northern Graben drill holes. Finally, the four North Graben drill holes were analyzed for alteration minerals and geochemistry as a first use this new data to direct exploration.

There are many subtleties in the data that may, or may not, be important and may vary from area to area dependent upon the original character of the host rock. For instance, a rock that is devoid in mafic minerals may not have chlorite developed at the margins of the altered area, where a mafic-rich rock may contain a substantial outer chlorite zone. A host rock that has a chromium component may display a chromium anomaly while that element may be lacking in other rocks in the area and no chromium anomaly is developed. Therefore, at this stage in the understanding of the geology of the district only those features that seem to be consistent in all four sections are considered important. As Gryphon Gold's knowledge of the district's geology expands, the subtleties in this information may take on more importance.

10.3.3 Freedom Flats Section

Ten drill holes were analyzed for alteration mineralogy along this section since several of the holes extend into and through the deposit, as well as a few holes that are peripheral to mineralization (see Freedom Flats geology and mineralization section). In general, the deposit is surrounded by an envelope of montmorillonite and opal (see Freedom Flats clay mineralogy section). As mineralization is approached, kaolinite becomes the dominant clay mineral. This zone may also contain nontronite (iron rich kaolin) and alunite. Dickite, with or without alunite, occurs in the area of gold mineralization. Alunite is more concentrated in the lower portion of the deposit. Those holes that extended through mineralization displayed a reverse pattern with kaolinite immediately below the deposit and montmorillonite outward. Nontronite occurs in some of the kaolinite zones and may reflect the increasing iron rich environment, as exemplified by increasing pyrite. Diaspore and pyrophyllite are also present in the dickite-alunite areas, probably reflecting the higher temperature acid-sulfate environment that existed as the Freedom Flats deposit formed.

As part of the Eng's (1991) work for the Freedom Flats deposit, x-ray diffraction clay mineral identification was conducted. That data were recently made available to Gryphon Gold. X-ray diffraction is the classic approach and reliable method for clay mineral identification. Samples from two drill holes along the Freedom Flats section in this study were also included in Eng's work. While there were some differences in identifying minor constituents, there is sufficient agreement between the two techniques to indicate that the TerraSpec analysis is a reasonable semi-quantitative approach to clay mineral identification for the Borealis district mineralization.

10.3.4 Central Graben Section

This cross-section was chosen as geologically typical of the Graben deposit, but as it turned out not particularly good for the alteration study. There is an alluvial layer that is about 150 ft thick under which is a thickness of Tertiary Coal Valley Formation to about 485 ft below the surface. Coal Valley contains increasing iron oxides and argillization with depth, but at this point it is difficult to determine if this is a hydrothermal or a supergene effect. If supergene, the alteration may have been produced by circulating groundwater that leached sulfides below producing acidic water that altered the Coal Valley above. The resulting alteration would then not be directly related to the hydrothermal events that produced the Graben deposit, although it might suggest that a sulfide system is nearby. Immediately below the Coal Valley Formation is gold mineralization that is hosted by a strongly silicifed pyrite rich breccia in the central part of the section. Some of the drill holes penetrated this breccia and extended into altered andesite. The change from possible post-mineralization Coal Valley into mineralized rock does not present an opportunity to look at alteration changes that occur as mineralization is approached.

A TerraSpec analysis indicates that dickite, with or without diaspore, is present within the silicified pyrite rich gold-bearing zone. Holes that penetrated the mineralized system displayed a pattern of kaolinite nearest silicification and montmorillonite outward. Clay minerals in the Coal Valley are commonly mixtures of kaolinite, alunite, and some montmorillonite, but there is a lack of consistent patterns.

10.3.5 Conclusions and Recommendations

The combination of alteration and geochemical patterns provide a broad zone around precious-metal mineralization helping to direct exploration in the search for additional gold deposits within the Borealis district. The broad pattern transitioning from propylitic alteration to argillization, dominated by montmorillonite at the outer margins, and changing to kaolinite as the zone of silicification is approached is a distinctive and systematic pattern that can be detected by logging drill chips and TerraSpec analyses. The silica-pyrite zones also contain some combination of dickite-diaspore-alunite which can be used as an indication of potential gold mineralization before assays are received. Rock-forming elements also display a systematic decrease as higher temperature, pervasive hydrothermal alteration is approached. Several trace elements, including As, Fe, Hg, Mo, Pb, S, Sb, Sn, W, and Zn are anomalous in a broader zone than, and directly related to, gold mineralization. These elements produce a target zone that extends beyond the gold deposit.

These features are systematic enough that a drill hole near a gold zone can be identified as a "near miss" but encouraging enough to continue drilling in the area. Having this information supplies a powerful tool for locating additional gold deposits in the Borealis district. North Graben is one such example. The combination of geology, clay mineralogy and geochemistry indicate that a significant gold zone is probably nearby.

The contributing Gryphon Gold authors, Dr. Roger Steininger and Mr Steven Craig, recommend that Gryphon Gold undertake a systematic district-scale exploration program designed to discover and delineate large gold deposits within the greater Borealis Property, outside of the known mineral deposits. The program should focus along known mineralized trends that project into untested gravel-covered areas with coincident geophysical anomalies. The contributing Gryphon Gold authors' agree that the greatest potential in the district lies beneath a large gravel-covered area at the mountain front with several potential blind deposits (with no surface expression). The Graben zone is an example of this type of deposit, and other high-potential targets include North Graben area, West Pediment (including Sunset Wash and Vuggy Hill), Central Pediment (Lucky Boy), and others yet to be named.

This district-scale exploration program should include both field and compilation geology, geophysics, geochemistry, permitting and claim maintenance, road construction and drill-site preparation, reverse circulation (RC) and core drilling, drill hole assaying, sampling protocol studies and assay quality control, preliminary metallurgical testing, and database management.

In addition, further sampling of the historical heaps and dumps is recommended because of the immediate potential to move inferred resource into indicated resources that may be considered for reserves.

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11.0 Drilling

11.1 Gryphon Gold Drilling

Since the last update to the resource models, as reported in the May 2005 Technical Report, new drilling by Gryphon Gold from early 2005 through November 2006 was added to the drill hole database. The total Gryphon Gold drilling in the database currently includes 171 drill holes and 88,531 ft of drilling. Included in the Company drilling are 50 holes (39,431 ft) that were drilled after March 2005, the effective date of the resource models in this report. One Gryphon Gold hole was outside the resource model limits and one hole was lost before it entered the mineralized zone and was not assayed. Three holes were drilled, but did not yet have collar locations and footage for those holes is not included in the totals. The total number of Gryphon Gold drill holes used in the resource models is thus 116 holes and 49,310 ft of drilling.

Data entry for the Gryphon Gold drill hole assays was verified by O.R.E. by compiling the original assay data sheets (Excel and comma-delimited text files) that were sent from the laboratories. After the Excel spreadsheets were exported to comma-delimited text files (CSV), the CSV files were combined to a single file that also contained the name of the source file and the line number of the source file. The combined file was then edited to decode the drill hole names and interval froms and tos and to align the individual assays so that they were all in the same columns. The assay intervals were then edited to identify standards, blanks, and duplicates and the "false" from-to intervals for the early blank samples were corrected to the actual from-to intervals. The less than (<) symbols on some of the samples below detection limit were then changed to minus signs (-). In general the samples below detection limit were assigned a value equal to one-half the detection limit. A maximum value of 0.05 opt Ag was used for silver grades below the detection limit to minimize problems with highly variable detection limits. Multiple assays for the same interval were then averaged to create the final data for resource estimation.

Finally, the O.R.E. compilation was compared to a Gryphon Gold compilation by joining the two sets of data and identifying significant differences. Differences between the two sets of data were checked and corrected until no more errors were found in the O.R.E. compilation. (A few errors remained in the Gryphon Gold compilation, but those were not corrected by O.R.E.)

Since the last update as reported in the May 2005 Technical Report, new drilling during 2005 through March 2006 was added to the drill hole database. The new data included 138 holes with 57,705 ft of drilling.

11.2 Historical Drill Hole Database

The historical drill hole database used for the Borealis project resource models contains 2,417 drill holes with a total drilled length of 671,595 ft, including 1,076 holes in the Southwest model area, 525 in the Northeast model area, and 346 in the West model area. A total of 1,947 holes were drilled inside the resource model areas. An additional 470 holes were drilled outside the resource models at scattered locations throughout the district or did not have collar coordinates.

These holes were drilled by several different operators on the property. Drill hole types include diamond core holes, reverse circulation (RC) holes and rotary holes. Only a few core holes have down-hole survey information. Since most of the drilling is shallow, the absence of down-hole survey information is not significant. In the deeper Graben zone, however, unsurveyed drill holes may locally distort the shape of the higher-grade zones. Drill hole sampling lengths are generally 5 ft for the RC holes, but vary for the core holes based on geological intervals. Sampling length is up to 25 ft for some of the early rotary holes. Gold assays in parts per billion (ppb) and troy ounces per short ton (opt) are provided for most of the sampling intervals. Silver assays in parts per million (ppm) and opt are also provided for some of the sampling intervals.

Additional drilling of the five Borealis heaps and parts of the Freedom Flats and Borealis dumps completed by Gryphon in May 2004. This program consisted of 32 holes totaling 2,478.5 ft. Dump holes were drilled deep enough to penetrate the soil horizon below the dump, while holes on the heaps were drilled to an estimated 10-15 ft above the heap's liner. None of these latter holes penetrated the heap liners. Not all of the permitted holes were drilled during this phase of the program. Rather, a few holes were drilled on each heap and dump to obtain an initial and representative view of grade distribution. Prior to Gryphon Gold's 2004 heap drilling program, in 1996 JD Welsh had drilled 11 auger holes totaling 760 ft into Heap 1 to determine the gold content remaining in that heap.

Drill hole sampling length is generally 5 ft for the RC holes, but varies for the core holes based on geological intervals. Sampling length is up to 25 ft for some of the early rotary holes. Gold assays in parts per billion (ppb) and troy ounces per short ton (opt) are provided for most of the sampling intervals. Silver assays in parts per million (ppm) and opt are also provided for some of the sampling intervals.

12.0 Sampling Method and Approach

12.1 General

The following includes information from research of historical records conducted by Gryphon Gold and is included for general reference.

The Borealis Mine operated from 1981 through 1990 producing 10.7 million tons of ore averaging 0.059 oz of gold per ton from seven open pits. The mined ore contained 635,000 oz of gold (Eng, 1991) of which approximately 500,000 oz (475,000 oz through 1989) of gold were recovered through a heap leach operation. This historic production can be considered a bulk sample of the deposits validating the database that was used for feasibility studies and construction decisions through the 1980s. With over 2,200 drill holes in the database that was compiled over a 20-year period by major companies, the amount of information on the project is extensive. It is primarily these data that have been used in this study as the foundation of the current mineral resource estimate. The bulk of the data were collected beginning in 1978, the year of discovery of the initial ore-grade mineralization, and was continuously collected through the final year of full production. Subsequent explorers through the 1990s added to the database.

Specific detailed information on sampling methods and approaches by the various mine operators has not been found in the historic information; however, a report by John T. Boyd Co. (1981) noted that the "drilling, sampling and analytical procedures as well as assay checks were reviewed by Dames and Moore and reported as acceptable by industry standards." In addition, information in reports, monthly reports and memos give some clues to the sampling methods and approaches. The early work describes between 7 and 9 percent of all samples being re-assayed, with higher grade intervals re-assayed most frequently with approximately 20 percent of these intervals assayed again (Ivosevic, 1979). Also, there are many references to "assay checks" in the drill hole data with comparisons of assays of the same pulps and also of assays of different splits from the same sample intervals. Results of these comparisons generally were reported to be reasonably close. High-grade intervals often showed more variability in their assays. Santa Fe Pacific (1994) performed check assays on their drilling and found 23 percent variability in the high-grade assays. Their geologist reported, "rather than reflecting relative differences in the labs, I believe the difference is due to the inherent variability in the core. Perhaps we would have been better served to take the entire remaining core [for the check assay material] instead of sawing it in half again (resulting in a ¼ split)."

Echo Bay Mines did some quality checks on their drill cuttings sampling and assaying methods as part of their evaluation of the property prior to and following its purchase from Tenneco Minerals, which indicated that the original assays were reliable and representative. During their exploration and development programs they also drilled a number of core-hole twins of conventional rotary drill holes to compare assay results in the same areas. Echo Bay concluded that the vast bulk of drilling, which was conventional rotary, probably undervalued the gold content, especially in higher-grade zones. Anecdotal information from former Echo Bay management indicates that the mine consistently gave better results in terms of higher grade and better recovery of gold than planned or expected.

12.1.1 Freedom Flats Example

The principal orebody discovered by Tenneco/Echo Bay was the Freedom Flats deposit. The exploration, geology, and mineralization of the Freedom Flats gold deposit are described by Eng (1991). He reports that in Echo Bay's reconciliation of the Freedom Flats reserves, "actual mine production exceeded the original model reserve in grade and contained ounces by about 30 percent." In order to explain this discrepancy, he states, "due to the narrow linear trend of the mineralization, the deposit was drilled-out on 50-ft centers along drill fences spaced at 100 ft.

In-fill drilling was conducted between fences on 50- to 70-ft centers, where thick, high-grade mineralization was intersected. Holes were drilled around the perimeter of the deposit on 100-ft centers to close off all mineralization. A total of 99 [reverse-circulation] rotary holes were drilled in the main deposit area totaling 56,000 ft. All holes were drilled vertically. Due to the presence of abundant clay, most holes were drilled with water and foam injection; samples were collected using Jones splitters. In addition to rotary drilling, four HQ core holes totaling 2,687 ft were drilled primarily to obtain material for column leach metallurgical testing. Although continuous assays were not available for most of the core holes due to metallurgical sampling, the results of limited assaying suggested that the RC rotary holes underestimated the gold grades. The most likely cause for this discrepancy was the loss of fines during wet drilling. Later in his report he states that the discrepancy also may be due in part to the small size of many of the higher-grade (+0.5 opt Au) ore pods, which were not intersected in close-spaced (50 ft) drilling. Another possible explanation not mentioned by Echo Bay is the problem created where predominantly vertical drilling patterns are used to test steeply dipping to vertical mineralized zones. There is also a possibility that coarse gold particles exist and have not being adequately sampled or assayed.

The presence of coarse gold and its effect on assay variability may have been overlooked by previous operators of the Borealis Mine. Coarse gold has been reported rarely in the district from small-scale placer operations and also by Houston Oil and Minerals Company geologists who found visible gold in the surface outcrops of historic prospect pits and other minor workings along highly mineralized structures in the district. In addition mineralogical reports on the higher-grade mineralized samples mention traces of free gold ranging from 2 microns to 29 microns from the Northeast Ridge and Borealis deposits (Honea 1988 and Strachen 1981).

12.2 Sampling of Existing Heaps and Dumps – Spring 2004

An exploration program was undertaken in spring 2004 to confirm the amount and grade of gold-bearing rock that exists on heaps and dumps. The exploration work provided ore samples for metallurgical testwork, to define the geotechnical conditions, to obtain sufficient samples to demonstrate the geotechnical characteristics for design purposes in the waste characterization database, and to install baseline groundwater monitoring systems.

As part of this program, a sonic drill rig was used to drill exploratory holes on the five previously leached heaps as well as the Freedom Flats and Borealis Pits waste dumps. A total of 32 holes for a total of 2,475.5 ft were drilled with samples collected and composited for each hole.

Visual observations of the samples obtained during the sonic drilling program indicate the previously leached ore on Heap 1 and Heap 2 contained more fines, with a clay-like texture, than coarse rock. Conversely, and as expected, the Heap 3 leach material, which was run-of-mine and the Borealis waste dump contain more coarse rock. If the gold values remaining in the previously leached material on the various leach heaps are associated with the coarse fraction and/or are bound by pyrite and/or silica, then additional gold recovery may be achieved by screening and gravity separation or by leaching a finer material.

A thorough description of the sampling method, sample preparation, analytical techniques, and security procedures is found below in Section 13.2.

12.3 Drill Hole Database for Mineral Resource Model

The database used for the computer-generated resource model portion of this study consists of 2,064 drill holes with a total footage of 514,526 ft and 106,715 assayed intervals. Many of the high-grade intervals were assayed more than once to check and confirm the actual grades, so the total number of assays exceeds 107,000. The average depth of holes is 260 ft but the bulk of the holes are less than 200 ft with a limited number of holes in selective locations extending 1,000 to

2,000 ft to test deeper mineralization. The average assayed interval was slightly larger than 5 ft with the bulk of the samples representing 5-ft intervals.

The first drilling was completed by Houston Oil and Minerals, the discoverer of the original Borealis deposit and the developer of the mine. Tenneco Minerals acquired Houston Oil and Minerals and continued operating the mine and drilling for new deposits. Echo Bay Mines acquired Tenneco Minerals in 1986 and continued all operations and drilling until the mine was shut down in 1990. Throughout the 1990's Billiton Minerals (28 drill holes), Santa Fe Pacific Mining (32 drill holes), J.D. Welsh & Associates (11 shallow auger holes in a heap), and Cambior Exploration (10 drill holes) continued exploring and evaluating the property thus adding to the database.

Gryphon has drilled 170 holes to date of which 115 holes were used in the resource estimate. Those Gryphon Gold holes that were not used in the estimate were drilled after the March 2005 date of the resource estimate and, except for the drilling in the northern portion of the Graben deposit, are not expected to have significant impact on the resource estimate. Significant new mineralization has been identified in the Graben area that is not included in this mineral resource report.

Santa Fe compiled the initial version of the computer database of drill holes with subsequent companies contributing to it. During their ownership, A Qualified Person, Mr. Steven Craig, of Golden Phoenix thoroughly checked the accuracy and completeness of the database by individually checking 2,234 holes' survey and assay data line by line with the original survey and assay sheets, and revising the database where necessary. Although the methods and procedures used by Golden Phoenix appear to have been professional, thorough, and competent, none of the qualified persons for this report has checked the data entry for the historical database and the previous verification of the historical data are relied upon for the resource estimates.

13.0 Sample Preparation, Analysis, and Security

13.1 Previous Mining Operations and Exploration

The following includes information from research of historical records conducted by Gryphon Gold and is included for general reference.

Houston Oil and Minerals, Tenneco, and Echo Bay are reported to have used standard sample preparation and analytical techniques in their exploration and evaluation efforts, but detailed descriptions of the procedures have not been found. The fact that a successful mine was developed producing about 500,000 oz of gold indicates that their techniques of sampling, sample preparation, analysis, and security produced results that were representative, reliable, and are not unreasonable, although some questions remain, particularly with regard to the assaying of samples with potential coarse gold.

Most of the drill hole assaying was accomplished by major laboratories that were in existence at the time of the drilling programs. Various labs including Monitor Geochemical, Union Assaying, Barringer, Chemex, Bondar-Clegg, Metallurgical Laboratories, Cone Geochemical, the Borealis Mine lab, and others were involved in the assaying at different phases of the exploration and mining activity.

13.1.1 Analysis and Quality Control

Early work on the property appeared to rely on assay standards that were supplied by the laboratories doing the assaying. However, Echo Bay Mines (1986) reported using seven internal quality control standards for their Borealis Mine drill hole assaying program. The seven standards ranged in gold concentrations from 170 ppb to 0.37 opt. Assay labs involved in the round robin standards analyses were Cone Geochemical, Chemex, and the Borealis Mine lab, and the precision of the three labs was excellent (±1 to 8 percent) for the higher gold grades (0.154-0.373 opt); acceptable (±3 to 14 percent) for the lower grades (0.029-0.037 opt); and fair (±4 to 20 percent) for the geochemical anomaly grades (0.009 opt to 170 ppb). These data provide an initial estimation of the precision and accuracy of gold analyses of Borealis mineralization. The repeatability of assays suggests that coarse gold was not a problem for these samples, or that the samples were so small that potential coarse gold was missed entirely. It has been the geological Qualified Person's experience that when coarse gold is present it may not introduce sampling variability until the sample weight is over 500 grams.

During 1986, Echo Bay instructed Chemex (1986) to analyze duplicate samples for five selected drill holes. A comparison was made of: (1) ½ assay-ton fire assay with a gravimetric finish versus, (2) ½ assay-ton fire assay with an atomic absorption finish versus, (3) hot cyanide leach of a 10-gram sample. The ½ assay-ton fire assay – gravimetric finish and the ½ assay-ton fire assay – AA finish gave essentially the same results. However the hot cyanide leach gave results that were 5-11percent higher in one comparison and significantly lower in another, prompting Chemex to conclude that cyanide leach assaying was not appropriate for Borealis samples. The great majority of the assays in the database are based on fire assays.

13.1.2 Security

Nothing is known of the sample security arrangements made by the previous operators, but since the various mined deposits each produced the amounts of gold predicted or higher, we can assume the security was adequate and it is unlikely that sample security was a problem. The same assumption is true for the subsequent exploration programs conducted by Billiton, Santa Fe Pacific, and Cambior, all of which were substantial companies that routinely used standard industry procedures.

13.2 Heap and Dump Drilling and Sampling Program - Spring 2004

Boart Longyear was contracted to drill with a sonic rig since this equipment would retrieve a core-like sample. All work completed during this program was under the supervision of Dr. R. Steininger, Chief Consulting Geologist for Gryphon Gold, and a Qualified Person under the terms of NI43-101.

Not only could a representative assay sample be obtained with this approach, but also the collected material should be representative of size distribution of material in the heaps and dumps. The initial two holes were drilled with 4-inch bits, but it became obvious that larger rocks were being pushed out of the way. Drilling then proceeded with a 6-inch Bit, which appeared to capture more of the larger rock, producing a more representative size distribution sample. All sonic drill holes had a vertical orientation, and samples represent "true thickness" of the dump or heap material.

13.2.1 Sampling, Analysis and Quality Control

Sampling intervals were originally designed to be every 10 ft, but were contingent upon drilling conditions. Actual drill-sample interval lengths were subject to the position of the sample tube where this was extracted from the drill hole. Individual runs varied from 1 to 3 ft, which were then combined to produce a sample with an interval length as close to 10 ft as practicable (the combination was completed at AAL). Combined sample intervals routinely varied from 9 to 11 ft except at the bottom of a hole where the orphan sample intervals were typically shorter.

When the sample tube was extracted from the drill hole, the sample was immediately slid into a plastic sleeve that was sealed and marked with the drill hole number and footage interval. These plastic sample sleeves were not reopened until they reached the analytical lab. All of the drill procedures and handover to the analytical lab were monitored by an independent geologist hired through Geotemps Inc. The contract field geologist also maintained lithologic logs for each drill hole. A non-blind standard was added as the last sample interval of each drill hole. The standard was obvious to the lab because the standard was contained in a pulp envelope, although the lab did not know the gold value of the standard.

All samples were submitted to AAL of Sparks, Nevada. At the lab, each of the individual samples were combined into an analytical sample that approximated 10-ft intervals as outline above, as per instructions from the geologist. Each analytical sample was split in a rotary splitter with a one-fifth of the sample removed for assay and the remaining four-fifths retained for metallurgical testing. Each analytical split was weighed, dried and weighed again. The difference between these two weights represents the amount of water in the original sample. Each dried sample was crushed to less than one-quarter inch and a 300- to 500-gram sample was riffle split off for assay. The remaining sample was retained at the lab. Each assay sample was pulverized and assayed for gold and silver by one-assay-ton fire assay. Also a two-hour cyanide shake assay for dissolvable gold was conducted for 200grams of each assay sample.

Two additional samplings were undertaken on Heap 2. Twelve samples were collected along the new road cut and one "bulk" sample was collected from a backhoe cut made during reclamation. The road-cut samples were collected as rock chips over 10 ft intervals. Each sample was approximately 5 pounds of material that was collected to represent the size distribution of the material in the cut. Six of the samples were from the south side mid-point along the heap and six from near the east base. Each sample was assayed by AAL using one-assay-ton fire assay for gold and silver. The average grade of the 12 samples is 0.009 opt Au, which compares favorably with the average grade of the three holes drilled into the heap, which is 0.008 opt Au. About 20 pounds of representative material was collected from the backhoe trench. At AAL one-quarter of the sample was split out and assayed by one-assay-ton fire assay for gold and silver. This sample contains 0.008 opt Au, which corresponds with the average value for the heap as determined by drilling. The remaining three-quarters of the sample was sieved into four size fractions and assayed in the same manner as noted above. The results are displayed in

Table 13.1, which indicates that the gold grade in the <2-inch material is significantly higher than in the larger material.

Table 13.1 - Analytical Results of Bulk Sample from Road Cut Midway Between Top and Bottom of Heap 2

Type	Gold Grade (opt-Au)	Silver Grade (opt-Ag)
Bulk	0.008	0.102
<½-inch Material	0.010	0.095
½-inch to 1-inch Material	0.014	0.131
1 inch to 2-inch Material	0.010	0.066
>2-inch Material	0.007	0.029

As part of the quality control program standards were submitted to AAL with each drill hole; several assayed pulps and two standards were submitted to ALS Chemex; and three of the duplicates and two standards were submitted to ActLabs-Skyline. Their results of the analyses of the standards and duplicates are shown in Tables 13.2 and 13.3. All of the data show good precision and accuracy except for ALS Chemex's analyses of the standard. Based on this information, the analyses from AAL are considered reliable.

Table 13.2 - Summary of Analytical Results from Bulk Standard Used in Quality Control Program, Accepted value 0.019 Opt Au

Analytical Lab	Number of Values and Average Gold Value	Variation from Accepted Value
American Assay Labs.	31 samples/0.017 opt Au	0.002
American Assay Labs. repeats	3 samples/0.017 opt Au	0.002
ALS Chemex	2 samples/0.022 opt Au	0.003
Skyline Labs	2 samples/0.019 opt Au	None

Table 13.3 - Summary of Assay Analyses for the Same Sample by American Assay Laboratories and ALS Chemex

American Assay Lab.	ALS Chemex	Difference
0.022 opt Au	0.023 opt Au	0.001
0.003 opt Au	0.002 opt Au	0.001
0.012 opt Au	0.008 opt Au	0.004
0.002 opt Au	<0.001 opt Au	0.002
<0.001 opt Au	0.007 opt Au	0.007
0.004 opt Au	<0.001 opt Au	0.004
0.013 opt Au	0.011opt Au	0.002
0.008 opt Au	0.009 opt Au	0.001
0.005 opt Au	0.010 opt Au	0.005
0.025 opt Au	0.024 opt Au	0.001
0.023 opt Au	0.026 opt Au	0.003
0.014 opt Au	0.012 opt Au	0.002
0.008 opt Au	0.013 opt Au	0.005
0.005 opt Au	0.005 opt Au	0.000
0.018 opt Au	0.017 opt Au	0.001
0.008 opt Au	0.010 opt Au	0.002

The average difference in analytical results from assays on the same pulps is less than 0.001 opt Au, and the standard deviation of the differences is 0.003 opt Au, which is extremely close and within the level of accuracy of the assaying method.

The last piece of data that supports the reliability of the new results is the comparison with J.D. Welsh's original drilling of Heap 1 (Table 13.4). The bulk of the information indicates that sampling of the heaps and dumps were representative and those samples were accurately assayed.

Table 13.4 - Comparison of Heap 1 Assay Results with Previous Sampling Program

BMC Hole	Grade Opt Au	Nearby Welsh Drill Hole	Au Opt
BOR-11	0.028	H-10	0.033
BOR-13	0.023	H-11	0.026
BOR-16	0.020	H-5	0.020
BOR-17	0.017	H-6	0.014

13.2.2 Security

All samples were collected in plastic sample bags, sealed, and securely stored until picked up by the transport arranged under the authority of AAL. AAL maintained control of all samples from the pickup at Borealis Project until the analytical work was completed. It is the opinion of Dr. Steininger, a Qualified Person under the terms of NI 43-101, who supervised this drilling and sampling program, that the security procedures were adequate and properly implemented during the program.

13.3 2005 Through Late-2006 Reverse Circulation Drilling

Sampling procedures at the drill sites and monitoring of assays were standardized through the 2005 and first half of 2006. Initially the program consisted of a limited number of standards and duplicates submitted with each drill hole. In May 2006 Gryphon Gold instituted more rigorous quality control procedures.

Throughout the Borealis RC drilling program during 2005-2006, samples were routinely collected on five-ft intervals from each hole, starting at the surface and continuing through the end of the hole. Material from each five-ft interval was split to about one-quarter of the original volume at the drill site, and was bagged and sealed by the drilling contractor. At the completion of each drill hole, samples were moved to a secure site on the property where they were held until picked up by assay lab personnel. Initially, this was AAL, and starting in spring 2006, Inspectorate America Corp., both of Sparks, Nevada, became the assay facility of choice.

Until May 2006, a blind standard was included at the end of each drill hole and with the initial group of holes a duplicate sample was collected at the drill and included in the sample sequence as a blind sample. The new quality control program started in May 2006 required sufficient standards being inserted so that one standard would be included with each fire assay tray at the lab. Additionally, a blank sample was inserted as a blind sample within the drill sample sequence.

An assay lab truck and driver collected the drill samples from the Borealis Project site secured storage and transported them to Sparks, Nevada. From the time that the pickup was made the lab maintained control over the samples, until coarse rejects and pulps were returned to the site. At the lab each sample was dried, crushed to less than one-quarter inch , and a 300- to 500-gram sample was riffle split off for an assay sample. Each sample was subsequently pulverized and then assayed for gold and silver by one-assay-ton fire assay. The coarse reject sample was retained at the lab until assaying was completed.

The quality control program consisted of standards included with each drill hole, duplicate samples collected at the drill, and duplicate assays as part of the lab's internal control. The assays and these controls were monitored continually by a Qualified Person, Dr. Roger Steininger. If questionable assays were received a decision on re-assaying of portions of, or the entire hole, was made at the time of receipt of the preliminary assay reports. In general, the quality control samples indicate that both labs produced high-quality assays. The close correlation between assays of the original sample and the duplicate sample indicates that sampling at the drill produced representative samples.

13.3.1 2005-Early 2006 Analytical Program

Analytical results of the standards submitted with the drill samples were within two standard deviations of the standard's gold content, which was deemed acceptable. Generally, duplicate assays preformed by the lab corresponded well with the original assay. These data indicated that AAL produced quality assays.

During the early part of the drilling program a duplicate sample was collected at the drill, initially to ensure that a representative sample was collected. Secondly, these samples were also a check on lab reproducibility. Except for three samples there is an extremely close correlation between the duplicate samples from each hole. This indicates that representative samples were collected are the drill and the lab was able to produce similar assays for the same drill hole interval. The three samples with wider variations are probably representative of the nature of a gold deposit with occasional coarse gold and wide variations in gold content over short distances.

13.3.2 Outside Lab Check

As a further check on AAL six holes, or portions of a hole, were submitted to Inspector America for re-assay. Except for one hole, there was good correlation in the assays between respective drill hole intervals between the two labs. Overall, the assays from this one hole had a good correlation between labs with a few inconsistencies between the two labs. Some of AAL's assays were higher than Inspectorate's and for other intervals the reverse was the case. This suggests that the variations may be related to the natural variation in a gold deposit rather than an assay problem between the labs.

Through early 2006 all of the indications were that AAL was producing reliable assays from the Borealis drill hole samples.

13.3.3 Change of Labs

Primarily to improve turnaround time it was decided to change to Inspectorate America for analytical work in spring 2006. The limited quality control data that have been received from drilling since the lab change indicate that Inspectorate is also producing quality assays.

14.0 Data Verification

14.1 Historical Drill Hole Data

The following includes information from research of historical records conducted Gryphon Gold and is included for general reference.

The drill hole database was verified by Mr. Steven Craig, a Qualified Person under the terms of NI 43-101, during an 8-month intensive effort by reviewing every one of the 2,417 drill holes and over 125,000 assays on original sheets and comparing them line by line with the database and ensuring that only accurate information was in the database. Where several valid assays were found for a single interval they were averaged to determine the grade used in the database. Drill hole collar location surveys on original sheets were also compared to the database information and improved where necessary. Down-hole survey information on original sheets for the deeper holes were also reviewed and compared with the database to ensure its accuracy.

Information presented above describes the limitations imposed by the lack of certain historical records on verification of the data. Based on operating results, and historical descriptions it appears that the sampling, sample preparation, assaying, and security of samples were conducted in a industry acceptable manner for the time period in which the samples were collected and processed, and it is the geological Qualified Person's opinion that the assays are suitable for resource estimation.

14.2 Semi-Quantitative Check Sampling

As part of the evaluation of Borealis Gold Project, several samples have been collected (under the general overview of Gryphon Gold geologists) from selected areas on the property to generally validate original sample assays and identify possible mineral resource areas. Samples include an 18-foot interval of core, one pit wall rock chip sample, and two spoil pile samples from Heap 1 drill holes. Table 14.1 summarizes the gold assay results from this sampling. The samples were not collected to be representative of the material, but only to give an indication of the original assays were "within the ballpark." The core sample was from the remaining sawed half and was re-sawed to produce a quarter sample of the original drill core, from within a higher-grade zone of the Graben deposit. There is no way to verify if all of the original sawed half of the core remained in the core-box when Gryphon Gold Corporation obtained the newly sampled material. The pit sample was from the southeast margin of the East Ridge pit, at the pit floor over a 15-ft horizontal interval at coordinates 374,586E, 4,249,990N, and 7,425 ft elevation. The material was oxidized and silicified andesite. Samples were collected from the spoil pile from holes BOR 11 and BOR 13 on Heap 1. All sample preparation and assays were performed by AAL.

While none of these new samples represent a statistical valid test of previous assays, they do indicate that the data used in developing knowledge of the property is generally reasonable and is within the appropriate gold grade range. The average value for the core interval is slightly lower that the original assay, but given that the new sample was about one-quarter of the original sample, within a higher-grade gold zone, variations are to be expected. The new assays support the contention that the interval is within the high-grade gold zone of the Graben deposit. The sample from the East Ridge pit wall supports the contention that economic gold grades do exist at the pit margin. The results from the drill holes in the heaps are comparable to original assays, given that the new samples are not a systematic sample, totally representative of the material drilled.

Table 14.1 - Results of Selective Check Sampling at Borealis

Location	Original/Historical Assay Value	Recent Assay Value
CBO023 597-615'	0.201 opt Au	0.162 opt Au
East Ridge pit wall		0.018 opt Au
BOR11 heap 1	0.030 opt Au	0.026 opt Au
BOR 13 heap 1	0.023 opt Au	0.019 opt Au

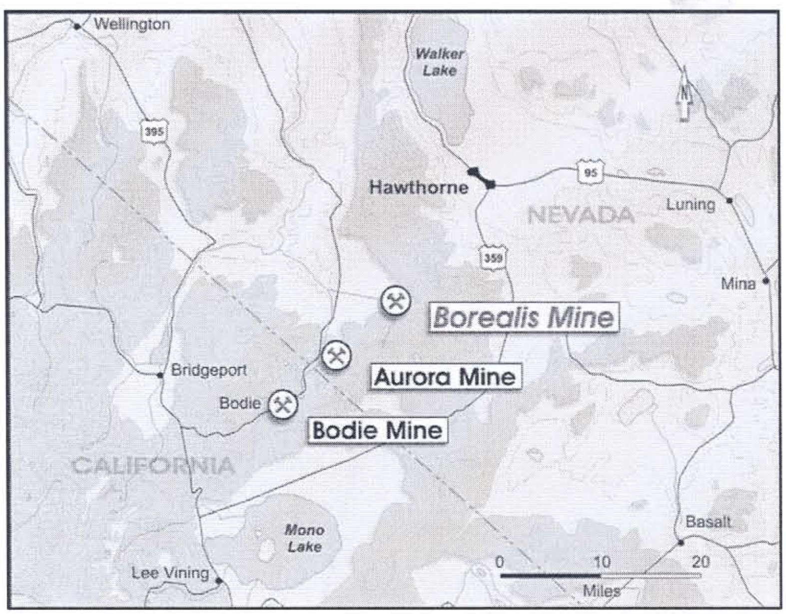
15.0 Adjacent Properties

The nearest mining property to the Borealis district is the Esmeralda Project (formerly the Aurora Mine) owned and recently operated by Metallic Ventures (Figure 15.1). The Esmeralda Project in the Aurora district lies ten miles southwest of Borealis.

The Aurora district has had historical production of approximately 1.9 million oz of gold and more than 2.4 million oz of silver from as many as 30 veins. Remaining mineral resources reported by Metallic Ventures Gold in early 2003 were 1.3 million oz of gold. The mineralized system is a low-sulfidation type with gold and minor silver in banded quartz-adularia-sericite veins hosted by Tertiary volcanics.

The Bodie district is further southwest, 19 miles from Borealis, along the same trend and has a reported 1.5 million oz of gold and nearly 7.3 million oz of silver of past production from a series of veins in Tertiary andesite host rocks. The remaining mineral resources were reported at approximately 1.9 million oz of gold in 1991.

The Bodie, Aurora, Borealis, and other minor districts are aligned along a northeast-southwest trend of mineralized districts commonly referred to as the Aurora-Borealis trend.



(Source: Gryphon Gold, 2005)

Figure 15.1 - Location of Borealis Property and Other Important Nearby Gold Mining Properties in the Walker Lane and Aurora-Borealis Cross Trend

Notes:

Bodie District:

Past production - 1.5 million oz gold and 7.3 million oz silver (Buchanan, 1981).
Remaining mineral resource - 1.9 million oz gold
(Last reported by Galactic Resources in 1991)

Aurora District:

Past production - 1.9 million oz gold and 2.4 million oz silver (Vanderburg, 1937)
Remaining mineral resource - 1.3 million oz gold
(Last reported by Metallic Ventures Gold Inc. in their 2004 annual report).

Borealis (Ramona) District:

Past production 0.6 million oz gold plus remaining mineral resource

(The principal author of this report has been unable to verify the information noted above under Figure 15.1. **This information is not necessarily indicative of the mineralization on the Borealis property.** The references to mineral resources are historical, and for general reference purposes only and may not be compliant with specific NI 43-101 guidelines)

16.0 Mineral Processing and Metallurgical Testing

This section has been compiled in association with Gryphon Gold's consulting metallurgist, Jaye T. Pickarts, P.E., a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects, and Principal Metallurgical Engineer, Knight Piésold and Co. Samuel Engineering, Inc., a process design and construction management consulting group, has contributed supporting information regarding preliminary metallurgical flowsheet concepts. Bulk density data and tonnage factors were developed and provided by contributing Gryphon Gold authors.

16.1 Introduction

The gold mineralization at Borealis comprises large areas of silicification, hydrothermal brecciation, and advanced argillic alteration in Tertiary volcanic rocks. The volcanic stratigraphy consists of andesite flows, breccias, and tuffs. The gold deposits at Borealis are structurally controlled along a series of northeasterly-trending normal faults that dip steeply to the northwest. Gold generally occurs as submicron-size particles in highly altered andesite and tuff along fracture surfaces during late stage overgrowth on sulfide crystal faces (Eng T., 2000 and Honea, Russell M., 1988). Gold mineralization is finely disseminated and/or partially bonded with pyrite, and although there are very little ore mineralogy data available, historical operating reports suggest that some coarse gold may exist. Gold that is bound in pyrite or pyrite-silica is not easily recovered by simple heap leach cyanidation (Behre Dolbear, 2004). There are no reports of carbonaceous refractory components within the old heap or dump materials. The previous mine operator employed a Merrill Crowe circuit in order to recover silver, followed by a retort to remove mercury

16.2 Metallurgical History

Historically, eight open pit mines were developed at the Borealis Project during its operating years from 1981 to 1990. They include the Borealis, East Ridge, Deep Ore Flats, Gold View, Freedom Flats, Northeast Ridge, Jaimes Ridge, and Cerro Duro mines. Each pit has associated waste rock disposal areas proximate to the mine area. Two of the pits, the Borealis and the Deep Ore Flats, were backfilled with mine waste produced from proximate pits. Processing was by conventional cyanide-agglomerated heap leaching using both permanent and reusable pads. Precious metals were recovered using a Merrill Crowe process.

Historical heap leach operations throughout the 1980's typically produced gold recoveries in the upper 70 to mid-80 percent range with silver recoveries ranging from 15 to 50 percent. These ores were primarily oxide and mixed oxide and as such required cement agglomeration in order to achieve optimum solution percolation, pH control, and precious metal dissolution. Previous heap leach operations also processed run-of-mine (ROM) ores (uncrushed), which were typically low-grade material that was stacked on the upper lifts of the heap leach pad. Historical gold recoveries for ROM ore ranged from 20 to 50 percent, and silver recoveries were typically less than 20 percent. There has been no current testwork performed on ROM size samples.

16.3 Previous Metallurgical Investigation

In 2004, the first phase of metallurgical testwork was developed for the exploration drill samples. This work focused on determining the amenability of gold to cyanidation and the effect of particle size on gold recovery. Two hundred forty-nine samples were collected, by BMC geological staff (under supervision of a qualified person, Roger Steininger, Ph.D., CPG), from historical leach pad areas and waste dumps for this program. These samples were sent to AAL in Sparks, Nevada for analysis. These areas included:

- Five old leach pads (#1 - #5)
- Borealis Waste Dump

Only old leach pads #1, #2, and #3 and the Borealis waste dump contained sufficient gold grades to warrant additional metallurgical testing. The metallurgical testwork has not been completed on old leach Pad #2 samples.

Assay results indicate recoverable gold content in existing leach Pad #1 and Pad #3 and in half of the Borealis Dump. Shake leach testing, which consisted of a 200 gram sample sized to 80 percent passing 200 mesh and agitated leached for two hours, was conducted on Pad #1, Pad #3, and the Borealis Dump and produced encouraging results with gold recoveries averaging about 84 percent, 82 percent, and 100 percent, respectively. Since leach Pad #1, Pad #3, and the Borealis Dump showed the most encouraging results; only this material was subjected to additional metallurgical testing in this program.

Bottle roll leach testing was conducted on samples from these three locations. Bore hole composite samples were split, and duplicate bottle roll tests were conducted at material sized to 80 percent less than 1 ½, 1, ¾, and ½ inch. Triplicate head assays were run on the composite sample, and each test underwent a 72-hour cyanide leach, had triplicate tail assays, and the cyanide concentration was maintained at 1.0 g/l. The cyanide shake testing was conducted by AAL and the cyanide bottle roll tests were conducted at McClelland Metallurgical Laboratory. A summary of these 2004 data are shown in Table 16.1 below.

Table 16.1 - Summary Metallurgical Results, Scoping Bottle Roll Tests
Borealis Composites - Phase 1

Composite	Test Number	Feed Size, mm	Au Rec., %	Au g/t ore			Au g/t, Ore Head Assay	Reagent Requirements, kg/mt ore	
				Extracted	Tail	Calc Head		NaCN Cons.	Lime Added
Pad #1 Comp A	CY-1	38	41.9	0.26	0.36	0.62	0.68	0.23	2.6
Pad #1 Comp A	CY-2	38	42.6	0.26	0.35	0.61	0.68	0.15	2.7
Pad #1 Comp A	CY-3	25	38.5	0.25	0.40	0.65	0.68	0.08	3.2
Pad #1 Comp A	CY-4	25	36.0	0.27	0.48	0.75	0.68	0.15	3.1
Pad #1 Comp A	CY-5	19	42.2	0.27	0.37	0.64	0.68	0.16	5.9
Pad #1 Comp A	CY-6	19	44.3	0.27	0.34	0.61	0.68	0.07	5.9
Pad #1 Comp A	CY-7	12.5	44.4	0.28	0.35	0.63	0.68	0.23	2.6
Pad #1 Comp A	CY-8	12.5	37.5	0.27	0.45	0.72	0.68	0.15	5.6
Pad #1 Comp A	CY-25	12.5	39.7	0.27	0.41	0.68	0.57	0.15	2.9
BOR Pad #3	CY-9	38	54.9	0.28	0.23	0.51	0.33	0.75	4.6
BOR Pad #3	CY-10	38	48.3	0.29	0.31	0.60	0.33	0.45	5.5
BOR Pad #3	CY-11	25	53.3	0.24	0.21	0.45	0.33	0.38	5.4
BOR Pad #3	CY-12	25	51.2	0.22	0.21	0.43	0.33	0.30	6.3
BOR Pad #3	CY-13	19	53.2	0.25	0.22	0.47	0.33	0.38	6.8
BOR Pad #3	CY-14	19	51.3	0.20	0.19	0.39	0.33	0.38	6.0
BOR Pad #3	CY-15	12.5	50.0	0.17	0.17	0.34	0.33	0.45	4.8
BOR Pad #3	CY-16	12.5	45.5	0.15	0.18	0.33	0.33	0.31	5.1
BOR Pad #3	CY-26	12.5	50.0	0.18	0.18	0.36	0.37	0.37	5
Borealis Dump	CY-17	38	61.9	0.26	0.16	0.42	0.39	0.10	7.9
Borealis Dump	CY-18	38	63.4	0.26	0.15	0.41	0.39	0.29	8.1
Borealis Dump	CY-19	25	63.6	0.28	0.16	0.44	0.39	0.28	8.5
Borealis Dump	CY-20	25	77.3	0.58	0.17	0.75	0.39	0.28	8.6
Borealis Dump	CY-21	19	71.4	0.25	0.10	0.35	0.39	0.25	8.1
Borealis Dump	CY-22	19	73.2	0.30	0.11	0.41	0.39	0.17	8.1
Borealis Dump	CY-23	12.5	81.0	0.34	0.08	0.42	0.39	0.08	7.7
Borealis Dump	CY-24	12.5	78.4	0.29	0.08	0.37	0.39	0.25	8.1

16.4 Current Metallurgical Investigation

Metallurgical testwork was completed under the general supervision of Jaye Pickarts, P.E. and Jeff Butwell, consulting metallurgist.

16.4.1 Sample Description

Subsequent metallurgical testing was developed in 2005 for a Phase two program that utilized samples collected from exploration drilling in fresh ore zones. In addition, four bulk samples were collected from near surface trenches. The areas from which the samples were collected include:

- Old Leach Pad #1
- East Ridge Pit
- Middle Ridge (Northeast Ridge Haul Road)
- Northeast Ridge Pit
- Deep Ore Flats
- Borealis Extension

The sample composites were made by combining a split of each interval from each hole into a hole composite. Each composite and hole was then fire assayed for gold and silver.

16.4.2 Bottle Roll Tests

Bottle roll leach tests were conducted on each of the drill hole composites that were made up from interval samples collected for each respective hole. Since these drill holes are related to development of the resource model outlined in Section 17.0, these metallurgical data were used to estimate the gold and silver recovery used in the project production schedule. For pits and deposits where recent metallurgical data were unavailable, the best available data were sourced from historical records.

The samples were prepared by collecting a spilt of each ore interval and combined to create a composite from each hole. The split was based on the drilling depth of each respective hole and the quantity produced from each hole to prevent a bias from any particular hole. All samples were collected by BMC geological staff, and the composites were made up by McClelland Laboratory staff under the direction of the project metallurgist.

Each composite sample was fire assayed for Au, Ag. Assayed head screen and tail screen analysis was also completed on each composite. Duplicate Bottle Roll tests were conducted on each composite for a 72-hour cyanide leach, maintaining 1.0 g/l cyanide concentration and 10.5 pH. Triplicate tail assays were conducted on each composite.

All of the metallurgical samples were sized to 80 percent less than ¾ inch. However, since an RC rig was used in the drilling program, many of the samples were much finer and therefore used "as received" in the bottle roll tests. The feed size for these "as received" samples ranged from 1.15 mm to 19 mm depending on pit or deposit location. The fire assay work was completed by AAL and the metallurgical testing was completed by McClelland Metallurgical Laboratory. Seventy-seven bottle roll tests were completed on the drill hole samples for the areas listed above.

16.4.3 Column Testwork

Similarly, bulk trench samples were obtained from four of the proposed production areas at the mine. Each of the four bulk samples were blended, split, and sized for metallurgical testing. In order to determine the material size for optimum gold recovery, duplicate Bottle Roll tests were conducted on each test samples that were sized to 80 percent less than 1½, 1, ¾, and ½ inch size fractions. Each bottle roll sample was leached for 72 hours and triplicate tail assays were conducted. A split from each bulk sample was fire assayed for gold and silver and analyzed for sulfur content and mercury. Ores that contained less than 1 percent sulfur are considered oxide or mixed oxide ores.

Agglomeration testwork was also conducted on these samples to determine the amount of binding agent needed to ensure optimum solution percolation and agglomerate strength. Only the old Pad#1 ore required a cement-binding agent since this material was much finer that the expected pit run ore.

Based on the results obtained in the sized bottle roll tests, the one bottle roll size fraction that yielded the best bottle roll recovery (80 percent less than ¾ inch) was then agglomerated and loaded into 12 inch diameter, 20 foot columns for leaching. Barren solution containing 0.25 g/l NaCN was added at an equivalent rate of 0.005 gpm/ft^2. Each column was put under leach at a rate of 0.005 gpm/ft^2 for a minimum of 45 days, to simulate the expected leach cycle. Leaching continued until the gold grade in the pregnant solution reached a point where no additional recovery was observed. Each column then had a 3 to 7 day rest cycle and again barren solution was applied for another ten days to complete the leach cycle.

At that point, rinsing was initiated to simulate and quantify the heap closure requirements. The leaching times for the columns are as follows:

- Column P-1, Old Leach Pad #1, 56 days
- Column P-2, East Ridge Pit, 80 days
- Column P-3, Middle Ridge Pit, 80 days
- Column P-4, Northeast Ridge Pit, 80 days

Rinsing continued for 30 to 60 days depending on the ore type and allowed to drain for approximately 20 days. The entire cycle, from leaching through drain down, ranged from 119 to 129 days.

This quick leach cycle will then translate to the ADR plant and will speed up the production of doré metal. It may also be possible to increase the crush size of the agglomerate, which would reduce operating cost, without significantly impacting metal production.

In addition to the metallurgical data that was collected from these tests, several design data were collected, such as moisture content during leach, drain down moisture content, reagent consumptions, drain down rate, etc.

All of the assay and metallurgical work were conducted in Sparks, Nevada by AAL and McClelland Laboratory, respectively.

Column leach curves for the recent column testwork (LP-1, East Ridge, Middle Ridge, and Northeast Ridge) are shown in Figure 16.1 below.

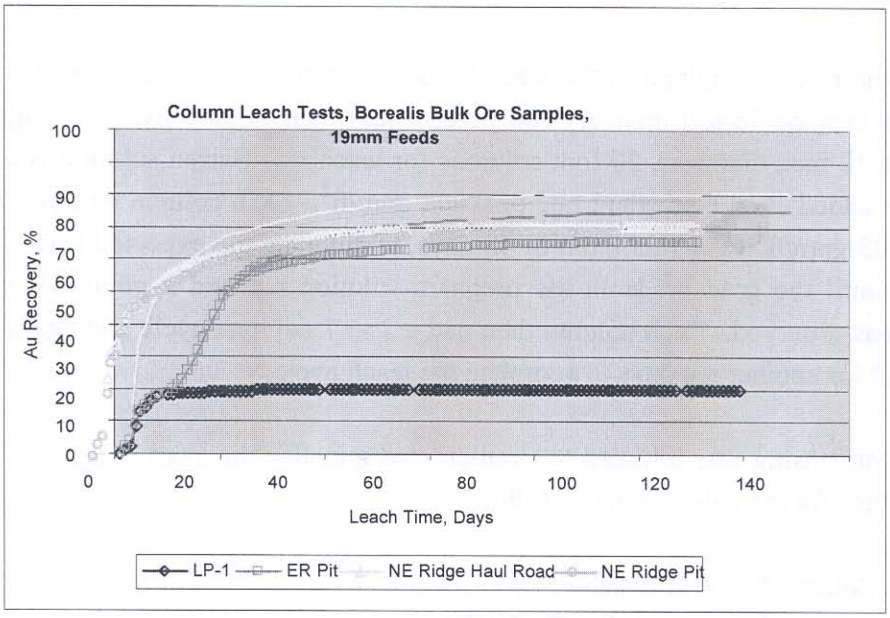


Figure 16.1 - Gold Leach Rate Profiles

16.5 Reagent Consumption

There appears to be more of a correlation between the cyanide consumption and material type than the particle size or gold content. Material that has higher oxide content had the highest cyanide consumption and moderate lime consumption. Historically, the Borealis ores consumed 0.5 lbs of cyanide per ton of ore and 10 lbs of cement per ton of ore. For these metallurgical tests, cement was only used in the old Leach Pad #1 ore, since it had higher fines content. All of the other ores used lime as the agglomeration binder and alkalinity control. The column data show that the cyanide consumption ranged from the historical 0.5 lbs/ton to 1.3 lbs/ton. This may be attributed to the higher sulfur content of the ore. Lime consumption was substantially lower than the historical cement consumption, ranging from 1.6 lbs/ton to 5.0 lbs/ton, without a loss in agglomerate strength.

16.6 Summary of Results

All of the metallurgical samples show variability in the head gold content, especially with the Northeast Ridge ore. This can be explained by reviewing the mineralogy of the Borealis deposit, which indicates varying levels of oxides, sulfides and associated coarse gold throughout the deposit.

Since the drill holes are directly related to development of the resource model outlined in Section 17.0, these metallurgical data were used to estimate the gold and silver recovery used in the project production schedule. For pits and deposits where recent metallurgical data were unavailable, the best available data were sourced from historical records. The column data were mainly used for engineering design purposes since the bulk sample was obtained from only one location within the respective deposit and may not fully represent the estimated metal recovery.

The old Leach Pad #1 produced the lowest recoveries from both the bottle roll and column leach tests. This ore is fairly fine grained and had undergone a full leaching cycle during the 1980's operation and would be expected to produce low recoveries. The variation in head grade samples may be attributed to coarse gold, solution lensing in the heap, or incomplete gold dissolution. This material also had the highest sulfur content, 1.75 percent. The material from Leach Pad #1 that was used for the bottle roll and column testwork, may have been sourced from the Freedom Flats pit which had increasing sulfide material with depth. This can be attributed to the previous mine operators who mined and stacked more mixed oxide type ore on the top of Pad #1 as their operation entered closure.

The fresh ore samples from the various trenches and drill holes produced significantly higher recoveries and somewhat better head assay consistency. Gold recoveries for the Northeast Ridge and Middle Ridge pit areas ranged from 70 to 76 percent, indicating that these ores were most likely oxide and are consistent with historical data. The East Ridge recovery data are somewhat lower (63 percent Au recovery) and may indicate a mixed oxide type of ore. The preliminary metallurgical work that was conducted for the Deep Ore Flats and Borealis Extension indicate good gold recoveries ranging from 74 to 78 percent from bottle roll tests.

In reviewing all of the test data, the column metallurgical testwork, as expected, produced higher gold recoveries. Column data are typically very similar to what would be expected in an actual heap leach pad for that sample. Cyanide solution is applied at a steady application rate, reagent addition is kept constant, and there is plenty of oxygen to maintain the dissolution of gold. However, since the bulk sample was obtained from only one location within each respective deposit, these recovery data could not be solely used to predict the estimated metal recovery.

Silver analysis from the metallurgical testwork is relatively low especially in the mixed oxide ores. The historical production records indicate that the average silver recovery was 23.2 percent. The recent metallurgical testwork produced recoveries ranged from 2.7 percent for the old Leach Pad #1 ores to 44.9 percent for the Middle Ridge ores. Silver recoveries are expected to increase somewhat over the indicated recoveries determined by the metallurgical testwork. This increase can be attributed to the slower silver leach kinetics which would result in additional silver recovery from continued leaching after achieving the expected gold recovery.

Silver recovery data were unavailable for some of the pits and deposits, and for the old heap and dump materials. Therefore, the best available data were sourced from historical metallurgical testwork for the pits and deposits and from the historical production records for the old heaps and dumps.

Table 16.2 below summarizes the estimated metal recovery from the respective ore locations.

Table 16.2 - Estimated Gold and Silver Recoveries

Area	Range of Au Recovery	Estimated Au Recovery	Range of Ag Recovery	Estimated Ag Recovery
Borealis Upper	62 – 86	78.0	25 – 81	55.3
Borealis Main	62 – 86	78.0	25 – 81	55.3
Deep Ore Flats	59 – 85	74.1	28 – 51	39.0
Freedom Flats	20 – 80	75.0	-	23.2
Gold View/East Ridge	40 – 92	63.4	8 – 33	23.2
Northeast Ridge	37 – 85	70.0	14 – 29	28.4
Middle Ridge	46 – 92	76.3	7 – 60	44.9
Orion's Belt	55 – 94	75.3	52 – 71	54.6
Old Leach Pads	-	43.3	-	23.2
ROM Leach Pads	-	50.9	-	23.2
Dump Material	62 - 86	71.3	25 - 81	55.3

A separate series of bottle roll tests were conducted that evaluated the recovery effects of increasing the initial cyanide concentration from 1.0 gram per liter to 2.0 gram per liter. These results indicate gold recoveries increasing 0 to 5 percent depending on ore type and silver recoveries increasing 0 to 8 percent depending on ore type. While further investigation is warranted, these data indicate that there may be some upside potential to increase both gold and silver recoveries for certain ores.

16.7 Bulk Density and Tonnage Factor

Eight core samples from the Graben deposit were collected for bulk density measurements, which were completed in March 2005. Samples were collected to be representative of alteration types and grades within the deposit. Sample weights range from 197 to 1203 grams and average 516 grams. Table 16.1 summarizes the alteration characteristics and grade ranges for each sample. Bulk density measurements were performed by McClelland Laboratories, Inc. (Sparks, Nevada) using the standard water displacement method. Bulk density results are displayed in Table 16.3. A weighted average Tonnage Factor, considering alteration and grade, is 12.24 ft^3/ton for the entire Graben deposit. Within in the greater than 0.10 opt Au zone the density averages 11.69 ft^3/ton and within the lower grade zone (0.01 to 0.10 opt Au) the density is 12.52 ft^3/ton.

Table 16.3 - Alteration and Grade for Bulk Density Samples

Sample	Alteration Type	Grade	Specific Gravity	Tonnage Factor (ft^3/ton)
CBO2@729	Strong silicification and pyrite, with quartz veins	>0.25 opt Au	2.72	11.8
CBO6@784	Strong silicification and moderate pyrite	0.0X opt Au	2.63	12.2
CBO23@658	Strong silicification and pyrite, with quartz veins	>0.25 opt Au	2.68	11.9
CBO24@585	Strong silicification and pyrite	0.10-0.25 opt Au	3.12	10.3
CBO28@722	Strong silicification and moderate pyrite	>0.25 opt Au	2.44	13.1
CBO31@638	Moderate silicification and pyrite	>0.25 opt Au	2.69	11.9
CBO32@660	Strong silicification and pyrite, with quartz veins	0.10-0.25 opt Au	2.60	12.3
BC982@1000	Strong silicification and moderate pyrite	0.0X opt Au	2.49	12.9

Other tonnage factor data are available in the historic database. The tonnage factor for the mined portion of Freedom Flats is reported to be 16.4 ft^3/ton (Eng, 1991). Specific gravity measurement for Borealis, East Ridge, and Northeast Ridge deposits are summarized in Hoegberg (2000), but those measurements did not use accepted methods for measuring bulk density and are not considered reliable. Considering the absence of reliable bulk density data, tonnage factors were estimated based on historical tonnage factors and comparison with similar gold deposits. The tonnage factors used for the resource estimate are shown in Table 16.4.

Table 16.4 - Bulk Densities for Resource Estimation

Deposit	Tonnage Factor (ft^3/ton)
Dump or Backfill	20.0
Alluvium (QAL)	18.0
Coal Valley (TCV)	16.0
Graben Low-Grade Zone	12.5
Graben Mid-Grade and High Grade Zone	11.7
Other Deposits Oxidized	13.0
Other Deposits Partial Oxidation	13.0
Other Deposits Sulfides	12.5

As would be expected, materials with the lower tonnage factors are the most silicified and commonly contain sulfides. The lighter tonnage factors are for material that is more argillized and oxidized.

16.8 Heap Leach Processing Alternatives

It is often difficult to develop correlations and draw conclusions when evaluating ore with lower gold tenor as is found in the existing heaps and dumps. However, these metallurgical data do provide several clear options for improving or upgrading the gold recovery. This metallurgical discussion is based on the assay and screen analysis results from these metallurgical samples.

The Borealis Dump has more coarse rock than Heap 1 or Heap 3, and the rock appears to be more durable. In addition, the Borealis Dump rock has a lower gold grade and higher recovery which, when combined with the higher rock content, makes it ideal for use as a drain layer on the Heap. Any recoverable fines component that will be screened out while separating the coarse rock may be used as a protective layer on the Heap or agglomerated with the Heap 1 or Heap 3 material.

16.8.1 Heap Leach + Gravity

Future metallurgical testwork will investigate the technical viability of producing a gravity concentrate. One option might be to process all of the material from Heap 1 and Heap 3, which would include separating the minus ¼-inch fraction prior to a gravity circuit by wet screening and then slurry agglomerating the fines onto the gravity circuit tail (remaining coarse fraction after the gravity separation). The plus ¼-inch fraction would then be resized to remove the plus ½-inch material and processed in a gravity circuit to remove any coarse gold. A gravity circuit could potentially recover the coarse gold. The weighted average split (52 percent) of the finer-size fraction represents about 3.1 million tons with a weighted average gold grade of 0.015 opt and an indicated gold recovery of 56 percent.

Based on the data developed for the 2005 Technical Report, the final combined heap leach feed material for this option (the gravity tail plus the fines fraction) would contain approximately 5.4 million tons with a weighted average gold grade of 0.013 opt and an indicated gold recovery of 50.3 percent. Although this option utilizes all of the Heap 1 and Heap 3 material, the gold grade and recovery from the heap leach may not be optimal. The fines fraction (minus ¼-inch) from Heap 1 and the coarse fraction from Heap 3 have both a lower gold content and recovery, thus reducing the overall leach Heap grade and recovery.

16.8.2 Heap Leach + Gravity (Screen-out the Low Grade)

Another process option would screen out these lower grade-size fractions (minus ¼-inch from Heap 1 and the plus ¼-inch from Heap 3) and process only the material with a higher grade and recovery. This process would wet screen out the plus ¼-inch material from Heap 1, which would then be resized and screened to remove the plus ½-inch fraction. The resized minus ½-inch fraction would then be processed in a gravity circuit to remove any coarse gold. A gravity circuit could potentially recover the coarse gold. The minus ½-inch fraction has a gold head grade of 0.031 opt and an indicated leach recovery of 55.4 percent and thus would be processed in the heap leach Heap.

Conversely, the minus ¼-inch material would be screened out from Heap 3 and processed in the heap leach Heap. This material has a gold head grade of 0.018 opt and an indicated leach recovery of 72.1 percent. The combined heap leach material for this option (the plus ½-inch fraction from Heap 1 and the minus ¼-inch fraction from Heap 3) would have a gold head grade of 0.22 opt and a recovery of 67.3 percent. A conceptual process flowsheet is shown on Plate 3.

The lower-grade material that was screened out of Heap 1 and Heap 3 notionally would be stockpiled and could potentially be used in the construction of the protective layer and/or drain layer on the leach Heap.

Other flowsheet iterations could be and probably should be explored with additional and more detailed metallurgical testwork. Blending the Heap 1 and Heap 3 materials with other mined pit ores is also a viable option. This secondary leach ore could also be used as "fill in" production during waste mining periods or equipment maintenance shutdown.

17.0 Mineral Resource Estimates

17.1 General Statement

An updated mineral resource estimate for the main Borealis study area was prepared by Alan C. Noble, P.E. of O.R.E. The study area encompasses the core of the BMC holdings and the principal gold deposits with known mineral resources. This estimate updates the previous estimate by O.R.E. in 2005 as follows:

- New drilling by Gryphon Gold during 2005 through March 2006 was added to the drill hole database. The new data included 116 reverse circulation holes with 49,310 ft of drilling.
- The mineral zone outlines were modified as needed for the new drilling.
- The interpretations for oxidation class were modified extensively based on data from the 2005/2006 drilling and reinterpretation by Gryphon Gold geologists.
- Resource models for the deposits on the west side of the property including Jaimes Ridge, Cerro Duro, and Purdy Peak were prepared, and those deposits are now included in the mineral resource estimate.
- Silver grade estimates were added to the resource models.

17.1.1 Independent Review

Gryphon Gold Corporation engaged AMEC E&C Services (AMEC) of Reno, Nevada, an engineering firm qualified to review resource estimates, to conduct a review of the O.R.E. resource models. AMEC reports that their review of the resource models for the Southwest, Northeast, and West Zones of the Borealis project concludes that, at the cutoff grade of 0.01 opt Au and selective mining unit of 20×20×20 ft presently being used, the models provide a reasonable estimate of the in situ mineral resources. Estimates show no global or spatial biases. The method of inverse distance to a power (variable power depending on subzone) generally conforms to industry standard practices and is suitable for this type of gold deposit.

Change of support analyses show that the resource estimates for the Northeast Zone are oversmoothed. At gold cutoff grades higher than the currently employed 0.01 opt Au and the currently used selective mining unit, the model gives more ore tons and a lower average grade than what would be mined at that scale. Use of a larger selective mining unit decreases this effect. Change of support analyses for the West Zone show that this model is undersmoothed and overestimates grade and underestimates tons at cutoff grades higher than 0.01 opt Au.

AMEC reviewed procedures used by O.R.E. for estimation of gold and silver resources in the Borealis heaps and waste dumps, which were drill tested by Gryphon Gold. AMEC found these procedures and estimates to be reasonable and in conformance with industry standard practices.

17.2 Mineral Resource Model

17.2.1 Resource Block Model Size and Location

Two three-dimensional block models were used to estimate the gold resource in the main deposit area. Each of these models used 20×20×20-ft blocks and was rotated so that model north was N50°E. The models overlap slightly to more easily maintain continuity across model boundaries, as shown on Figure 17.1. Model size and location parameters are summarized in Table 17.1.

Table 17.1 - Block Model Dimensions and Location Parameters (Main Area)

	Southwest Model			Northeast Model		
	East (Columns)	**North (Rows)**	**Elevation (Levels)**	**East (Columns)**	**North (Rows)**	**Elevation (Levels)**
Origin	44200.00	22000.00	5800.00	51208.91	24226.03	7000.00
Block Size	20 ft	20 ft	20 ft	20 ft	20 ft	20 ft
Number Blocks	310	360	88	170	480	72
Total Length	6,200 ft	7,200 ft	1,440 ft	3,400 ft	9,600 ft	1,440 ft
Rotation	Model North is rotated 50 degrees clockwise from true north.					

Note: The model origin is located at the lower left corner of the block at the lower left corner of the model. The coordinates of the origin are specified before rotation to the local grid system. The coordinates shown above are equal to the Borealis grid coordinate less 400,000 East and 1,300,000 North.

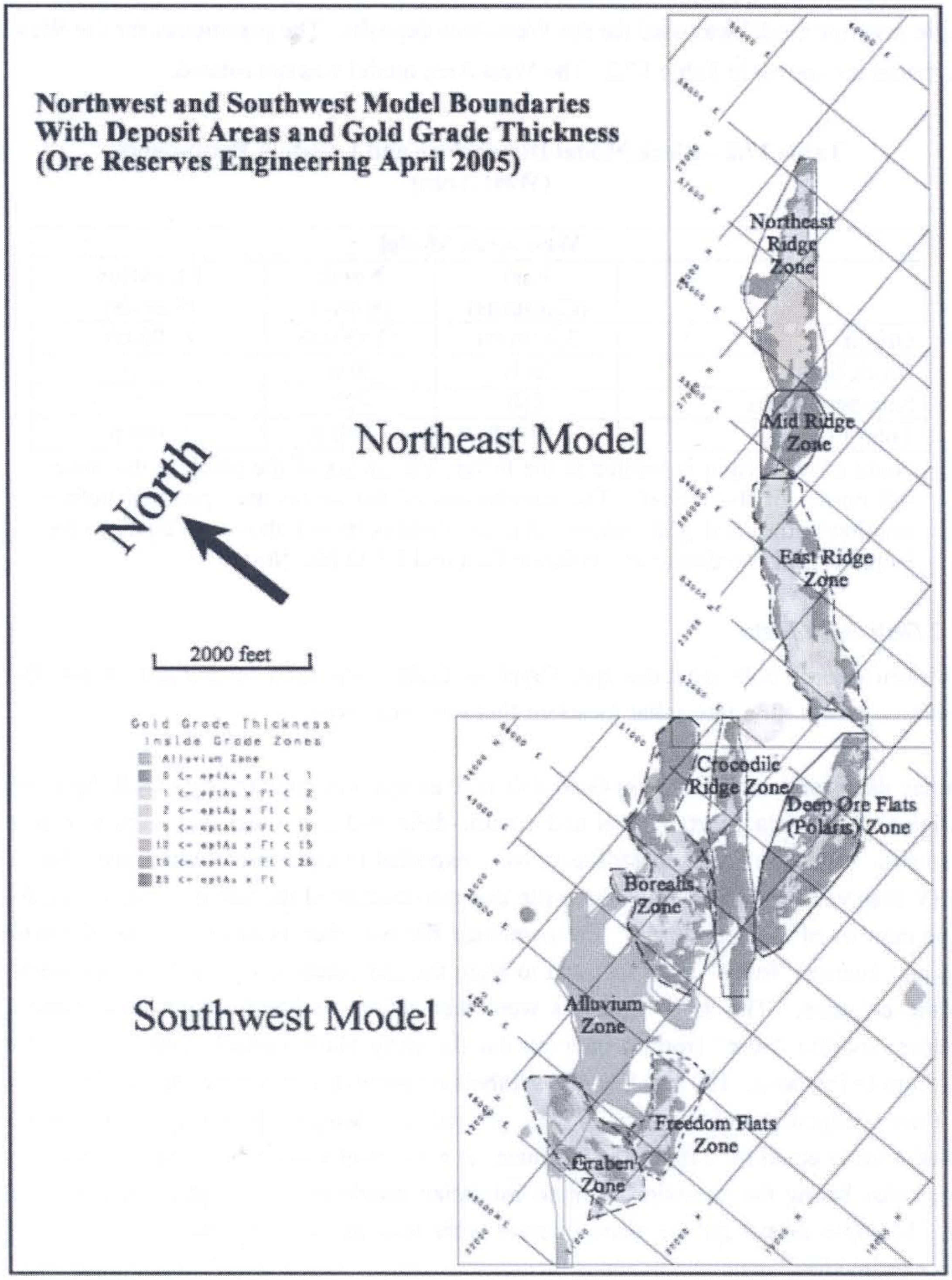


Figure 17.1 - Map Showing the Northeast and Southwest Model Boundaries with Deposit Areas and Gold Grade Thickness

A single resource model was used for the West Area deposits. The parameters for the West Area block model are shown in Table 17.2. The West Area model was not rotated.

Table 17.2 - Block Model Dimensions and Location Parameters (West Area)

West Area Model			
	East (Columns)	**North (Rows)**	**Elevation (Levels)**
Origin	32000.00	32500.00	6500.00
Block Size	20 ft	20 ft	20 ft
Number Blocks	250	425	67
Total Length	5,000 ft	8,500 ft	1,340 ft

Note: Model origin is located at the lower, left corner of the block at the lower left corner of the model. The coordinates of the origin are specified before rotation to the local grid system. The coordinates shown above are equal to the Borealis grid coordinate less 400,000 East and 1,300,000 North.

17.2.2 Drill Hole Data

The historical drill hole database (pre-Gryphon Gold) was used unchanged in the Borealis deposit area except for a few collar locations that were corrected.

The assay database for the Gryphon Gold drill hole assays was prepared by O.R.E. by compiling the original assay data sheets (Excel and comma-delimited text files) that were sent from the laboratories. After the Excel spreadsheets were exported to comma-delimited text files (CSV), the CSV files were combined to a single file that also contained the name of the source file and the line number of the source file. The combined file was then edited to decode the drill hole names and interval "froms" and "tos" and to align the individual assays so that they were all in the same columns. The assay intervals were then edited to identify standards, blanks, and duplicates, and the "false" from-to intervals for the early blank samples were corrected to the actual from-to intervals. The less than (<) symbols on some of the samples below detection limit were then changed to minus signs (-). In general, the samples below detection limit were assigned a value equal to ½ the detection limit. A maximum value of 0.05 opt Ag was used for silver grades below the detection limit to minimize problems with highly variable detection limits. Multiple assays for the same interval were then averaged to create the final data for resource estimation.

Finally, the O.R.E. compilation was compared to a Gryphon Gold compilation by joining the two sets of data and identifying significant differences. Differences between the two sets of data were checked and corrected until no more errors were found in the O.R.E. compilation. (A few errors remained in the Gryphon compilation.)

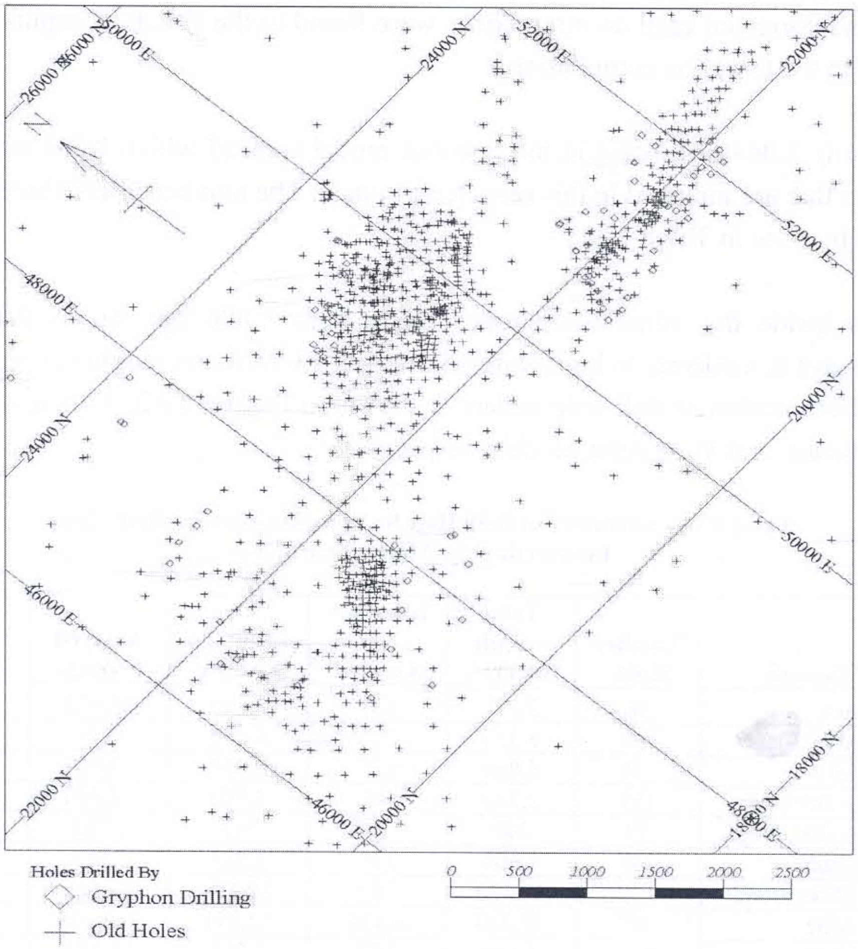
There are currently 2,064 drill holes in the resource model area, of which 1,539 intersect zones of mineralization that are included in this resource estimate. The number of drill holes and assays are summarized by zone in Table 17.3.

Average grades inside the mineralized zones range from 0.006 opt Au to 0.064 opt Au. Variability of assays is moderate to high, with coefficients of variation ranging from 1.28 to 4.25 within zones. The location of drill hole collars is shown on Figures 17.2, 17.3, and 17.4 for the Southwest, Northeast, and West Area Models, respectively.

Table 17.3 - Summary of Drill Hole Sample Statistics for Drill Holes Intersecting the Mineralized Zones

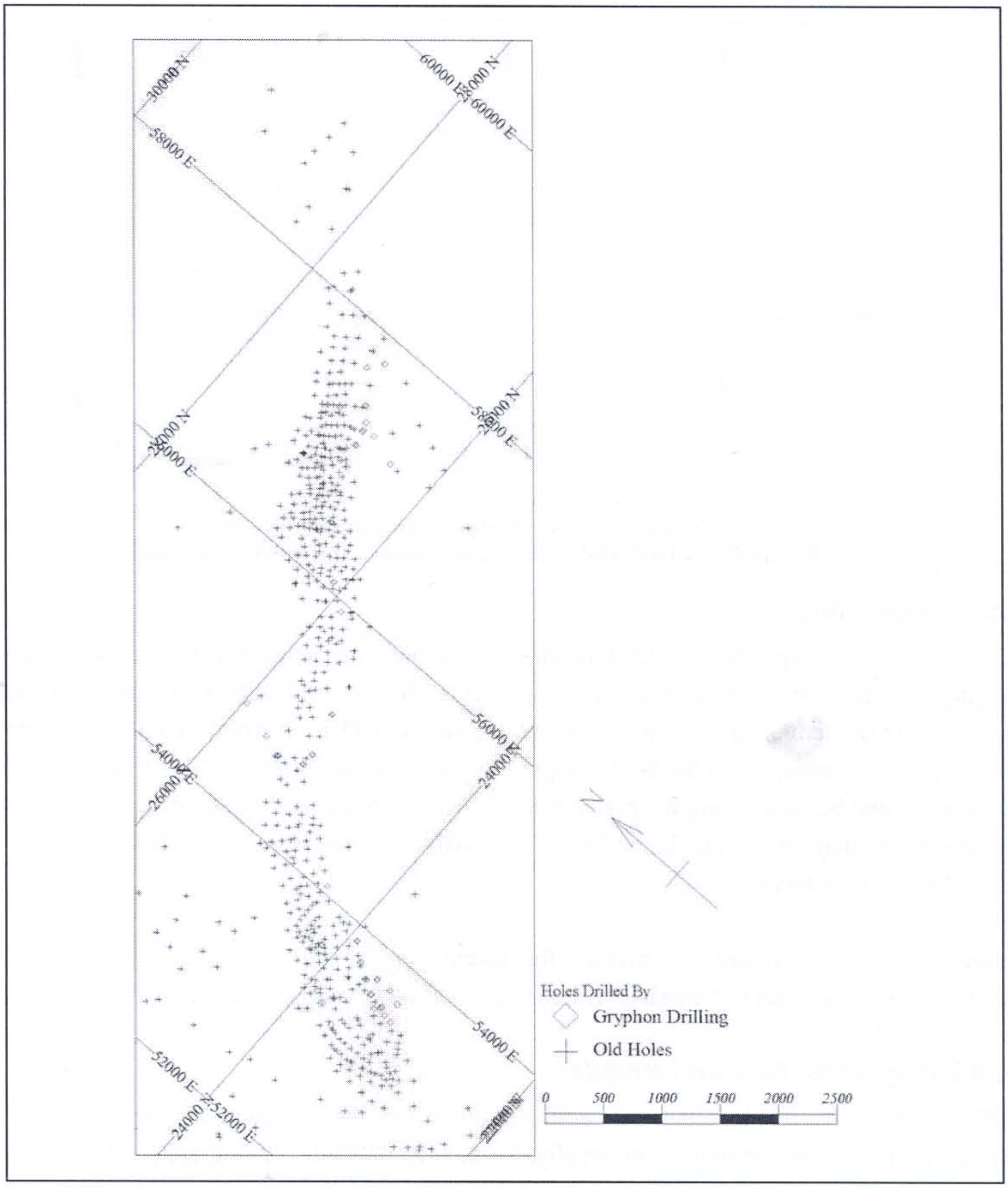
Model	Deposit	Number Holes	Total Sample Intervals	Intervals Not Assayed	Intervals Assayed	Assayed Footage	Average Length	Average Gold
Southwest	Graben	66	2,771	131	2,640	13,122	4.97	0.053
	Freedom Flats	147	6,323	224	6,099	30,491	5.00	0.064
	Borealis	336	6,039	125	5,914	29,973	5.07	0.037
	Deep Ore Flats	181	2,544	44	2,500	12,530	5.01	0.013
	Crocodile Ridge	39	560	3	557	2,785	5.00	0.006
	Alluvium	260	1,699	176	1,523	7,615	5.00	0.006
	All Mineralized		19,936	703	19,233	96,516	5.02	0.041
	No Zone	997	55,729	3,438	52,291	263,938	5.05	0.001
Northeast	East Ridge	211	5,149	107	5,042	25,302	5.02	0.019
	Middle Ridge	73	1,518	23	1,495	7,475	5.00	0.008
	Northeast Ridge	221	6,172	119	6,053	30,320	5.01	0.017
	All Mineralized		12,839	249	12,590	63,097	5.01	0.017
	No Zone	369	7,443	78	7,365	38,133	5.18	0.001
West	Purdy's Peak	39	726	5	721	3,610	5.01	0.017
	Jaime's Ridge	105	1,363	19	1,344	6,727	5.01	0.058
	Cerro Duro	42	910	3	907	4,530	4.99	0.039
	All Mineralized		2,999	27	2,972	14,867	5.00	0.042
	No Zone	249	7,769	176	7,593	37,975	5.00	0.001
Southwest	All Data Inside Model Limits	1,141	75,665	4,141	71,524	360,454	5.04	0.012
Northeast		577	20,282	327	19,955	101,230	5.07	0.011
West		346	10,768	203	10,565	52,842	5.00	0.013
All Models		2,064	106,715	4,671	102,044	514,526	5.04	0.012
Outside Models		490	33,682	850	32,832	167,549	5.10	0.001
All Data		2,554	140,397	5,521	134,876	682,075	5.06	0.018

Note: Drill holes may intersect more than one zone; therefore, the number of holes by zone is not additive.



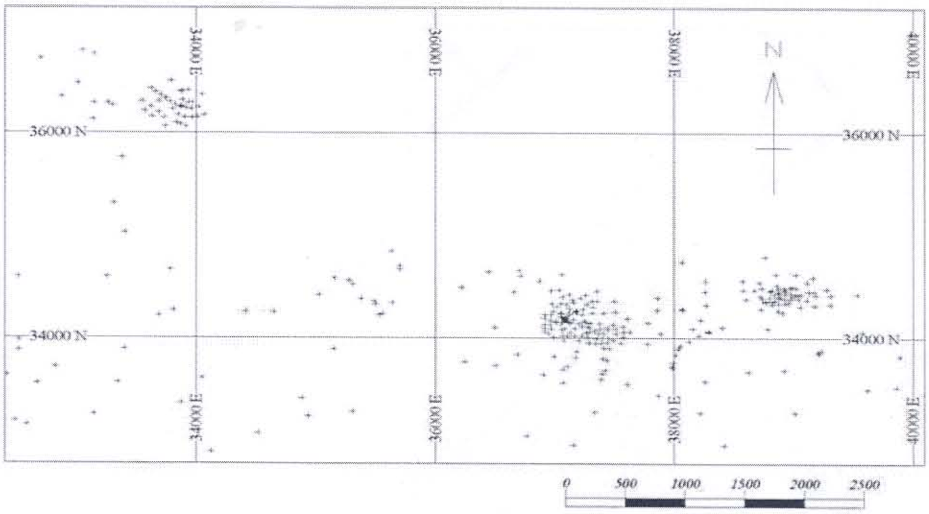
Source: A. Noble, Ore Reserves Engineering, 2006)

Figure 17.2 - Drill Hole Collar Locations in the Southwest Model



(Source: A. Noble, Ore Reserves Engineering, 2006)

Figure 17.3 - Drill Hole Collar Locations in the Northeast Model



(Source: A. Noble, Ore Reserves Engineering, 2006)

Figure 17.4 - Drill Hole Collar Locations in the West Area Model

17.2.3 Compositing

Raw assays were composited to 20-ft lengths for resource estimation using length-weighted averaging. Composite intervals were generally set at the top and bottom of the 20-ft model benches unless the length of the composite was greater than 45 ft, at which point 20-ft intervals were composited starting from the beginning of the first assayed interval in the drill hole. Thus, vertical holes and holes with angle greater than 26.4° from horizontal were "bench composited" to the model benches, and holes flatter than 26.4° from horizontal were "down-hole" composited to 20-ft down-hole intervals.

Missing values were treated as missing for calculation of the composited value, but the composite average was set to "missing" if less than 10 ft of assayed drill samples was available.

17.2.4 Topographic Data and Models

AutoCAD files, provided by Gryphon Gold, contained topographic contours for the "original" topography, the "end mining" topography, and the "current" topography. The original topography data contains elevation contours at 25-ft intervals with some detailed contours at 5-ft contour intervals. Outside the main Borealis-Ridge areas data are on 40-ft contours. There is no evidence of pits or dumps on the original topography maps. The end mining topography is similar to the original topography, but shows the mined-out pits, some of the heaps, and some of the dumps. Current topography is similar to the previous two but with more detailed contours at 5-ft intervals. The Borealis and Deep Ore Flats (Polaris) pits have been backfilled in the current topography and all heaps and dumps are shown in what appears to be the current configuration. The exception is that the Northeast Ridge pit is shown, but the Northeast Ridge dumps are not shown. The Northeast Ridge dumps were added to the current topography based on surveys of the dump areas in June 2004. The original topographic contours were edited in the area of the Borealis Pit, which appears to have mined for a few months at the time of the original topography mapping.

Topographic data for the West Area was also available as AutoCAD files. These were edited to merge contours in the outlying areas, with more detailed data in the main part of the West Area. Pre-mining topography was not available for the West Area and was reconstructed using drill hole collar elevations.

There is little known about the dates and accuracy of the topographic data, although they all appear to have been prepared by Echo Bay during operations. Considering that the Northeast Ridge dumps were not included in the data for the "current" topography, it is likely that it is based on aerial surveys during the final stages of mining that were manually corrected for mining at Northeast Ridge. Although the topographic data are believed to be sufficiently accurate for purposes of this resource estimate, a new aerial survey is recommended before mine production is resumed.

Gridded topographic models were prepared from the topographic data by kriging to the center points of the 20-ft by 20-ft model grid (in plan view). Point kriging with a low-nugget, long-range linear variogram was used for these models. Because the models were all based on slightly different data, the elevations of the original and end mining topographic (topo) models were set equal to the elevation of the current topographic model if the difference in elevations was less than 5 ft. Several calculated models were derived from these models as follows:

1. Maximum topo, which is equal to the maximum of current and original topography;
2. Fill topo, which is equal to the minimum of current and original topography; and
3. Minimum topo, which is equal to the minimum of current, end mining, and original topo.

All remaining resources were summarized using the minimum topography, which is the top of hard, unmined rock. The maximum and fill topo models will be used to define fill and backfill materials during mine planning.

17.2.5 Geologic Model for the Thickness of the QAL and TCV Formations

Models for the thickness of the QAL alluvium (geologically known as Qal) and the thickness of the TCV Coal Valley formation (geologically known as Tcv) were developed for the Southwest Model. These models were based on depths of the bottom of each formation from the drill hole logs as follows:

1. Depths to the bottom of each formation were extracted from the drill hole geologic logs in the Borealis historical data archives. If depths were available from recent relogging of drill cuttings or core, those depths were used rather than depths from the old logs.

2. The XYZ location of each intersection was computed for each formation.

3. Data were compared against the elevation of original (pre-mining) topography. Drill holes that were drilled more than 10 ft below the original topography and had a zero (0.0) depth for the intersection were discarded since the drill hole was likely drilled from the bottom of a pit and the intersection point would be invalid.

4. The true depth of the intersection point was computed by subtracting the elevation of the intersection point from the elevation of original topography above that point if the hole was an angle hole dipping flatter than 80° form horizontal.

5. The depth of the bottom of QAL and the depth of the bottom of TCV were kriged to the center points of the topographic grid model using a zero-nugget, isotropic, linear variogram. The kriged depth to the bottom of TCV was adjusted so that it was always greater than or equal to the depth to the bottom of QAL.

6. The depths to the bottom of each formation were subtracted from the elevation of original topography to create models of the elevation of the bottom of each formation.

7. The resulting models were reviewed on contour maps and cross-sections. A few intersections with anomalous depths were removed from the data. Removal of the anomalous data were justified both by inconsistencies that have been observed in the historical geologic logs, which were done over a long period of time by many different geologists with varied levels of training, and because it is often difficult to recognize the contacts in drill hole cuttings.

8. In some areas, the model was not contouring properly because of the complexity of the surfaces and/or the scarcity of the data. Control points were inserted manually to correct these problems and the depth models were recalculated.

9. A three-dimensional block model of formation type was created using the models of the elevation of formation bottoms as shown in Table 17.4. A code for heaps and

dumps was added to this model so heaps and dumps could be identified in resource estimation and reconciliations.

Table 17.4 - Geologic Formation Model

Model Code	Formation	Surface at Top of Formation	Surface at Bottom of Formation
1000	Heaps and Dumps	Maximum of Current and Pre-mining Topography	Pre-mining Topography
2000	QAL	Pre-mining Topography	Bottom of QAL
3000	TCV	Bottom of QAL	Bottom of TCV
4000	Volcanics	Bottom of TCV	Bottom of Model

Although there are some difficulties in defining the depths of the QAL and TCV contacts in drill cuttings and questions regarding the reliability of some of the historical geologic logs, it is believed that the reliability of the Geologic Formation Model is adequate for resource estimation in and around the ore zones. Outside the ore zones, the contours are projected and are only approximate. Continued improvement of the QAL and TCV contact models is recommended both to improve the accuracy of the resource model and to improve the geological understanding of the deposit.

17.2.6 Model of the Depth of Oxidation and Partial Oxidation

The same procedure was used to create the model of the depth of oxidation and the depth of partial oxidation (mixed oxides and sulfides) as was defined above for the QAL and TCV contacts. A three-dimensional block model of oxidation state was created using the models of the Bottom of Oxidation and the Bottom of Partial Oxidation as shown in Table 17.5.

The depths of oxidation models were reviewed extensively for this update, particularly in those areas with new drilling. The primary effect of this update is that the depth of partial oxidation is increased relative to the previous estimate.

Table 17.5 - Geologic Oxidation State Model

Model Code	Oxidation Type	Surface at Top Oxidation Type	Surface at Bottom of Oxidation Type
100	Oxides	Pre-mining Topography	Bottom of Oxidation
200	Partial Oxides	Bottom of Oxidation	Bottom of Partial Oxidation
300	Sulfides	Bottom of Partial Oxidation	Bottom of Model

17.2.7 Grade Zone Models and Basic Statistics

Grade zone models were created for mineral resource estimation to control the shape and continuity of the ore zones and to better define grade-zoning patterns inside the mineralized envelopes. In general, a low-grade, mid-grade, and high-grade zone was created for each deposit. The general procedure for creating the grade zones was as follows:

1. The geologic cross-sections and the geologist's grade contours were evaluated to determine the general trend, size and shape for each deposit.

2. Nearest-neighbor (NN) gold-grade models were constructed for each deposit using the strikes and dips provided by the geologic cross-sections. The NN models were viewed on plans and cross-sections to further refine the strike and dip of each deposit.

3. Plan maps were plotted and the low-grade envelope was drawn around the mineralization, based on NN block grades, composited gold grades, and the geologist's shape of the deposit (in cross-section interpretations). The low-grade outline was generally based on a cutoff of about 0.001 opt Au except for the Graben deposit, which used a slightly higher low-grade cutoff of about 0.002 opt Au. Grade zones were drawn on all benches with drill hole intersections for the particular zone, but were confined to the areas where sufficient data were available to define a continuous zone. Thus, outside the grade zone outlines, it is possible that exploration drilling may expand the zones and increase the mineral resource.

4. The grade zone outlines were used to create a three-dimensional block model of grade zones by assigning the code of the zone outline to all blocks with block centers inside the outline. Grade zone codes were assigned to composites using the same method, but with composite centroids rather than block centers.

5. NN models were then created using the grade zone boundaries as hard boundaries to constrain the assignment of grades. Histograms and cumulative frequency plots were compiled from the NN model grade models for evaluation of the grade distributions. (The grade distributions and statistics from NN model are used to minimize the effects of clustering since the drilling tends to be highly concentrated in high-grade zones.)

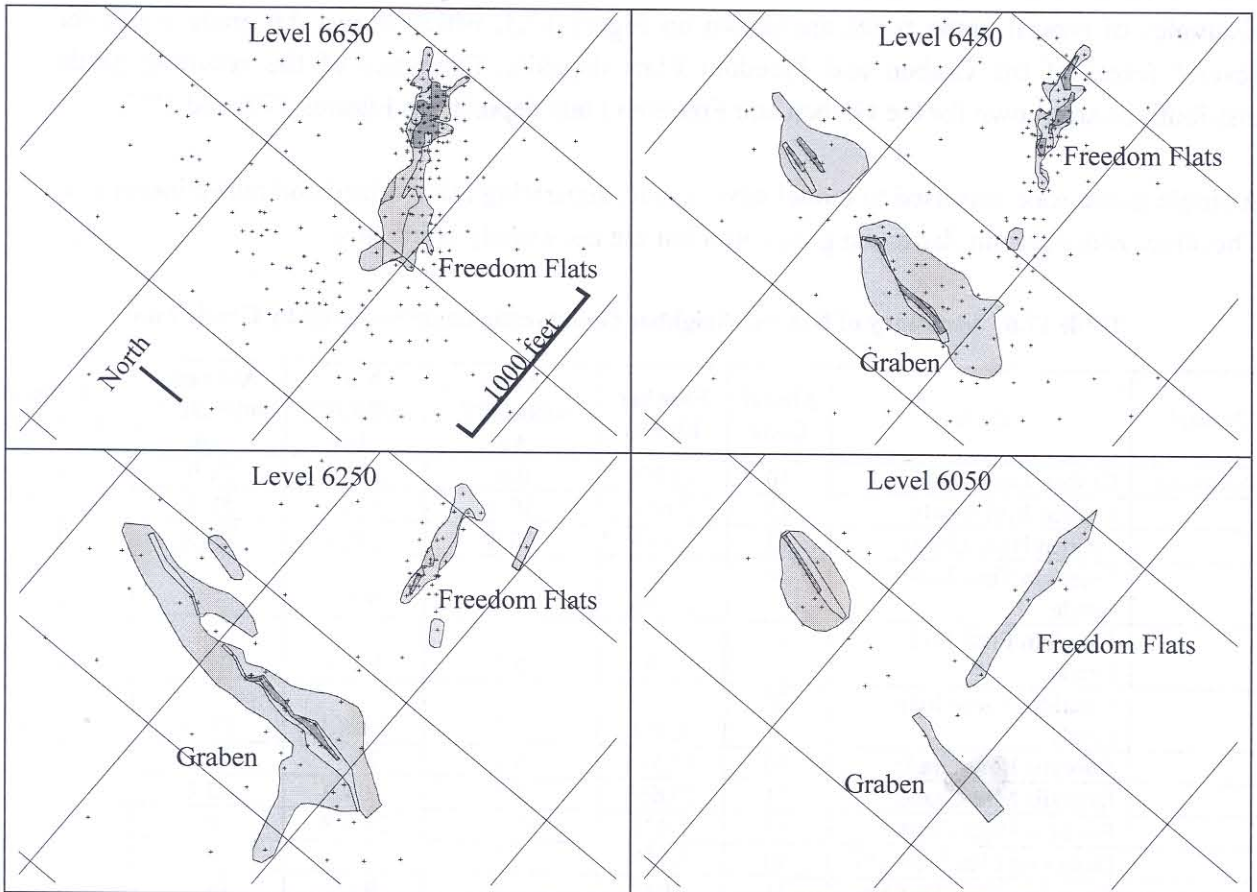
6. Starting from the lowest grade-zone envelope, the NN grade distributions were examined to see if there was evidence of multiple distributions. If multiple distributions were observed, an envelope was drawn to segregate the higher-grade distribution. This was repeated for up to three distributions, or grade zones, per deposit.

Basic statistics for the NN grade distributions are summarized by grade zone in Table 17.6. Examples of typical grade zones are shown on Figure 17.5, which shows the grade zones for several levels of the Graben and Freedom Flats deposits. Examples of the resulting grade distributions are shown for the Graben and Freedom Flats deposits on Figures 17.6 and 17.7.

A single grade zone was used to model silver grade, separating mineralized and non-mineralized. The silver zones are similar to the gold zones but are not exactly coincident.

Table 17.6 - Summary of Nearest-Neighbor Gold Grade Basic Statistics by Grade Zone

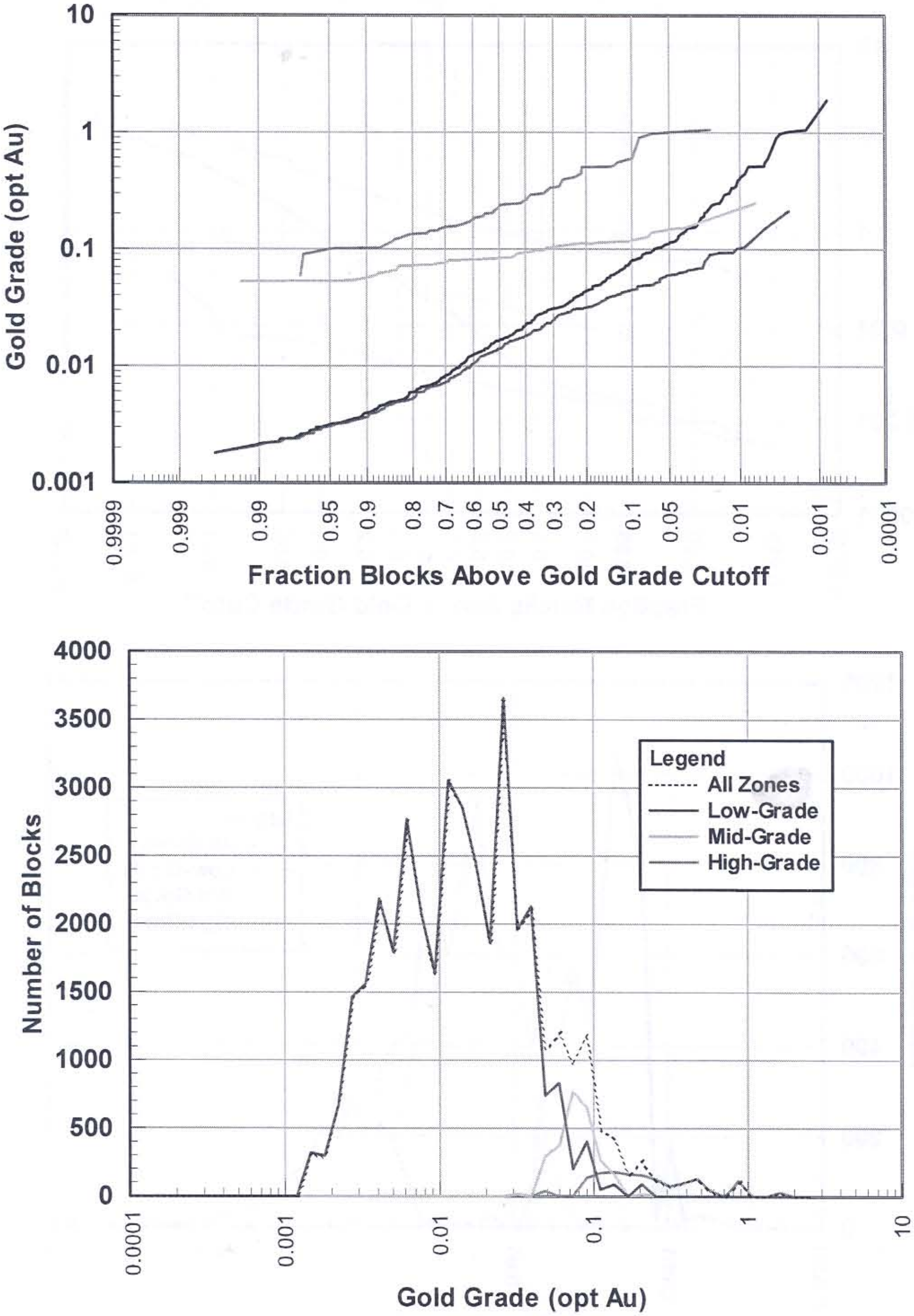
Model	Zone	Model Code	Number Blocks	Min. milliOPT Au	Max milliOPT Au	Average milliOPT Au	Coefficient of Variation
Southwest	Graben Low-Grade	10	35,279	0.6	210.6	21.0	1.04
	Graben Mid-Grade	11	2,603	36.2	245.6	88.3	0.32
	Graben High-Grade	12	1,430	58.8	1882.4	332.8	0.95
	Freedom Flats Low-Grade	20	5,595	0.5	32.2	3.3	0.62
	Freedom Flats Mid-Grade	21	7,391	0.5	130.4	22.3	0.69
	Freedom Flats High-Grade	22	2,557	3.8	1698.1	172.4	1.04
	Borealis Low-Grade	30	13,535	0.2	39.6	4.5	0.51
	Borealis Mid-Grade	31	10,663	0.5	164.9	23.8	0.79
	Borealis High-Grade	32	1,430	47.2	2854.6	186.7	1.45
	Deep Ore Flats East LG	40	2,757	0.5	9.3	3.8	0.41
	Deep Ore Flats East MG	41	2,041	2.3	92.7	14.9	0.88
	Deep Ore Flats West LG	45	5,585	0.7	8.9	3.5	0.40
	Deep Ore Flats West MG	46	5,784	3.3	173.2	19.2	0.96
	Crocodile Ridge	50	11,298	0.5	36.0	5.6	0.90
	West Alluvium	80	24,788	0.5	262.2	4.2	1.11
Northeast	East Ridge Low-Grade	50	36,822	1.9	70.8	11.7	0.75
	East Ridge Mid-Grade	51	2,452	18.7	94.0	52.9	0.32
	Middle Ridge All	60	13,595	1.6	82.4	7.7	0.75
	Northeast Ridge All	70	29,837	1.0	100.0	12.3	1.07
West	Purdy Peak Low-Grade	10	2,710	1.1	14.6	4.6	0.66
	Purdy Peak Mid-Grade	11	1,551	7.3	47.3	18.9	0.43
	Purdy Peak High-Grade	12	142	28.3	138.3	75.7	0.30
	Jaimes Ridge LG	20	3,577	0.6	29.4	7.3	0.71
	Jaimes Ridge Mid-Grade	21	1,171	11.7	187.0	54.2	0.62
	Jaimes Ridge HG	22	222	107.3	478.7	270.8	0.30
	Cerro Duro Low-Grade	30	1,388	1.5	21.6	8.3	0.53
	Cerro Duro Mid-Grade	31	986	11.0	172.3	54.1	0.65
	Cerro Duro High Grade	32	41	108.5	262.5	189.8	0.27



(Source: A. Noble, Ore Reserves Engineering, 2005)

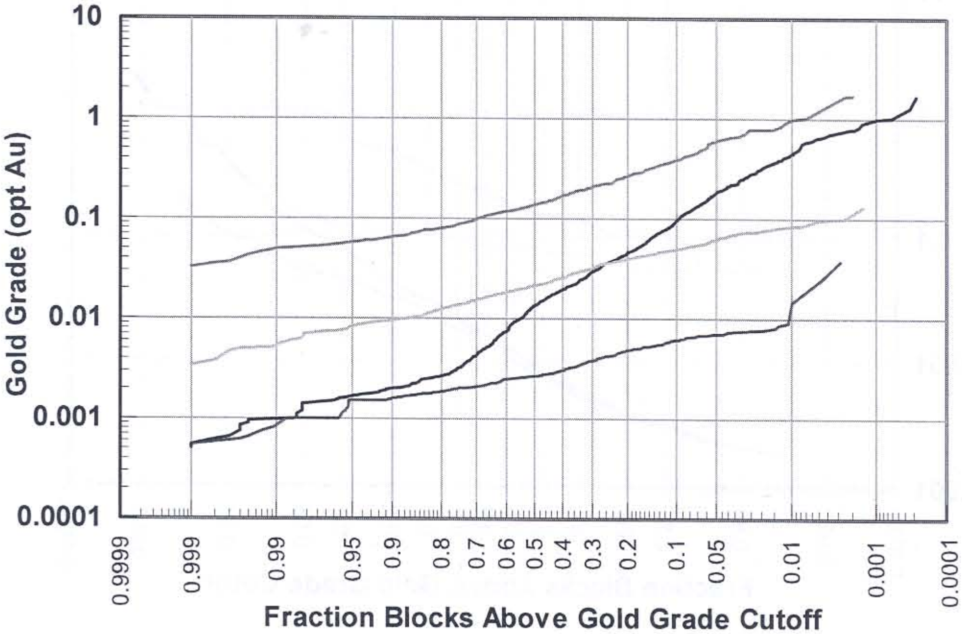
Figure 17.5 - Examples of Grade Zones on Four Benches of the Graben and Freedom Flats Deposits

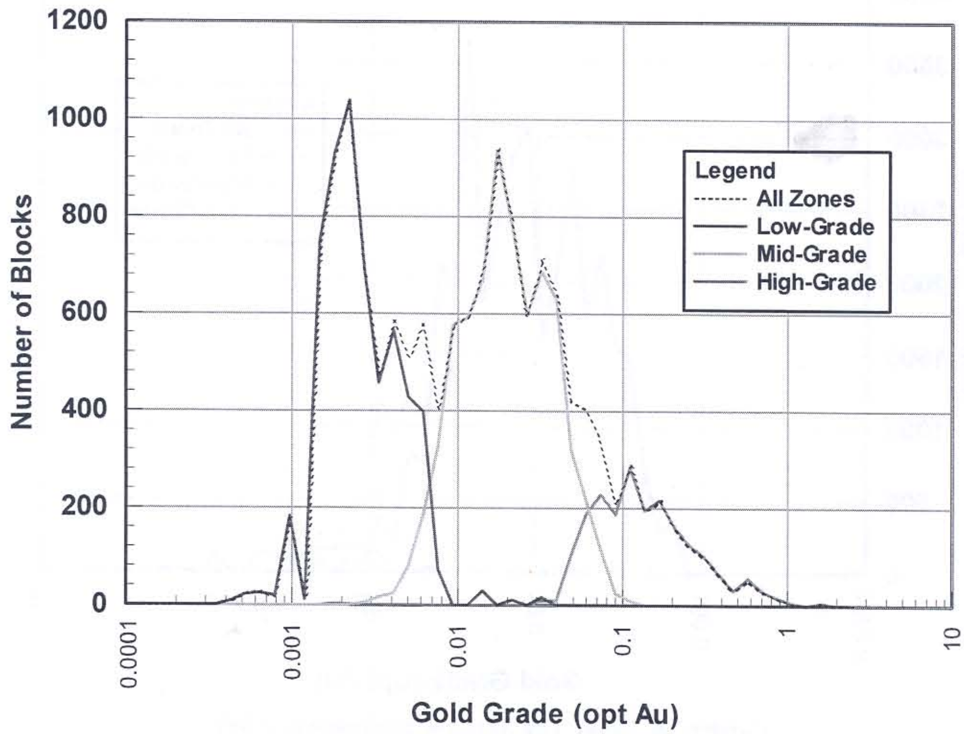
(Low-grade zones are violet; mid-grade zones are green; and high-grade zones are red.)



(Source: A. Noble, Ore Reserves Engineering, 2006)

Figure 17.6 - Cumulative Frequency Plots and Histograms for the Grade Zones in the Graben Deposit





(Source: A. Noble, Ore Reserves Engineering, 2006)

Figure 17.7 - Cumulative Frequency Plots and Histograms for the Grade Zones in the Freedom Flats

17.2.8 Variograms

Variograms were computed for each grade zone using natural-log-transformed gold grades. The lognormal variograms were transformed for plotting and interpretation into relative variograms using standard geostatistical transformations. Variograms were oriented along strike, perpendicular to strike, vertical, and omnidirectional. The resulting variograms are generally well behaved but with significant variation in parameters for individual grade zones, as summarized in Table 17.7. Variograms in the Southwest and Northeast models were not updated for this report because the number of added holes was small.

Because individual variograms were difficult to model and were generally similar, the West Area variograms were combined for all deposits. Insufficient samples were available to model the high-grade zone for the West Area.

Table 17.7 - Gold Grade Variogram Summary

Zone	Nugget	Sill	Variogram Directions			Maximum Variogram Ranges (ft)			Comment
			Pri.	Sec.	Ter.	Pri.	Sec.	Ter.	
Graben Low Grade	0.65	1.22	11	101	Vert	600	500	150	Best continuity in plane striking N11E, dipping 45 E
Graben Mid Grade	0.05	0.11			NA			225	Insufficient data for directional variograms
Graben High Grade	0.40	0.67			NA			225	Insufficient data for directional variograms
Freedom Flats Low Grade	0.25	0.40	55	145	Vert	190	80	125	Good vertical continuity
Freedom Flats Mid Grade	0.35	0.55	55	145	Vert	400	175	250	Good vertical continuity
Freedom Flats High Grade	0.60	0.80	55	145	Vert	175	80	50	Generally good continuity for zone, but poor continuity of grade inside zone
Borealis Low Grade	0.15	0.21	45	135	Vert	250	200	200	
Borealis Mid Grade	0.25	0.87	45	135	Vert	600	400	60	Strong zonal anisotropy in vertical direction
Borealis High Grade	0.31	0.57	45	135	Vert	450	200	90	
Deep Ore Flats Low Grade	0.11	0.18	76	166	Vert	350	250	100	
Deep Ore Flats Mid Grade	0.53	0.28	76	166	Vert	50	170	45	
Crocodile Ridge	0.20	0.66	46	136/30	Vert	425	1000	160	Average range in plane dipping 30deg at 136 is 55 ft
West Alluvial	0.60	0.94	330	60	Vert	400	400	40	Average range in plane dipping 10deg at 305 is 1,000 ft
East Ridge	0.20	0.92	214	124	Vert	375	200	160	
Mid Ridge	0.15	0.70	244	154	Vert	900	100	200	
Northeast Ridge	0.25	1.35	237/5	147	Vert	650	150	125	Along strike follows slope of hillside
West Area Low Grade	0.40	0.74	NA	NA	NA	400	400	400	Poorly defined vertical
West Area Mid Grade	0.20	0.68	NA	NA	NA	700	700	700	Poorly defined vertical

Notes:

1. Nugget and sill are relative variances.
2. Primary and secondary directions are horizontal azimuths unless otherwise specified.

17.2.9 Grade Estimation

Grade estimation was done using inverse-distance-power (IDP) interpolation. Silver was interpolated using the same procedure that was used for gold, but with parameters that were particular for silver. Control of the estimation was maintained using the grade zones, the composite selection and grade caps, and the IDP parameters, as follows:

1. Composite selection and grade caps were applied individually for each grade zone in each deposit, as summarized in Tables 17.8 and 17.9.

    a. For example, estimation of the Graben low-grade zone was done using all composites from the Graben low-grade zone, plus samples from the mid-grade zone up to a maximum value of 75 milliounces/ton gold. Composites from the high-grade zone were not used to interpolate blocks in the Graben low-grade zone.

    b. This procedure lets grade estimation use similar data from grade zones that overlap the current distribution, but ignores data that is much higher or lower grade. Thus, continuity across the grade boundaries is maintained without smearing of high-grade data into low-grade blocks, or vice-versa.

Table 17.8 - Composite Selection Parameters and Gold Capping Parameters by Deposit and Grade Zone

Block Model			Composites (All Grades are milliounce/ton gold)											
Deposit	Zone	Code	Zone	Min	Max	Cap	Zone	Min	Max	Cap	Zone	Min	Max	Cap
Graben	Low	10	10	0	None	85	11	0	75	75				
	Mid	11	10	35	None	150	11	0	None	150	12	0	150	150
	High	12	11	120	None	750	12	0	None	750				
F. Flats Main	Low	20	20	0	None	10	21	0	9	10				
	Mid	21	20	3	None	120	21	0	None	120	22	0	120	120
	High	22	21	100	None	2000	22	0	None	2000				
F. Flats North	Low	20	20	0	None	10	21	0	9	10				
	Mid	21	20	3	None	120	21	0	None	120	22	0	120	120
	High	22	21	100	None	2000	22	0	None	2000				
Borealis	Low	30	30	0	None	12	31	0	12	12				
	Mid	31	30	6	None	140	31	0	None	140	32	0	140	140
	High	32	31	80	None	600	32	0	None	600				
D.O. Flats West	Low	40	40	0	None	15	41	0	15	15				
	Mid	41	40	8	None	150	41	0	None	150				
D.O. Flats East	Low	40	45	0	None	15	46	0	15	15				
	Mid	41	45	8	None	150	46	0	None	150				
Crocodile Ridge	All	50	50	0	None	20								
Alluvium	All	80	80	0	None	20								
SW No Zone	None	99	99	0	None	50								
East Ridge	Low	50	50	0	None	40	51	0	None	40	60	0	None	999
	Mid	50	50	30	None	100	51	0	None	70	60	50	None	100
Mid Ridge	All	60	50	0	None	30	60	0	None	30	70	0	None	30
NE Ridge	All	70	50	0	None	38	60	0	None	38	70	0	None	38
NE NoZone	All	99	99	0	None	15								
Purdy's Peak	Low	10	10	0	None	14	11	0	25	14				
	Mid	11	10	7	None	60	11	0	None	60	12	0	60	60
	High	12	11	50	None	125	12	0	None	125				
Jaime's Ridge	Low	20	20	0	None	25	21	0	35	25				
	Mid	21	20	12	None	250	21	0	None	250	22	0	400	250
	High	22	21	150	None	None	22	0	None	None				
Cerro Duro	Low	30	30	0	None	20	31	0	30	20				
	Mid	31	30	12	None	250	31	0	None	250	32	0	400	250
	High	32	31	150	None	None	32	0	None	None				
West NoZone	All	99	99	0	None	15								

Table 17.9 - Composite Selection Parameters and Silver Capping Parameters by Deposit and Grade Zone

Block Model			Composites (All Grades are millounce/ton silver)							
Deposit	Zone	Code	Zone	Min	Max	Cap	Zone	Min	Max	Cap
Northeast Model	Min	10	10	0	9999	5	99	0.15	9999	5
	Out	99	10	0	0.2	0.2	99	0	9999	0.2
Southwest Model	Min	10	10	0	9999	5	99	0.15	9999	5
	Out	99	10	0	0.2	0.2	99	0	9999	0.2
West Area	Min	10	10	0	9999	5	99	0.15	9999	5
	Out	99	10	0	0.2	0.2	99	0	9999	0.2

2. The search and weighting parameters for IDP estimation were adjusted to provide block estimates that were unbiased relative to the nearest-neighbor estimate, but with a variance that was 50 to 60 percent of the variance of the NN estimate. Where production data were available, parameters were adjusted to match production as well as possible. This was done as follows:

   a. The orientation of the search ellipse and the search radii were set based on the size and shape of the deposit and on the variogram ranges. IDP anisotropies were set equal to the search radii.

   b. An initial modeling run was done using a power of 3.0, a maximum of eight composites, and a maximum of one composite per drill hole.

   c. If the variance smoothing ratio (IDP variance divided by NN variance) was too high, the power was decreased, and/or the maximum points or the maximum composites per hole were increased. If the variance smoothing ratio was too low, the power was increased and/or the maximum points or the maximum composites per hole were decreased. This was repeated until the appropriate variance smoothing ratio was achieved.

The final parameters for IDP estimation are summarized in Tables 17.10 to 17.12. The statistics for the IDP and NN estimations for each deposit and grade zone are summarized in Tables 17.13 to 17.14.

Table 17.10 - Search and Weighting Parameters for Inverse Distance Estimation (Gold, Main Area)

Deposit	Zone	Direction of Primary Modeling Axis		Search Ellipse Radius (ft)			Max Data Points	Max Comp Per Hole	IDP Anisotopies			IDP Power
		Azimuth	Dip	Pri	Sec	Ter			Pri	Sec	Ter	
Graben	10	101	48	400	200	100	8	1	400	200	100	2.3
	11	101	48	300	300	75	6	1	200	200	75	2.5
	12	101	48	200	200	75	5	1	200	200	75	2
Flats Main	20	340	60	300	200	50	8	1	250	150	50	2.2
	21	340	60	250	150	50	8	1	250	150	50	4
	20	340	60	250	150	50	8	1	250	150	50	2.5
Flats North	20	156	83	300	200	50	8	1	250	150	50	2.5
	21	156	83	250	150	50	8	1	250	150	50	4
	22	156	83	250	150	50	10	1	250	150	50	2
Borealis	30	320	20	300	300	200	12	2	200	200	200	3
	31	320	20	400	200	50	9	1	400	200	50	2
	32	320	20	300	200	50	9	2	250	150	50	2
D.O. Flats W	40	180	43	300	150	50	9	1	300	150	50	2.5
	41	180	43	250	100	50	8	1	250	100	50	2
D.O. Flats E	45	340	41	300	150	50	8	1	300	150	50	2.5
	46	340	41	250	100	50	8	1	250	100	50	2
Crocodile Ridge	50	136	30	400	400	100	12	2	300	300	100	2
Alluvium North	80	305	13	500	500	50	5	1	500	500	50	2.5
Alluvium South	80	350	10	500	500	50	8	1	500	500	50	2.5
SW Unzoned	99	0	0	150	150	50	9	3	150	150	50	5
East Ridge	50	214	5	300	150	100	8	1	300	150	100	3
	51	214	5	300	150	100	8	1	300	150	100	4
Mid Ridge	60	244	5	300	150	100	8	1	400	100	150	3.5
NE Ridge	70	237	5	300	250	200	8	1	700	500	100	4.5
NE Unzoned	99	235	5	300	200	75	8	2	300	200	75	4

Table 17.11 - Search and Weighting Parameters for Inverse Distance Estimation (Gold, West Area)

Deposit	Zone	Direction of Primary Modeling Axis		Search Ellipse Radius (ft)			Max Data Points	Max Comp Per Hole	IDP Anisotropies			IDP Power
		Azimuth	Dip	Pri	Sec	Ter			Pri	Sec	Ter	
Purdy Peak	10	0	0	200	200	50	8	1	200	200	200	2
	11	0	0	200	200	50	6	1	200	200	200	3
	12	0	0	200	200	200	5	1	200	200	50	3
Cerro Duro	20	0	0	200	200	50	8	1	200	200	200	2.2
	21	0	0	200	200	50	8	1	200	200	200	3
	22	0	0	200	200	50	8	1	200	200	200	3
Jaimes Ridge	20	0	0	200	200	200	12	2	200	200	200	3
	21	0	0	200	200	50	9	1	200	200	200	3
	22	0	0	200	200	100	9	3	200	200	200	3
West Area	99	0	0	200	200	50	9	3	200	200	200	5

Table 17.12 - Search and Weighting Parameters for Inverse Distance Estimation (Silver)

Deposit	Zone	Direction of Primary Modeling Axis		Search Ellipse Radius (ft)			Max Data Points	Max Comp Per Hole	IDP Anisotropies			IDP Power
		Azimuth	Dip	Pri	Sec	Ter			Pri	Sec	Ter	
Northeast	10	0	0	300	300	50	5	1	200	200	100	4
	99	0	0	300	300	50	5	1	200	200	100	4
Southwest	10	0	0	300	300	50	5	1	200	200	100	4
	99	0	0	300	300	50	5	1	200	200	100	4
West	10	0	0	300	300	50	5	1	200	200	100	4
	99	0	0	300	300	50	5	1	200	200	100	4

Table 17.13 - Comparison of Gold Inverse Distance and Nearest Neighbor Estimates by Deposit and Grade Zone, Northeast and Southwest Models

Deposit	Zone	Number Blocks	Average IDP Grade milliOPT Gold	Relative Variance of IDP Estimates	Average NN Grade milliOPT Gold	Relative Variance of NN Estimates	Ratio of Average Grades (IDP/NN)	Ratio of Relative Variances (IDP/NN)
Graben	10	35,279	21.5	0.436	21.5	0.835	1.000	0.523
	11	2,863	78.6	0.081	76.3	0.154	1.030	0.559
	12	1,430	284.8	0.269	286.4	0.469	0.994	0.567
Flats Main	20	5,856	3.6	0.186	3.5	0.354	1.009	0.534
	21	7,445	24.5	0.496	24.3	0.779	1.005	0.643
	20	2,554	174.8	0.498	172.7	1.086	1.012	0.470
Flats North	20	1,131	3.7	0.201	3.7	0.343	1.009	0.595
	21	3,366	21.8	0.483	21.3	0.823	1.023	0.615
	22	547	111.1	0.167	110.7	0.316	1.003	0.532
Borealis	30	15,168	4.9	0.111	4.8	0.232	1.030	0.510
	31	10,773	28.1	0.312	27.2	0.768	1.033	0.433
	32	1,428	158.9	0.320	159.8	0.588	0.995	0.538
D.O. Flats East (Polaris)	41	2,839	4.7	0.131	4.4	0.280	1.067	0.535
	42	2,041	14.5	0.397	14.9	0.780	0.978	0.487
D.O. Flats West (Polaris)	45	6,454	4.4	0.183	4.0	0.290	1.080	0.734
	46	5,784	18.7	0.450	19.1	0.893	0.979	0.483
Crocodile Ridge	50	12,131	5.4	0.366	5.3	0.665	1.016	0.567
Alluvium N	80	17,256	4.3	0.376	4.3	0.653	0.990	0.564
Alluvium S	80	7,809	3.4	0.349	3.4	0.638	0.992	0.539
SE No Zone	99	1,176,844	0.6	7.259	0.6	9.767	1.000	0.744
East Ridge	50	40,388	12.0	0.322	11.4	0.570	1.056	0.628
	51	2,700	51.3	0.049	51.8	0.076	0.991	0.640
Gold View	60	13,763	7.7	0.274	7.6	0.459	1.012	0.610
NE Ridge	70	30,433	11.7	0.586	11.6	0.759	1.009	0.786
NE No Zone	99	419,728	0.9	1.197	0.9	1.761	1.003	0.684

Table 17.14 - Comparison of Gold Inverse Distance and Nearest Neighbor Estimates by Deposit and Grade Zone West Model

Deposit	Zone	Number Blocks	Average IDP Grade (millioz/t Gold)	Relative Variance of IDP Estimates	Average NN Grade (millioz/t Gold)	Relative Variance of NN Estimates	Ratio of Average Grades (IDP/NN)	Ratio of Relative Variances (IDP/NN)
Purdy Peak	Low	2,710	6.0	0.183	5.0	0.478	1.189	0.542
	Mid	1,551	18.6	0.109	18.8	0.182	0.987	0.585
	High	142	75.7	0.058	75.2	0.078	1.007	0.746
Jaimes Ridge	Low	3,584	8.3	0.213	7.4	0.502	1.118	0.531
	Mid	1,193	66.0	0.428	70.0	0.812	0.942	0.467
	High	222	272.2	0.051	270.8	0.091	1.005	0.565
Cerro Duro	Low	1,388	9.1	0.131	8.3	0.298	1.095	0.528
	Mid	986	53.6	0.326	54.4	0.499	0.986	0.635
	High	41	191.9	0.037	189.8	0.074	1.011	0.507
Outside Zones	Unzoned	386,450	0.6	2.816	0.6	3.960	1.004	0.716

17.2.10 Comparison of Mineral Resource Estimates to Previous Production

The resource models were compared to reported production to verify the accuracy of the models, as shown in Table 17.15. Although this comparison is somewhat limited because of uncertainties in both the production records and in the cutoff grades used for production, the overall comparison for all pits is very good. The largest difference between production tonnage and grade is for the Deep Ore Flats (Polaris) model, which underestimates tonnage and grade significantly. The reasons for the large differences for this deposit are not understood at this time, but such a small tonnage is difficult to estimate accurately and has little affect on the overall estimate.

The only other differences of any significance are the grades in the Borealis and Freedom Flats deposits. The Borealis model overestimates grade by 16 percent, a difference that could have been removed by reducing the high-grade cap from 600 milliounces per ton or by decreasing the minimum grade for samples from the mid-grade zone. Either of these adjustments could have been done, but would have involved adjusting parameters to more extreme levels than were indicated by the data statistics. Furthermore, the high-grade zone has been mined out and does not affect remaining resources. The 16 percent underestimation of grade at Freedom Flats could not be eliminated, however, without making unusual adjustments such as extending the high-grade zones more than one half the distance to the next drill hole. It is most likely that the underestimation of grade at the Freedom Flats model is caused by sampling biases due to loss of clayey fines as reported by Eng (1991).

Table 17.15 - Comparison of Mined-Out Portions of Resource Model to Reported Production

Deposit	Cutoff	Resource Model			Reported Production			Percent Difference		
		Tons	Grade	Oz Au	Tons	Grade	Oz Au	Tons	Grade	Oz Au
Borealis	0.040	1,412	0.119	168.0	1,489	0.103	153.4	-5	16	10
Freedom Flats	0.020	1,275	0.128	163.2	1,280	0.153	195.8	0	-16	-17
Deep Ore Flats (Polaris)	0.020	199	0.033	6.6	250	0.038	9.5	-20	-13	-31
East Ridge + Gold View	0.040	1,078	0.056	60.4	1,059	0.056	59.3	2	0	2
Northeast Ridge	0.015	3,113	0.025	77.8	3,000	0.025	75.0	4	0	4
Total		7,077	0.067	476	7,078	0.070	493	0	-3	-3

17.2.11 Mineral Resource Classification

Resource classifications were based on the drill hole grid spacing that was believed necessary to establish the continuity of mineralization (for indicated resource) and to provide reliable estimates for production planning (measured resource), as summarized in Table 17.16.

It is observed that the drill hole spacing in the previously mined areas was generally on an approximate 100-ft grid, that the grade zones were continuous and regular at that spacing, and that estimated resources are close to mine production. Thus, it is concluded that a 100-ft drill grid was acceptable for defining measured resource. A 200-ft minimum grid was used to classify indicated resources, also based on the overall continuity of the mineralization. Also, the grade zones were limited to a small radius around drill holes regardless of drill hole spacing, unless mineralization appeared continuous.

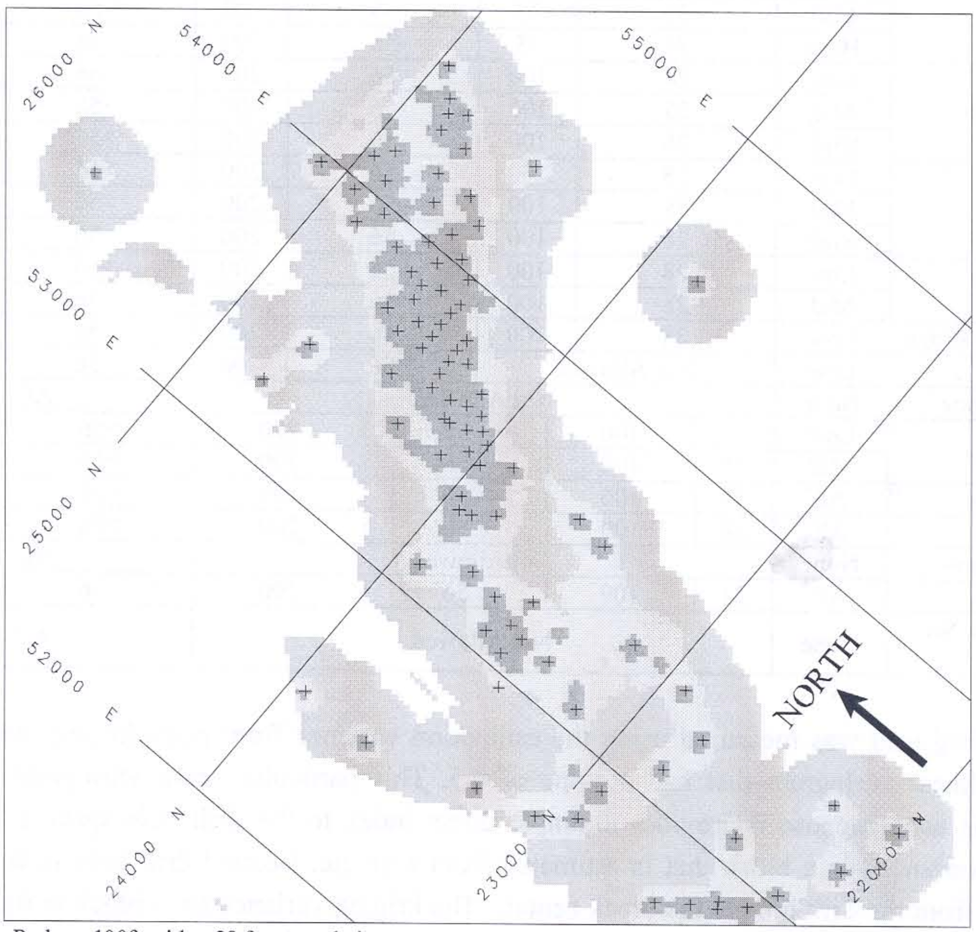
There were some exceptions to the above rules: A slightly more conservative minimum grid of 75 ft was used for measured resources in the Graben deposit; no measured resource was allowed for alluvium; and no measured or indicated resources were allowed outside the grade zone boundaries. A 75 ft minimum grid was also used for the West Area deposits because those deposits were smaller than the deposits in the main area.

Table 17.16 - Summary of Extrapolation Limits and Minimum Grid for Each Deposit

Deposit		Measured (RCLASS=1)		Indicated (RCLASS=2)		Inferred (RCLASS=3)	
		Max Extrapolation (ft)	Min Grid (ft)	Max Extrapolation (ft)	Min Grid (ft)	Max Extrapolation (ft)	Min Grid (ft)
Graben	Low	28	100	56	200	>56	>200
	Mid	21	75	56	200	>56	>200
	High	21	75	56	200	>56	>200
Flats South	Low	28	100	56	200	>56	>200
	Mid	28	100	56	200	>56	>200
	High	28	100	56	200	>56	>200
Borealis	Low	28	100	56	200	>56	>200
	Mid	28	100	56	200	>56	>200
	High	28	100	56	200	>56	>200
D.O. Flats (Polaris)	Low	28	100	56	200	>56	>200
	Mid	28	100	56	200	>56	>200
Crocodile Ridge	Low	28	100	56	200	>56	>200
Alluvium	Low	Not Allowed		56	200	>56	>200
SW No Zone	None	Not Allowed				All	
East Ridge	Low	28	100	56	200	>56	>200
	Mid	28	100	56	200	>56	>200
Mid Ridge	All	28	100	56	200	>56	>200
NE Ridge	All	28	100	56	200	>56	>200
NE No Zone	None	Not Allowed				All	
West Area	All	21	100	56	200	>56	>200
West Area No Zone	None	Not Allowed				All	

The drilling grid was measured using the estimation variance from point kriging with a zero-nugget, linear variogram that had a slope of 0.5. This particular linear variogram and point kriging is used because it provides a simple direct index to the drill hole spacing. Thus, the kriging variance for a block that is estimated from a single, isolated drill hole is equal to the distance from the drill hole to the block center. The kriging variance for a block in the center of a square grid of drill holes is equal to approximately 28 percent of the size of the grid. The kriging variance for blocks outside of the drill grade is just slightly less than the distance from the side of the square formed by the drill holes.

The example of the relationship between drill hole spacing and kriging variance on Figure 17.8 shows some well-drilled areas with drill hole spacings of 100 ft or less. These areas, in addition to a small extrapolation around these closely spaced holes, are shaded red. In addition, a small extrapolation around isolated holes is also shaded red. As the distance between holes increases, patches of green coloring start to show in the middle of the drill grid. The green coloring continues until a 200-ft grid or 56-ft extrapolation distance is exceeded. The gray area, which is based on a grid spacing of 715 ft and an extrapolation distance of 200 ft, demonstrates the behavior of the drill hole spacing indicator with extreme extrapolation limits.



Red = 100ft grid or 28 ft extrapolation
Green = 200 ft grid or 56 ft extrapolation
Grey = 715 ft grid or 200 ft extrapolation

1000 feet

(Source: A. Noble, Ore Reserves Engineering, 2006)

Figure 17.8 - Example of the Relationship Between Drill Hole Spacing and Kriging Variance (East Ridge, 7380 Bench)

17.2.12 Summary of Model Results

The mineral resource estimate is summarized in the following tables. In all cases, the quantities shown are for the remaining resource, below the mined-out topography.

Table 17.17 - Borealis Project March 2006 Mineral Resource Estimate Summary of Measured and Indicated Mineral Resource - Combined Oxides and Sulfides							
Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Measured	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	2,571	0.035	0.161	89,200	413,000
	Crocodile Ridge	0.010	177	0.014	0.186	2,400	33,000
	East Ridge	0.010	2,963	0.018	0.085	52,500	252,000
	Freedom Flats	0.010	2,029	0.054	0.431	108,700	875,000
	Graben	0.010	2,644	0.046	0.166	121,800	440,000
	Middle Ridge	0.010	896	0.014	0.084	12,800	75,000
	Northeast Ridge	0.010	2,400	0.018	0.133	43,800	318,000
	Deep Ore Flats	0.010	1,376	0.020	0.297	27,400	408,000
	Purdys Peak	0.010	473	0.026	0.068	12,100	32,000
	Cerro Duro	0.010	438	0.042	0.557	18,400	244,000
	Jaimes Ridge	0.010	393	0.037	0.117	14,600	46,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured		16,360	0.031	0.192	503,700	3,136,000
Indicated	Alluvium	0.005	760	0.009	0.050	6,500	38,000
	Borealis	0.010	958	0.028	0.103	26,800	99,000
	Crocodile Ridge	0.010	378	0.012	0.148	4,600	56,000
	East Ridge	0.010	3,237	0.015	0.077	49,000	248,000
	Freedom Flats	0.010	1,226	0.030	0.288	37,300	353,000
	Graben	0.010	8,410	0.049	0.171	412,100	1,439,000
	Middle Ridge	0.010	807	0.013	0.051	10,400	41,000
	Northeast Ridge	0.010	762	0.018	0.079	13,400	60,000
	Deep Ore Flats	0.010	1,101	0.019	0.153	20,800	168,000
	Purdys Peak	0.010	510	0.019	0.086	9,700	44,000
	Cerro Duro	0.010	254	0.032	0.307	8,200	78,000
	Jaimes Ridge	0.010	394	0.041	0.053	16,000	21,000
	Outside Zones	0.010	-	-	-	-	-
	Total Indicated		18,797	0.033	0.141	614,800	2,645,000
Measured + Indicated	Alluvium	0.005	760	0.009	0.050	6,500	38,000
	Borealis	0.010	3,529	0.033	0.145	116,000	512,000
	Crocodile Ridge	0.010	555	0.013	0.160	7,000	89,000
	East Ridge	0.010	6,200	0.016	0.081	101,500	500,000
	Freedom Flats	0.010	3,255	0.045	0.377	146,000	1,228,000
	Graben	0.010	11,054	0.048	0.170	533,900	1,879,000
	Middle Ridge	0.010	1,703	0.014	0.068	23,200	116,000
	Northeast Ridge	0.010	3,162	0.018	0.120	57,200	378,000
	Deep Ore Flats	0.010	2,477	0.019	0.233	48,200	576,000
	Purdys Peak	0.010	983	0.022	0.077	21,800	76,000
	Cerro Duro	0.010	692	0.038	0.465	26,600	322,000
	Jaimes Ridge	0.010	787	0.039	0.085	30,600	67,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured + Indicated		35,157	0.032	0.164	1,118,500	5,781,000

Table 17.18 - Borealis Project March 2006 Mineral Resource Estimate Summary of Measured and Indicated Mineral Resource - Oxidized Material							
Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Measured	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	1,181	0.035	0.210	41,600	248,000
	Crocodile Ridge	0.010	141	0.013	0.199	1,900	28,000
	East Ridge	0.010	728	0.018	0.100	13,000	73,000
	Freedom Flats	0.010	362	0.050	0.359	18,000	130,000
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	411	0.015	0.061	6,000	25,000
	Northeast Ridge	0.010	280	0.017	0.089	4,800	25,000
	Deep Ore Flats	0.010	815	0.020	0.280	16,500	228,000
	Purdys Peak	0.010	446	0.026	0.070	11,600	31,000
	Cerro Duro	0.010	230	0.035	0.691	8,000	159,000
	Jaimes Ridge	0.010	203	0.043	0.148	8,800	30,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured		4,797	0.027	0.204	130,200	977,000
Indicated	Alluvium	0.005	760	0.009	0.050	6,500	38,000
	Borealis	0.010	99	0.015	0.051	1,500	5,000
	Crocodile Ridge	0.010	293	0.012	0.171	3,500	50,000
	East Ridge	0.010	525	0.015	0.061	8,000	32,000
	Freedom Flats	0.010	185	0.027	0.108	5,000	20,000
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	440	0.013	0.041	5,700	18,000
	Northeast Ridge	0.010	124	0.015	0.073	1,900	9,000
	Deep Ore Flats	0.010	464	0.020	0.129	9,300	60,000
	Purdys Peak	0.010	340	0.021	0.100	7,100	34,000
	Cerro Duro	0.010	96	0.027	0.531	2,600	51,000
	Jaimes Ridge	0.010	112	0.027	0.036	3,000	4,000
	Outside Zones	0.010	-	-	-	-	-
	Total Indicated		3,438	0.016	0.093	54,100	321,000
Measured + Indicated	Alluvium	0.005	760	0.009	0.050	6,500	38,000
	Borealis	0.010	1,280	0.034	0.198	43,100	253,000
	Crocodile Ridge	0.010	434	0.012	0.180	5,400	78,000
	East Ridge	0.010	1,253	0.017	0.084	21,000	105,000
	Freedom Flats	0.010	547	0.042	0.274	23,000	150,000
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	851	0.014	0.051	11,700	43,000
	Northeast Ridge	0.010	404	0.017	0.084	6,700	34,000
	Deep Ore Flats	0.010	1,279	0.020	0.225	25,800	288,000
	Purdys Peak	0.010	786	0.024	0.083	18,700	65,000
	Cerro Duro	0.010	326	0.033	0.644	10,600	210,000
	Jaimes Ridge	0.010	315	0.037	0.108	11,800	34,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured + Indicated		8,235	0.022	0.158	184,300	1,298,000

Table 17.19 - Borealis Project March 2006 Mineral Resource Estimate Summary of Measured and Indicated Mineral Resource - Partially Oxidized Material							
Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Measured	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	82	0.023	0.256	1,900	21,000
	Crocodile Ridge	0.010	16	0.013	0.125	200	2,000
	East Ridge	0.010	1,684	0.018	0.080	29,500	135,000
	Freedom Flats	0.010	346	0.083	0.699	28,600	242,000
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	385	0.014	0.109	5,400	42,000
	Northeast Ridge	0.010	1,686	0.019	0.140	31,700	236,000
	Deep Ore Flats	0.010	354	0.021	0.350	7,600	124,000
	Purdys Peak	0.010	4	0.025	0.000	100	-
	Cerro Duro	0.010	1	0.100	0.000	100	-
	Jaimes Ridge	0.010	30	0.023	0.100	700	3,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured		4,588	0.023	0.175	105,800	805,000
Indicated	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	5	0.020	0.200	100	1,000
	Crocodile Ridge	0.010	18	0.011	0.056	200	1,000
	East Ridge	0.010	1,080	0.015	0.080	16,600	86,000
	Freedom Flats	0.010	6	0.050	0.333	300	2,000
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	209	0.012	0.062	2,600	13,000
	Northeast Ridge	0.010	298	0.020	0.070	5,900	21,000
	Deep Ore Flats	0.010	193	0.021	0.280	4,000	54,000
	Purdys Peak	0.010	14	0.014	0.071	200	1,000
	Cerro Duro	0.010	-	-	-	-	-
	Jaimes Ridge	0.010	5	0.020	0.000	100	-
	Outside Zones	0.010	-	-	-	-	-
	Total Indicated		1,828	0.016	0.098	30,000	179,000
Measured + Indicated	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	87	0.023	0.253	2,000	22,000
	Crocodile Ridge	0.010	34	0.012	0.088	400	3,000
	East Ridge	0.010	2,764	0.017	0.080	46,100	221,000
	Freedom Flats	0.010	352	0.082	0.693	28,900	244,000
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	594	0.013	0.093	8,000	55,000
	Northeast Ridge	0.010	1,984	0.019	0.130	37,600	257,000
	Deep Ore Flats	0.010	547	0.021	0.325	11,600	178,000
	Purdys Peak	0.010	18	0.017	0.056	300	1,000
	Cerro Duro	0.010	1	0.100	0.000	100	-
	Jaimes Ridge	0.010	35	0.023	0.086	800	3,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured + Indicated		6,416	0.021	0.153	135,800	984,000

Table 17.20 - Borealis Project March 2006 Mineral Resource Estimate Summary of Measured and Indicated Mineral Resource - Predominantly Sulfide Material							
Resource Class	**Resource Zone**	**Cutoff (opt)**	**Tons (1,000's)**	**Au Grade (opt)**	**Ag Grade (opt)**	**Contained Oz Gold**	**Contained Oz Silver**
Measured	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	1,308	0.035	0.110	45,600	144,000
	Crocodile Ridge	0.010	20	0.015	0.100	300	2,000
	East Ridge	0.010	551	0.018	0.080	10,000	44,000
	Freedom Flats	0.010	1,321	0.047	0.380	62,100	502,000
	Graben	0.010	2,644	0.046	0.166	121,800	440,000
	Middle Ridge	0.010	100	0.014	0.080	1,400	8,000
	Northeast Ridge	0.010	434	0.017	0.129	7,300	56,000
	Deep Ore Flats	0.010	207	0.015	0.271	3,200	56,000
	Purdys Peak	0.010	23	0.017	0.043	400	1,000
	Cerro Duro	0.010	207	0.050	0.411	10,400	85,000
	Jaimes Ridge	0.010	160	0.031	0.081	5,000	13,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured		6,975	0.038	0.194	267,500	1,351,000
Indicated	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	854	0.030	0.110	25,300	94,000
	Crocodile Ridge	0.010	67	0.013	0.075	900	5,000
	East Ridge	0.010	1,632	0.015	0.080	24,300	131,000
	Freedom Flats	0.010	1,035	0.031	0.320	32,000	331,000
	Graben	0.010	8,410	0.049	0.171	412,100	1,439,000
	Middle Ridge	0.010	158	0.013	0.070	2,100	11,000
	Northeast Ridge	0.010	340	0.016	0.091	5,600	31,000
	Deep Ore Flats	0.010	444	0.017	0.119	7,500	53,000
	Purdys Peak	0.010	156	0.015	0.058	2,300	9,000
	Cerro Duro	0.010	158	0.035	0.171	5,500	27,000
	Jaimes Ridge	0.010	277	0.047	0.061	13,000	17,000
	Outside Zones	0.010	-	-	-	-	-
	Total Indicated		13,531	0.039	0.159	530,600	2,148,000
Measured + Indicated	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	2,162	0.033	0.110	70,900	238,000
	Crocodile Ridge	0.010	87	0.014	0.080	1,200	7,000
	East Ridge	0.010	2,183	0.016	0.080	34,300	175,000
	Freedom Flats	0.010	2,356	0.040	0.354	94,100	833,000
	Graben	0.010	11,054	0.048	0.170	533,900	1,879,000
	Middle Ridge	0.010	258	0.014	0.074	3,500	19,000
	Northeast Ridge	0.010	774	0.017	0.112	12,900	87,000
	Deep Ore Flats	0.010	651	0.016	0.167	10,700	109,000
	Purdys Peak	0.010	179	0.015	0.056	2,700	10,000
	Cerro Duro	0.010	365	0.044	0.307	15,900	112,000
	Jaimes Ridge	0.010	437	0.041	0.069	18,000	30,000
	Outside Zones	0.010	-	-	-	-	-
	Total Measured + Indicated		20,506	0.039	0.171	798,100	3,499,000

Table 17.21 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Mineral Resource - Combined Oxide and Sulfide Material

Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Inferred	Alluvium	0.005	701	0.007	0.030	5,000	21,000
	Borealis	0.010	367	0.016	0.049	6,000	18,000
	Crocodile Ridge	0.010	233	0.012	0.069	2,800	16,000
	East Ridge	0.010	979	0.013	0.087	12,600	85,000
	Freedom Flats	0.010	314	0.023	0.239	7,100	75,000
	Graben	0.010	9,517	0.037	0.098	350,900	937,000
	Middle Ridge	0.010	104	0.012	0.058	1,200	6,000
	Northeast Ridge	0.010	47	0.021	0.106	1,000	5,000
	Deep Ore Flats (Polaris)	0.010	998	0.019	0.236	19,300	236,000
	Purdys Peak	0.010	44	0.014	0.091	600	4,000
	Cerro Duro	0.010	6	0.050	0.167	300	1,000
	Jaimes Ridge	0.010	1	0.000	0.000	-	-
	Outside Zones	0.010	3,598	0.018	0.109	63,700	391,000
	Total Inferred		16,909	0.028	0.106	470,500	1,795,000

Table 17.22 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Mineral Resource - Oxidized Material

Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Inferred	Alluvium	0.005	701	0.007	0.030	5,000	21,000
	Borealis	0.010	191	0.011	0.010	2,100	2,000
	Crocodile Ridge	0.010	116	0.011	0.103	1,300	12,000
	East Ridge	0.010	47	0.013	0.021	600	1,000
	Freedom Flats	0.010	-	-	-	-	-
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	51	0.012	0.020	600	1,000
	Northeast Ridge	0.010	16	0.025	0.125	400	2,000
	Deep Ore Flats (Polaris)	0.010	349	0.023	0.301	8,200	105,000
	Purdys Peak	0.010	5	0.020	0.200	100	1,000
	Cerro Duro	0.010	-	-	-	-	-
	Jaimes Ridge	0.010	1	0.000	0.000	-	-
	Outside Zones	0.010	569	0.015	0.009	8,600	5,000
	Total Inferred		2,046	0.013	0.073	26,900	150,000

Table 17.23 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Mineral Resource - Partially Oxidized Material

Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Inferred	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	-	-	-	-	-
	Crocodile Ridge	0.010	-	-	-	-	-
	East Ridge	0.010	48	0.015	0.083	700	4,000
	Freedom Flats	0.010	-	-	-	-	-
	Graben	0.010	-	-	-	-	-
	Middle Ridge	0.010	41	0.012	0.122	500	5,000
	Northeast Ridge	0.010	9	0.022	0.111	200	1,000
	Deep Ore Flats (Polaris)	0.010	50	0.026	0.480	1,300	24,000
	Purdys Peak	0.010	-	-	-	-	-
	Cerro Duro	0.010	-	-	-	-	-
	Jaimes Ridge	0.010	-	-	-	-	-
	Outside Zones	0.010	53	0.015	0.019	800	1,000
	Total Inferred		201	0.017	0.174	3,500	35,000

Table 17.24 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Mineral Resource - Sulfide Material

Resource Class	Resource Zone	Cutoff (opt)	Tons (1,000's)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold	Contained Oz Silver
Inferred	Alluvium	0.005	-	-	-	-	-
	Borealis	0.010	176	0.022	0.091	3,900	16,000
	Crocodile Ridge	0.010	117	0.012	0.043	1,400	5,000
	East Ridge	0.010	884	0.013	0.090	11,300	80,000
	Freedom Flats	0.010	314	0.023	0.239	7,100	75,000
	Graben	0.010	9,517	0.037	0.098	350,900	937,000
	Middle Ridge	0.010	12	0.017	0.083	200	1,000
	Northeast Ridge	0.010	22	0.018	0.136	400	3,000
	Deep Ore Flats (Polaris)	0.010	599	0.016	0.180	9,800	108,000
	Purdys Peak	0.010	39	0.013	0.077	500	3,000
	Cerro Duro	0.010	6	0.050	0.167	300	1,000
	Jaimes Ridge	0.010	-	-	-	-	-
	Outside Zones	0.010	2,976	0.018	0.130	54,300	386,000
	Total Inferred		14,662	0.030	0.110	440,100	1,615,000

17.3 Mineral Resources from Existing Heaps and Stockpiles

During 2004, Gryphon Gold drilled and sampled the five heaps and portions of the Freedom Flats and Borealis waste dumps. Previously, J.D. Welsh & Associates, Inc. drilled Heap 1 (Welsh, 1996). The database used for the resource calculation was 32 holes drilled by Gryphon Gold totaling 2,475.5 ft and 11 holes drilled by J. D. Welsh and Associates totaling 760 ft.

There are two nomenclatures in use for the heaps at Borealis. Table 17.25 shows the relationship between the two designations.

Table 17.25 - Heap Name Correlation Chart

Operational Name	Map Name
Tailing Releach	Western portion Heap 1
Freedom Flats	Eastern portion Heap 1
Secondary Leach	Heap 2
Run-of-Mine #1	Heap 5
Run-of-Mine #2	Heap 4
NE Ridge Run-of-Mine	Heap 3

O.R.E. prepared the drilling data for this estimate from EXCEL spreadsheets and Adobe pdf-formatted documents of the Gryphon assay data. The Welsh assay data were entered manually using data from scanned documents in the Gryphon archives. Only the gold from the Welsh data were used for the resource estimate, because check assays indicated that the Welsh silver assays were unreliable. All data entry was printed and double-checked against the original documents.

The east and north coordinates for the Gryphon data were based on the permitted coordinates of the drill sites, since the hole locations were not surveyed after drilling. The collar elevations were estimated by projecting the collar XY points up to the intersection with the current topography DTM.

The coordinates for the Welsh drilling were estimated based on scaling from a map attached to the Welsh data. These coordinates were then adjusted so that the holes were all located on the top of the dumps. Drill hole collar elevations were also estimated by projecting to the current topography DTM.

Heap and dump volumes were estimated by constructing a seam-type block model with 50x50 foot horizontal dimensions and variable block height that extended from the digital terrain model (DTM) of the original surface topography up to the DTM model of the current surface topography. The modeled blocks were further constrained by outlines around the fill areas that limited the volume to a minimum thickness of 2 ft. The shapes of these outlines were also guided by the current topographic contours, which indicate the break between intact topography and fill material. In the areas of the historical waste dumps, this method provides a good estimate of the volume of material. The volumes are slightly less reliable for the heap-leach piles because the topography at the base of the heaps was modified from the original topography to build the leach pad liners.

The heap volumes were checked by comparing against the tonnages compiled for each of the leach heaps by Whitney (1999). As shown in Table 17, the total measured volume compared very well with the total from the production summary, when a tonnage factor of 20 cubic ft/ton was used to convert tonnages to volumes. The 20 ft^3/t tonnage factor is also consistent with three recent column leach tests of samples from East Ridge and Northeast Ridge. These had an average tonnage factor of 20.9 ft^3/t after leaching, which considering the much greater height and larger settling time for the heap-leach piles is a very good match. The measured volumes and production records for the individual heaps are similar, although it appears that a portion of the material attributed to tailings releach, the Freedom Flats heap, and secondary leach may have ended up on the NE Ridge ROM heap.

Table 17.26 - Production Volumes Versus Measured Heap Volumes

Heap	Production Tons (1000s)	Production Volume (Cubic Ft) (1000s)	Measured Volume (Cubic Ft) (1000s)	Volume Difference (Cubic Ft) (1000s)
Tailing Releach	1,721	34,415	26,564	(7,851)
Freedom Flats	1,249	24,973	20,556	(4,418)
Secondary Leach	1,910	38,210	32,161	(6,049)
NE Ridge Run-of-Mine	3,000	60,000	74,522	14,522
Run-of-Mine #1	2,201	44,020	43,605	(415)
Run-of-Mine #2	800	16,000	16,684	684
Total	10,881	217,618	214,091	(3,527)

Production volume is estimated based on 20 cubic ft/t

Dump volumes were measured using the same method as was used for the heaps, and volumes were compared to waste tonnages that were estimated from the mined-pit reconciliations. This comparison, summarized in Table 17.27 is not as good as those for the heaps, on either an individual or overall basis. With the exception of Freedom Flats, the dump volumes are significantly lower than those estimated from the reconciliation. While the reasons for the differences is unknown, it is most likely attributable to material that was used for construction, road building, and other purposes, and the more conservative measured volumes are used for resource estimation.

Table 17.27 - Reconciliation Waste Volumes Versus Measured Dump Volumes

Heap	Reconciliation Waste Tons (1000s)	Production Volume (Cubic Ft) (1000s)	Measured Volume (Cubic Ft) (1000s)	Volume Difference (Cubic Ft) (1000s)
Tailing Releach	5,660	113,200	64,000	(49,200)
Freedom Flats	13,904	278,080	284,696	6,616
Deep Ore Flats	498	9,960	4,507	(5,453)
East Ridge+Gold View	3,000	60,000	80,382	20,382
Northeast Ridge	5,913	118,260	61,120	(57,131)
Total	28,975	579,500	494,714	(84,786)

Gold and silver grades were composited over the entire drill hole length for grade estimation. Compositing thus assumes the full height of the leach pile will be mined with no internal selectivity. Gold and silver grades were estimated for each of the heaps using nearest neighbor assignment to assign grades from composited drill holes to block model blocks. Resource grade summaries were estimated using a zero-grade cutoff. Because only a few drill holes sample the mine dumps, the grade of the dumps is estimated based on the resource model grades for waste in the mined-out pits.

Resources for the existing heaps and dumps are summarized in Table 17.28 and 17.29. The higher-grade heaps are assigned a resource class of indicated while the lower-grade heaps are assigned a resource class of inferred. The heap tonnages and grades are believed to be well established by the combination of sampling, volume measurement, and comparison with historical records. The resource category of the lower-grade heaps is discounted to inferred, because of the greater uncertainty that those resources may be reprocessed profitably. All of the waste dumps are assigned a resource class of inferred, reflecting the greater uncertainty of tonnage and grade estimates.

Table 17.28 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Indicated Resource in Heaps

Resource Zone	Cutoff (opt)	Tons (1000s)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold (1000s)	Contained Oz Silver (1000s)
Tailings Releach	0.005	1,328	0.019	0.05	250	72.7
Freedom Flats	0.005	1,028	0.026	0.24	26.8	244.4
NE Ridge ROM	0.005	3,726	0.012	0.14	43.2	503.8
Total	0.005	6,082	0.016	0.13	95.0	820.8

Table 17.29 - Borealis Project March 2006 Mineral Resource Estimate
Summary of Inferred Resource in Heaps and Dumps

Resource Zone	Cutoff (opt)	Tons (1000s)	Au Grade (opt)	Ag Grade (opt)	Contained Oz Gold (1000s)	Contained Oz Silver (1000s)
Secondary Leach	0.005	1,608	0.008	0.12	13.2	185.2
ROM 2	0.005	2,180	0.008	0.07	17.4	157.4
Borealis Dump	0.005	3,200	0.011	0.14	35.8	448.0
East Ridge Dumps	0.005	4,019	0.012	0.05	47.4	201.0
NE Ridge Dump	0.005	3,056	0.008	0.08	24.8	244.5
Total Inferred Resource	0.005	14,064	0.010	0.09	138.7	1,236.1

Although the Secondary Heap appears to have an average grade that is too low to be of interest, a bulk sample was collected and screened producing results suggesting that upgrading might result in economically recoverable gold. The size fraction that is less than 2 inches averages 0.011 opt Au and the ½"-2" fraction assayed 0.014 opt Au. More work is needed to determine if the heap can be upgraded and reprocessed by simple screening.

Three holes in the north-central portion of run-of-mine Heap 2 contain 10 ft of 0.031, 50 ft of 0.030, and 20 ft of 0.017 opt Au, starting at the top of holes. More drilling is needed to determine the full extent of this material and whether higher-grade material can be selectively reclaimed from the heap. The 150,000 tons listed in Table 17.26 is probably a minimum value.

18.0 Other Relevant Data and Information

This section has been compiled in association with Gryphon Gold's consulting geotechnical and environmental engineering consultants Knight Piésold and Co. The principal contributor is Barbara Filas, P.E., C.E.M., a Qualified Person for the purpose of Canadian NI 43-101, Standards of Disclosure for Mineral Projects, and Mining/Environmental Engineer.

18.1 Permitting

The principal operating permits required for construction, operation and closure of the Borealis mine have been acquired from Nevada State and Federal regulatory agencies as of the date of this report. The approvals received cover a 10 million-ton project within the central operating area, and include an exploration program within that operating area that recognizes the potential to expand the resource base with successful exploration results. Expansion of the project plans beyond 10 million tons will require routine modification of the operating permits. There are no known issues that would preclude the approval of such routine modifications by the applicable regulatory agencies.

The operating permits cover only the central operating area, and exclude some of the Middle Ridge area and all of the outlying area known as Orion's Belt (encompassing the Cerro Duro, Jaimes Ridge, and Purdy Peak deposits). This outlying area has been subject of recent mining operations, and has been successfully reclaimed. No fatal flaws or material concerns, which would preclude mining operations in this area, have been identified, although the timing of such permitting process has not been fully assessed.

18.2 Permit Summary

The following is a summary and status of the permits required for the Borealis Gold Project:

- An Approved Plan of Operations from the US Forest Service, Humboldt-Toiyabe National Forest has been received. The Environmental Assessment (EA) was approved for the Plan of Operations with a Finding of No Significant Impact (FONSI) on June 19, 2006. The Decision Notice was published on June 22 and 23, 2006 and is not appealable. Final revisions to the Plan of Operations were submitted to the Forest Service on June 23, 2006 and the Forest Supervisor signed the Plan on June 29, 2006. The Plan of Operations can be implemented as soon as a reclamation bond of $4,205,377 is posted with the Forest Service.
- A Water Pollution Control Permit (WPCP) from the Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation & Reclamation was

approved and granted to BMC on January 28, 2006. The permit allows BMC to construct and operate a 10-million ton capacity heap leach pad and processing plant as a zero-discharge facility.

- A Reclamation Permit from the NDEP, Bureau of Mining Regulation and Reclamation (BMRR) and reclamation bond amount were approved on June 23, 2006. This permit is the State of Nevada's approval of the Plan of Operations and is effective with the posting of the reclamation bond with the Forest Service.

- A Tentative Permanent Closure Plan to be administered by the Bureau of Mining Regulation & Reclamation was submitted with the WPCP application and accepted by NDEP. A Final Permanent Closure Plan will not need to be developed until two years prior to project closure.

- NDEP-Bureau of Air Pollution Control (BAPC) issued the Air Quality Operating Permit on April 28, 2006 for the Borealis processing facilities. The State of Nevada recently adopted new regulations regarding mercury emissions, and an application was filed under this new State program on September 14, 2006, as a compliance order pursuant to the approved air quality permit. Approval of the mercury permit is pending.

- A Surface Area Disturbance Permit from the NDEP-BAPC,: was approved and granted to BMC on April 3, 2006 for disturbances associated with construction and mining activities.

- The Storm Water Pollution Prevention Plan (SWPPP) has been prepared for the project. A Notice of Intent, filing fee, and the SWPPP will be submitted to the Bureau of Water Pollution Control two days prior to the start of mining operations to obtain coverage under the general National Pollutant Discharge Elimination System (NPDES) permit for Nevada mines.

- A Spill Prevention, Control, and Countermeasure (SPCC) Plan, under the jurisdiction of the U.S. Environmental Protection Agency (EPA), will be prepared and implemented before starting operations. The SPCC Plan will provide methods for storing, transporting, and using petroleum products as well as emergency response measures in the event of a release.

- A preliminary Emergency Release, Response and Contingency Plan (ERRCP) was submitted with the Plan of Operations. The ERRCP provides methods for storing, using, and transporting process chemicals on site as well as emergency response measures in the event of a release. A final ERRCP will be prepared prior to the start of leaching and processing activities. Both the Forest Service and the Nevada Bureau of Mining Regulation and Reclamation require the ERRCP.

- Threatened & Endangered Species Act: No known threatened or endangered species have been identified within or near the project area. A Biological Assessment and Biological Evaluation (BA/BE) and a Wildlife Specialist Report were approved by the Forest Service on June 6, 2006. These reports identified three Forest Service sensitive plants and two other plant species of concern within the project area. Mitigation measures were developed for these plants and incorporated into the EA and Plan of Operations. The Forest Service concluded that the project may impact individual plants and plant habitat but will not likely contribute to a trend towards listing or cause a loss of viability to the population or species.

- Historical Preservation Act (Section 107): Consultation with the Forest Service and the State Historical Preservation Officer (SHPO) has occurred in conjunction with the preparation of the EA. The "Heritage Research Final Report, Gryphon Gold, USA, Mining and Exploration Project, Borealis Mine Area" was submitted to the Forest Service in March 2006. The report identifies prehistoric cultural resources located within and near the project area. This report was approved by the Forest Service and forwarded to SHPO for their review and comment on April 17, 2006. The SHPO approved the report in early May 2006. Mitigation measures consisting of avoidance and protection measures were incorporated into the EA and the Plan of Operations.

- Water Rights: Water Rights have been granted by the Nevada Division of Water Resources for two production wells located approximately three miles south of the project, in the same vicinity as the supply wells from the previous mining operation. Based on historic well productivity records, this water right and point of diversion has the capacity and productivity to meet project needs. A second set of water rights were obtained for a site about 10 miles to the south of the planned operation as a contingency; however, this water right has been forfeited as it has been deemed extraneous.

In addition, the Bureau of Land Management has granted approval for drilling exploration holes in the areas of the West Pediment and the Central Pediment, which are on the Borealis property but outside of the central project area.

18.3 Background and Status of Permits

18.3.1 Approved Plan of Operations

The Borealis Gold Project is located on public lands within the Humboldt-Toiyabe National Forest, Bridgeport Ranger District. As such, the Plan of Operations is subject to Forest Service approval and environmental analysis under the National Environmental Policy Act (NEPA). A project of this magnitude typically requires the preparation and approval of either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS), with the EIS process generally being longer and more comprehensive. Since the Borealis Project area has been extensively affected by previous mining operations, the Forest Service determined that resuming mining operations at the Borealis property would have no significant impact to public lands and that an Environmental Assessment (EA) would satisfy the NEPA requirements for this project. Upon completion of the EA, the Forest Service approved the project and issued a Finding of No Significant Impact (FONSI) on June 19, 2006. This Decision Notice was published in local and regional newspapers along with a description of the project and the environmental management requirements, mitigation measures, and monitoring programs. The Forest Service determined that their decision was not appealable because no individuals or organizations made adverse or applicable comments during the public disclosure process in October/November 2005 that allowed them the right to appeal the decision. All comments received either favored the project or were outside the jurisdiction of the Forest Service.

The Plan of Operations (POO #02-04-08) and the Reclamation Permit Application for the Borealis Project were originally submitted to the Forest Service and the BMRR in August 2004. Agency review and comment on the plan resulted in BMC agreeing to modify portions of the plan to mitigate environmental impacts. Public notification and solicitation of comments then occurred in October 2005 through notices published in local and regional newspapers and public informational meetings in local towns. No adverse comments were received.

Knight Piésold, under a Third-Party Contractor Arrangement with the Forest Service, also prepared the Draft EA for the project, which was completed on January 6, 2006. This document was reviewed and commented on by the Forest Service Interdisciplinary (ID) Team consisting of approximately 20 individuals with technical expertise in a variety of disciplines. Based on their comments, the EA was revised and resubmitted on March 8, 2006 as a Final Draft. The Plan of Operations was also modified to incorporate both earlier review comments and the ID Team comments and was resubmitted on April 10, 2006 to the Forest Service and the BMRR. These documents were essentially complete except for impacts and mitigation measures associated with vegetation and wildlife. The Plan of Operations also required final review of the reclamation cost estimate and proposed surety bond amount by both agencies.

After the BA/BE was finalized on June 6, 2006 (see below), the EA and Plan of Operations were updated to reflect the BA/BE analysis and recommended mitigation measures. The final EA was approved on June 19, 2006 with the signing of the Decision Notice. Replacement pages addressing biological mitigation measures and revised reclamation costs were submitted to the Forest Service and BMRR on June 23, 2006. Forest Service acceptance of the Modified Plan of Operations was received on June 29, 2006.

The reclamation cost estimate included in the Plan of Operations was also revised in accordance with comments received from the Forest Service and the BMRR. The maximum bond exposure amount for all activities proposed in the Plan of Operations is $7.7 million, or about $15,500 per acre of land disturbance. Forest Service has established that an initial bond amount of $4.2 million is required to commence operations based on the first year of project disturbance exposure. The Forest Service will reassess and update the bond estimate and adequacy of the financial surety provided on an annual basis.

18.3.2 Water Pollution Control Permit (WPCP)

The Regulations Branch of NDEP-BMRR issues the WPCP to ensure that the waters of the State are not adversely impacted by mining and mineral processing activities. The permit stipulates monitoring measures for the heap leach facility and the waste rock facilities on site. The heap leach and processing plant are designed as a zero discharge facility.

The Borealis Application for a WPCP was submitted in January of 2005. BMRR issued a draft fact sheet and permit for review and comment in September of 2005. In November of 2005, an Interim Supplemental Report was submitted to BMRR that covered additional geologic and hydrological investigative work performed during the summer 2005 field season. On November 28, 2005, BMRR initiated the public review process by advertising the intent to issue the permit in the December 1, 2005 edition of the Mineral County Independent-News. The agency received a number of comments, which were addressed in the final notice to issue the permit. The Permit became effective on January 28, 2006.

18.3.3 Reclamation Permit

The Reclamation Branch of NDEP-BMRR issues Reclamation Permits to insure that the disturbance created by mining will be reclaimed to create a safe and stable condition to ensure a productive post-mining land use. In addition to obtaining a reclamation permit, an operator must file a surety with BMRR or the Forest Service to guarantee that reclamation will be completed.
When a combination of public and private lands are involved, the BMRR requires a 30-day notice period, followed by a 15-day period to respond to comment, which is followed by an 11-day "Notice of Final Decision" period. However, if a project such as Borealis is totally on public lands, then the BMRR will use the NEPA environmental analysis to satisfy the public notification process. Once the BMRR has received the Decision Notice from the Forest Service and proof that bonding has been secured, they will issue the Notice of Final Decision, initiating the 11-day review period. During this review period individuals and organizations can comment on the terms of the permit that would require responses by the BMRR.

The Plan of Operation and the Reclamation Permit Application were submitted to BMRR on August 5, 2004. The Reclamation Permit documents submitted to BMRR are identical to the Plan of Operation documents submitted to the Forest Service. An April 2006 update of the application (reflecting changes produced by the EA) was prepared along with an updated version of the reclamation cost estimate and submitted to the agencies as discussed in Section 18.3.1. The BMRR comments on the updated Plan of Operations were limited to the reclamation cost estimate. The BMRR requested that the Interim Fluid Management portion of the cost estimate be increased and that some of the mining activities planned for Years 2-4 of the project be included in the initial surety bond for the project. The maximum bond estimate for all activities covered by the Plan of Operations/Reclamation Plan is $7.7 million, or about $15,500 per acre of land disturbance. Forest Service has established that an initial bond amount of $4.2 million for the first year of operations. Since Forest Service will reassess and update the bond estimate and adequacy of the financial surety provided on an annual basis, this frequency is more rigorous than the three year frequency that BMRR normally requires. The BMRR issued Permit #0248 on June 23, 2006 for the 499.3-acre Borealis Project, contingent on the posting of the $4.2 million surety with the Forest Service.

18.3.4 Closure Plans

A mining operation is required to submit a Tentative Permanent Closure Plan at the time of the application for the WPCP. A Final Permanent Closure Plan must be submitted two years prior to the anticipated closure of the mine. Both plans must provide closure goals and a detailed methodology of activities necessary to achieve a level of stabilization of all known and potential contaminants at the site.

As discussed above, BMC submitted an application for a WPCP in January of 2005. The WPCP Application included a Tentative Permanent Closure Plan and, since the WPCP has been issued, the Tentative Permanent Closure Plan is considered complete.

18.3.5 Air Quality Permit

The NDEP, Bureau of Air Pollution Control (BAPC) has jurisdiction of air quality programs for Mineral County, Nevada. Air quality regulations require Borealis to secure an Air Quality Permit before they can begin construction of facilities. Since the operations are expected to emit less that 100 tons per year for any one regulated pollutant, less than 25 tons per year of total defined hazardous air pollutants, and less than 10 tons per year of any one hazardous air pollutant, the project qualifies for a Class 2 permit.

Based on the plant layout and equipment list, Knight Piésold prepared an emission inventory and application that was submitted in February 2006. Air dispersion modeling was performed by McVehil-Monnett Associates in April 2006 to assist in the processing of the application. The BAPC issued Air Quality Operating Permit AP1041-2125 to BMC on April 28, 2006.

In March of 2006, the State Environmental Commission adopted amendments to the stationary source operating permits program to create the Nevada Mercury Air Emissions Control Program. This new program requires mercury air emission controls at precious metal mining facilities, as an adjunct to the current operating permit to construct program. The program applies to precious metals mining facilities that process mercury-containing ore and use thermal treatment processes that have the potential to liberate mercury into the atmosphere. The program requires maximum achievable control technologies (MACT) be applied to new and existing sources. This new program is currently being implemented and an application was filed for the Borealis project on September 14, 2006. Because the Borealis air quality permits were in process at the time the new mercury program was adopted, it was agreed with BAPC that conformance with the mercury permit program would be addressed via a compliance order from BAPC on the approved air quality permit to apply under the new program. This process avoided significant delays that could otherwise have been encountered with this entirely new permit program. BAPC is currently reviewing this application and permit issuance is pending.

A Surface Area Disturbance (SAD) permit, allowing surface disturbance for construction and mining activities, prior to facility operations, was submitted at the same time as the Class 2 permit application and was approved on April 3, 2006.

18.3.6 Storm Water Permit

The Federal Clean Water Act includes requirements for the control of storm water discharges. The State of Nevada has addressed these requirements by issuing a General Permit for Storm Water Discharges Associated with Industrial Activity from Metal Mining Activities. Eligible dischargers are required to request inclusion in the general Permit by: (1) submitting a Notice of Intent (NOI) and filing fee to the NDEP two days prior to commencing operation, and (2) the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must identify potential sources that would possibly affect water quality, and describe the practices that will be used to reduce pollutants in storm water discharges from the facility. A SWPPP has been developed for the project. At this point, it is only necessary to submit the NOI, filing fee, and a copy of the SWPPP two days prior to the start of operations.

18.3.7 Spill Prevention, Control and Countermeasure Plan (SPCC)

The Borealis Mine will be a facility that has a total aboveground oil storage capacity greater than 1,320 gallons. Therefore, the operation will be required to comply with the EPA's SPCC requirements. This plan will be specific to petroleum products and does not address other chemicals or materials used at the site. The rules require that the operation prepare and implement a SPCC Plan before starting operations. A copy of the SPCC Plan must be submitted to the Bridgeport Ranger District.

18.3.8 Emergency Release, Response, and Contingency Plan (ERRCP)

A preliminary ERRCP was included in the Plan of Operations. The ERRCP addresses the storage, use, and transport of process chemicals on site including cyanide. The ERRCP provides measures for responding to unplanned spills and releases, spill prevention, spill containment, medical emergencies, emergency communications, and regulatory reporting. The ERRCP will be updated with site-specific information once the processing facilities are constructed and project personnel are in place. Copies of the final ERRCP will be distributed to the Bridgeport Ranger District and the Regulatory Branch of BMRR.

18.3.9 Threatened and Endangered Species Act

The Endangered Species Act requires that federal agencies protect threatened and endangered (T & E) species. Implementation of the law and regulations involves the preparation of a Biological Assessment and Biological Evaluation (BA/BE) for the project area. A draft of the BA/BE, prepared by JBR Environmental Consultants Inc. (JBR), was submitted to the Forest Service in January of 2006. This report was based on vegetation and wildlife surveys conducted by JBR in 2004 and 2005 that found no federally listed threatened, endangered, or candidate species in or near the project. A total of four Forest Service sensitive plant species and two plant species of concern were identified within or in close proximity to the project area. Although these plants are not considered to be T & E species, they are relatively rare and could someday qualify for listing. Of the six plant species identified, four would be impacted by the project to some extent. No sensitive wildlife or wildlife species of concern were identified on site.

JBR reissued the Draft BA/BE in early March 2006 with changes in formatting requested by the Forest Service and additional information on plant occurrence, the extent of projected impacts, and proposed mitigation measures. JBR and Knight Piésold personnel subsequently met with the Forest Service Botanist and the Bridgeport District Wildlife Biologist on April 17, 2006 to discuss the occurrence of the plants, projected and cumulative impacts to the plants, and appropriate mitigation measures. The BA/BE was subsequently revised to incorporate the Forest

Service comments and was submitted as a final draft on April 21, 2006. The Forest Service edited this document internally and issued it as a final on June 6, 2006. The plant mitigation measures included in the BA/BE were subsequently incorporated in the EA and the Plan of Operations.

18.3.10 Historical Preservation Act

Preservation of cultural resources is required by the terms of the National Historic Preservation Act. The process to satisfy the requirements of the law is commonly referred to as "106 Consultation". The United States Forest Service and Nevada State Historic Preservation Officer (SHPO) are charged with enacting the terms of the act for this project. The law and regulations require the investigation of potential cultural resources, and the evaluation of such resources, if any are found. Also, there must be an assessment of the effects the project may have on the identified cultural resources.

The Borealis project area contains numerous prehistoric cultural resources, as the area was used by prehistoric Indians to quarry stone and make stone tools and hunting points. Extensive cultural resource surveys and treatment plans were implemented prior to and during the previous mine operations. Some historic mining artifacts were also identified during previous surveys, but they were not historically significant and are not an issue for this project.

Desert Research Institute (DRI) conducted a cultural resource survey of the project area in June and July 2005. The cultural resource survey identified seven prehistoric sites within or partially within the project area that were recommended as being eligible for inclusion in the National Register of Historic Places (NRHP). Four of these sites were disturbed to a small degree (e.g., two-track roads) by previously approved mining activity. The Plan of Operations will limit the disturbance in these areas to the same areas previously disturbed (i.e., there would be no incremental impact on these sites). Two of the three remaining NRHP eligible sites will not be impacted by proposed mining activity. BMC modified the location and design of one of its waste rock facilities to avoid impacting the seventh and final NRHP-eligible site.

A draft of the cultural resources survey was submitted to the Forest Service in September 2005. Forest Service comments were received in December 2005 and were incorporated into a final draft report that was submitted to the Forest Service on January 9, 2006. The projected impact and mitigation measures included in this report were also included in the Draft EA that was submitted at about the same time. After Forest Service review, a final report was issued in March 2006. The Forest Service approved this report and forwarded it to SHPO for review and comment on April 17, 2006. The SHPO, which had been consulted during the project, did not have any comments or changes.

Impacts to cultural resource sites are expected to be minimal with three small, non-NHRP-eligible lithic scatters being destroyed and three other similar sites potentially impacted to a small degree by nearby mining activities.

18.3.11 Water Rights

BMC submitted a water rights application for the historic production wells located three miles southwest of the process site. These applications were based on developing two new production wells in the same location as the old production wells that were deactivated. Water rights have been approved and awarded to BMC by the Nevada Division of Water resources. Once the water wells are put in to production, historic production records suggest that BMC will have an adequate supply of process water for the duration of the project. A second water right was obtained at a location about 10 miles south of the project area as a contingency water supply; however, this permit has been forfeited as it was deemed extraneous.

18.4 Other Minor Permits and Authorizations

In addition to the permits listed above, there are a number of miscellaneous permits, licenses, authorizations, or plans that will be required for the project. These permits are necessary, but not considered cumbersome or time consuming to secure. Following is a list includes all known minor permits that may be required and the corresponding regulatory agency:

Table 18.1 - Other Minor Permits and Authorizations

Permit/License/ Authorization/Plan	Agency	Comments
Explosives License or Permit	U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives	Requires submitting identification information for employees who are authorized to possess explosive materials. ATF will act on the application in 90 days.
Hazardous Waste Generator Number (Registration)	EPA and NDEP	Application to be submitted to EPA and NDEP. The operation is expected to qualify as a conditionally exempt small generator.
Drinking Water Supply (Approval of Plans)	NDEP – Bureau of Safe Drinking Water (BSDW)	Submit facility design and demonstrate that a BSDW certified operator will control the

Table 18.1 - Other Minor Permits and Authorizations

Permit/License/ Authorization/Plan	Agency	Comments
		treatment system. Supplied drinking water may be substituted if the treatment system is expensive to install and operate.
Radio Communications Permit	FCC	The FCC will be contacted
MSHA Identification Number and MSHA Coordination	U.S. Department of Labor Mine Safety and Health Administration	BMC shall submit on-line registration and coordinate discussions with MSHA.
Building Permit	Mineral County Submit	A full set of plans to Mineral County Fire Marshall for approval. Commercial trailer/modular building plans must be submitted.
Special Use Permit	Mineral County, Planning Commission	Arrange for a meeting to present Borealis Project for special permitting.
Septic Tank (Small Capacity Commercial Wastewater Disposal System)	NDEP; Bureau of Water Pollution Control	Design for septic tank must be submitted for review. Filled percolation tests are required.
Notification of Commencement or Closing of Mine Operations	Nevada Department of Business and Industry, Division of Industrial Relations, Mine Safety Section	Form to be filed upon determination of a start date.
Industrial Artificial Pond Permit	Nevada Department of Wildlife	BMC has the form to submit; need to identify "Responsible Person" in Nevada for official correspondence.
Fire Protection Certification	Nevada Department of Public Safety; Nevada State Fire Marshall	Contact will be made with the State Fire Marshall.
Right of Way for a Power Line (approximately 5,000 linear ft)	BLM	Application was submitted to BLM by the power company. Awaiting review.

It is noted that the power line right-of-way is still in process. BMC has a contingency plan for using temporary generators in the absence of such right-of-way authorization. Any alternative power supplies used must comply with air quality and other project permits.

18.5 Other Information

The QP authors of this report are not aware of any other relevant data and information for the current technical report on the resources of the Borealis Gold Project that have not been discussed in this report.

19.0 Interpretation and Conclusions

19.1 Geology

The Borealis high-sulfidation system is one of the largest areas of epithermal alteration and mineralization in the state of Nevada, estimated at more than 20 square miles. Gold deposits occur in hydrothermal breccias and replacements within thick sequences of Miocene pyroclastics/tuffs, andesite flows, dacite flows, breccias, and lahars. More than half of the district is covered by variable thickness of alluvial gravel in a pediment environment. At depth, gold is closely associated with pyrite and minor marcasite in hydrothermal breccias, but near-surface deposits are oxidized ranging up to 500 ft deep. Mineralization is commonly characterized by sub-horizontal low-grade gold aureoles within volcanic units surrounding steeply dipping high-grade zones following structures. These deposits occur primarily in northeast-trending zones of silicification in the mined portion of the district. Structures in the district are dominantly northeast-striking normal faults with locally steep dips, generally west-northwest-striking range-front faults with steep southerly dips, and north to north-northeast-striking zones similar to the Graben trend. All three structural sets control gold mineralization in different parts of the district.

19.2 Geophysics

Projections of known alteration and mineralization beneath covered areas are complemented by geophysics to define and prioritize targets. Resistivity highs were used successfully in the early exploration of the district to track favorable trends of extensive silicification and will be used in the current program in searching for extensions of deposits along known trends. Geophysical data found to be most useful for defining pediment exploration targets are induced polarization (IP), aeromagnetics, and, to a lesser degree, resistivity. In particular, aeromagnetic (lows) and IP (chargeability highs) data identify the most favorable covered targets and help site drill holes, especially where magnetics and IP show coincident anomalies.

19.3 Gold Deposits

Using the geologic model of flat-lying lower-grade surrounding steeply dipping higher-grade deposits, with variations to either end member, allows a flexible interpretation to be applied to any of the mineralized areas. Some flat-lying deposits may have several layers such as the three separate stacked layers at different elevations clearly identified in the Borealis deposit. An example of a large flat low-grade zone surrounding a narrow steep high-grade zone is clearly shown in the Graben deposit. Also, there is evidence in several deposits that more than one high-grade feeder structure may be present.

The most effective method of identifying and illustrating the configuration of low-grade and high-grade zones is by grade boundary contouring. Using this method the project geologist interprets the shape of the gold deposit by connecting zones of similar grades from hole to hole with contours of two or more grade levels, and this results in the identification of the possible controls of mineralization. This information can then be applied to the search for extensions of mineralized zones, and the model of grade contours can be used to help guide and control mineral resource estimation

19.4 Mineral Resources

Models were interpreted for the overburden (alluvium + Coal Valley Formation), the depth of oxidation, the depth of mixed oxides plus sulfide, and an alluvial gold deposit previously unrecognized. Grade zones constructed with a better understanding of the geologic conditions were used to allow better conformation of the mineral resource models to the geology.

19.5 Mining

The Borealis property hosts multiple types of gold deposits, which provide several mine development options, or sequences of options (Behre Dolbear, 2004). This situation allows Gryphon Gold increased business flexibility and reduced risks. A staged sequence of mine development warrants further consideration and analysis. Conceptually, potential future development of the near-surface, heap-leachable oxide resources offers an option for a relatively low initial capital cost, early stage mining operation; followed by a systematic mine expansion and increase of gold production by including additional oxide and/or sulfide deposits in the operation.

Additional information is required to optimize the most cost effective progression of the Borealis Project towards becoming a viable mining operation. Recommendations of work required are detailed in Section 20.0, Recommendations.

19.6 District Exploration

A wealth of exploration data exists in the files of the Borealis Project. All of this data has been digitized and the 150,000 pages of data, which is largely exploration information, have been entered into a digital database making it easily accessible. The district has been mapped geologically on several scales and an excellent map exists at a scale of 1 inch = 1000 ft. Many thousands of rock chip and soil samples have been taken of surface materials and analyzed for multiple trace elements developing multiple geochemical anomalies that are clearly shown on maps. The district has been flown with a helicopter survey for magnetics, resistivity, and VLF, and many other local geophysical surveys have been conducted over selected potions of the property. All of this data are excellent in quality and provides adequate coverage of the district for geological, geochemical and geopyhysical information. Using this cumulative data, over 2400 drill holes have tested many of the anomalies; approximately 500 of these holes have been used for testing targets in the district outside of the central Borealis mine area. However most of the 500 holes were concentrated in the delineation of the Cerro Duro, Jaimes Ridge, and Purdy Peak deposits. Some of the drill hole logs have been hastily prepared or logged by inexperienced geologists, so the logs sometimes have inadequate information. Where drill samples are available, re-logging is necessary.

Discovery potential in the Borealis district includes oxidized gold mineralization adjacent to existing pits, new oxide gold deposits at shallow depth, gold associated with sulfide minerals below and adjacent to the existing pits, deeper gold-bearing sulfide mineralization elsewhere on the property. Expansion of gold mineralization adjacent to existing pits provides the best potential for rapid development of additional mineral resources. Projection of known mineralized structures and trends into covered areas provides the best potential for discovery of new deposits, including both near-surface oxide and deeper sulfide systems.

Because more than half of the district is covered by alluvium and this pediment area has very few drill holes in it, geophysics along with projection of known mineralization will be used to identify and locate specific drill targets. Most of the strongest aeromagnetic lows, where coincident with induced polarization (IP) highs, identify specific drill targets beneath the pediment, and only one of these has ever been tested by drilling – Freedom Flats. The aeromagnetic lows with IP highs along known mineral trends represent excellent exploration targets within a significant mineralized district. Additional IP and possibly ground magnetic surveys will be needed to refine specific drill-site locations in testing these targets.

The geology of the Borealis district has many of the characteristics of districts where multiple gold deposits have been, and are being, discovered. A good analogy is the Yanacocha district in Peru, where the combination of lithology and structure provided the sites for numerous large high-sulfidation gold deposits. Using that analogy and the similarities in geology, it is likely that several more high-value gold deposits are waiting to be discovered in the Borealis district.

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20.0 Recommendations

Analysis of the geologic and drill hole data has identified a significant in-place resource that requires further expansion prior to defining surface mineable reserves.

With the successful obtainment of the major permits from the US Forest Service and the NDEP, environmental and permitting issues no longer present a significant risk to project development.

The contributing Gryphon Gold authors, Dr. Roger Steininger and Mr. Steven Craig, recommend that Gryphon Gold undertake a systematic district-scale exploration program designed to discover and delineate large gold deposits within the greater Borealis property, outside of the known mineral deposits, which should focus along known mineralized trends that project into untested gravel-covered areas with coincident geophysical anomalies. The contributing Gryphon Gold author agrees with Gryphon Gold geologists that the greatest potential in the district lies beneath a large gravel-covered area at the mountain front with several potential blind deposits (with no surface expression). The Graben zone is an example of this type of deposit, and other high-potential targets include North Graben, Sunset Wash, Lucky Boy, and others yet to be named.

This district-scale exploration program should include both field and compilation geology, geophysics, geochemistry, permitting and claim maintenance, road construction and drill-site preparation, reverse circulation (RC) and core drilling, drill hole assaying, sampling protocol studies and assay quality control, preliminary metallurgical testing, and database management.

In addition, further sampling of the historical heaps and dumps is recommended because of the immediate potential to move inferred resource into indicated resources that may be considered for reserves.

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A partial list of references follows that were used in support of this study:

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22.0 Date

This report titled ,"Technical Report on the Mineral Resources of the Borealis Gold Project" and dated August 2006 and revised January 2007 was prepared by and signed by the author:

Dated at Lakewood, Colorado, USA
January 11, 2007

Alan C. Noble, P.E.
Ore Reserves Engineering

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23.0 Certificate of Authors

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CERTIFICATE AND CONSENT OF AUTHOR

I, Alan C. Noble, P.E. do hereby certify that:

1. I am a self employed Mining Engineer doing business as:
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   12254 Applewood Knolls Drive
   Lakewood, Colorado 80215
   USA

2. This certificate relates to the "Technical Report on the Mineral Resources of the Borealis Gold Project" dated August 15, 2006, Revised January 11, 2007 and prepared for Gryphon Gold Corporation.

3. I graduated from the Colorado School of Mines, Golden, Colorado with a Bachelor of Science in Mining Engineering in 1970.

4. I am a Registered Professional Engineer in the State of Colorado, USA, PE 26122. In addition, I am a Member of the Society of Mining, Metallurgy, and Exploration (SME).

5. I have practiced my profession as a mining engineer continuously since graduation for a total of 36 years. During that time I worked on mineral resource estimates and mine planning for over 135 mineral deposits of which 75 were gold deposits.

6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, registration of a professional engineer, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

7. I am responsible for the overall content of this Technical Report and have prepared the mineral resource estimate in Section 17 of the report titled "Technical Report on the Mineral Resources of the Borealis Gold Project" and dated August 15, 2006, Revised January 11, 2007 ("the Technical Report") relating to the Borealis Gold property. I visited the Borealis Project site on 12 May 2005 and the Borealis Project sample storage facility on February 24, 2005 for a period of one day for each visit.

8. I have had prior involvement with the property that is the subject of the Technical Report. The nature of my prior involvement includes a previous Technical Report in May 2005 and preparation of conceptual mine plans for the plan of operation during June to July 2004.

9. To the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

10. I am independent of the issuer applying all of the tests of section 1.5 of National Instrument 43-101.

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

Dated this 11th day of January, 2007

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CERTIFICATE AND CONSENT OF AUTHOR

I, Jaye T. Pickarts, P.E., do hereby certify that:

1. I am a Principal Metallurgical Engineer employed by:
   Knight Piésold and Co.
   1050 Seventeenth Street, Suite 450
   Denver, Colorado 80265
   USA

2. This certificate and consent relates to the "Technical Report on the Mineral Resources of the Borealis Gold Project Located in Mineral County, Nevada, USA" dated August 15, 2006 and revised January 11, 2007 prepared for Gryphon Gold Corporation.

3. I graduated from the Montana College of Mineral Science and Technology, Butte, Montana with a Bachelor of Science Degree in Mineral Processing Engineering in 1982.

4. I am a Licensed Professional Engineer in the State of Colorado, USA, P.E. 32768. In addition, I am a Registered Member of the Society for Mining, Metallurgy, and Exploration (SME) and a QP Member of the Mining and Metallurgical Society of America (MMSA).

5. I have practiced my profession as a mineral processing/metallurgical engineer continuously since graduation for a total of 23 years.

6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, registration as a professional engineer, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

7. I am responsible for preparing the 2004 metallurgical test plan for the existing heaps and dumps, reviewing the test data, and reporting and analyzing these results. I have prepared the metallurgical data in Section 16.0, exclusive of Sections 16.2 and 16.7, of the report titled "Technical Report on the Mineral Resources of the Borealis Gold Project Located in Mineral County, Nevada, USA" dated August 15, 2006 and revised January 11, 2007 ("the Technical Report") relating to the Borealis Gold property. I have visited the Borealis Project site on May 12, 2004 for a period of one day. The date of my most recent visit was February 23, 2006, during which time I spent 1 day(s) on the property.

8. I have had prior involvement with the property that is the part of the Technical Report. The nature of my prior involvement is preparation of the metallurgical testwork evaluation and conceptual processing flowsheet for the plan of operation during June to October 2004.

9. To the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

10. I am independent of the issuer applying all of the tests of Section 1.5 of National Instrument 43-101.

11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with that instrument and that form.

12. I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 10th day of January, 2007.

COLORADO REGISTERED PROFESSIONAL ENGINEER JAYE THOMAS PICKARTS 37268

Signed, Jaye T. Pickarts, P.E. 37268

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CERTIFICATE AND CONSENT OF AUTHOR

I, Roger C. Steininger, CPG, do hereby certify that:

1. I am a self employed Consulting Geologist doing business as:
   Roger C. Steininger, Ph.D.
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   3401 San Mateo Avenue
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   USA

2. I graduated from Western Michigan University with a Bachelor of Science Degree in Geology in 1964.

3 I graduated from Brigham Young University with a Masters of Science Degree in Geology in 1966.

4. I graduated from Colorado State University with a Ph.D. in Earth Resources (Geology option) in 1986.

5. I am a Certified Professional Geologist with the American Institute of Professional Geologists, Certification Number 7417. In addition, I am a Member of the Society for Mining, Metallurgy, and Exploration (SME) and a Fellow of the Society of Economic Geologists (SEG).

6. I have practiced my profession as a geologist continuously since gradation from Brigham Young University for a total of 40 years.

7. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, registration as a Certified Professional Geologist, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

8. I am responsible for contributing to the preparation of this technical report dealing with the property and deposit geology, exploration, drilling and sampling of existing heaps and dumps, sampling, interpretation and conclusions, and recommendations relating to the Borealis Gold property. I have visited the Borealis property on numerous occasions.

9. My involvement with the Borealis property is to serve in a consulting capacity to Gryphon Gold, assisting with understanding the geology, planning exploration, and directing the drilling programs. This involvement has been from October 2003 through the present.

10. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report that is not reflected in this Technical Report, the omission to disclose which makes the Technical Report misleading.

11. I am NOT independent of the issuer applying all of the tests of Section 1.5 of National Instrument 43-101.

12. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and that form.

13. I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 8th Day of January, 2007

Signed, Roger C. Steininger, Ph.D., CPG

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CERTIFICATE AND CONSENT OF AUTHOR

I, Barbara A. Filas, P.E., do hereby certify that:

1. I am a Principal Mining/Environmental Engineer employed by:
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   Denver, Colorado 80265
   USA

2. This certificate and consent relates to the "Technical Report on the Mineral Resources of the Borealis Gold Project Located in Mineral County, Nevada, USA" dated August 15, 2006 and revised January 11, 2007 prepared for Gryphon Gold Corporation.

3. I graduated from the University of Arizona in Tucson, Arizona with a Bachelor of Science Degree in Mining Engineering in 1978.

4. I am a Licensed Professional Engineer in the State of Colorado, USA, P.E. 25261. In addition, I am a Registered Member of the Society for Mining, Metallurgy, and Exploration (SME) and a member of the Mining and Metallurgical Society of America (MMSA).

5. I have practiced my profession as a mining engineer and environmental engineer to mining application continuously since graduation for a total of 27 years.

6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, registration as a professional engineer and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

7. I am responsible for developing the environmental inventories, permitting strategies and permit documentation for the project. The environmental and permitting synopsis presented in Section 18 of the report titled "Technical Report on the Mineral Resources of the Borealis Gold Project Located in Mineral County, Nevada, USA" dated August 15, 2006 and revised January 11, 2007 ("the Technical Report") relating to the Borealis Gold property was prepared under my supervision. I have visited the Borealis Project on several occasions since May 2003. The date of my most recent visit was February 23, 2006, during which time I spent 1 day(s) on the property.

8. I have had prior involvement with the property that is the part of the Technical Report. The nature of my prior involvement included the environmental due diligence on behalf of Gryphon Gold Corporation accomplished in May and June 2003. I was also involved with the planning, field investigation, analysis and document preparation of the Plan of Operations/Reclamation Plan submitted to the U.S. Forest Service, Bridgeport Ranger District and the Nevada Division of Environmental Protection, Bureau of Mine

Regulation and Reclamation dated August 2004 and the Water Pollution Control Permit application to the Bureau of Regulation and Reclamation dated January 2005.

9. To the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

10. I am independent of the issuer applying all of the tests of Section 1.5 of National Instrument 43-101.

11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with that instrument and that form.

12. I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 10th day of January, 2007.

COLORADO REGISTERED BARBARA A. FILAS 25261 PROFESSIONAL ENGINEER

Signed, Barbara A. Filas, P.E.

Steven D. Craig, CPG
Gryphon Gold Corporation
Hawthorne, Nevada, USA89415
Telephone: 775-945-5305
Fax: 775-945-5305
Email: scraig@gryphongold.com

CERTIFICATE AND CONSENT OF AUTHOR

I, Steven D. Craig, CPG, do hereby certify that:

1. I am Vice President of Exploration employed by:
   Gryphon Gold Corporation
   420 3rd Street, Suite B
   Hawthorne, Nevada, 89415
   USA

2. I graduated from Western State College with a Bachelor of Arts Degree in Geology in 1974.

3. I graduated from Colorado State University with a Masters of Science Degree in Economic Geology in 1980.

4. I am a Certified Professional Geologist with the American Institute of Professional Geologists, Certification CPG #10997. In addition, I am a Member of the Society for Mining, Metallurgy, and Exploration (SME).

5. I have practiced my profession as a geologist continuously since graduation from Western State College for a total of 32 years.

6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, registration of a Certified Professional Geologist, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

7. I am responsible for contributing to the preparation of this technical report dealing with the property and deposit geology, exploration, drilling and sampling of existing heaps and dumps, sampling, interpretation and conclusions, and recommendations relating to the Borealis Gold property. I have visited the Borealis property on numerous occasions.

8. My involvement with the Borealis property is to direct the exploration and geological program for Gryphon Gold, assisting with understanding the geology, planning exploration, and managing the drilling programs. This involvement has been from January 2006 through the present.

9. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report that is not reflected in this Technical Report, the omission to disclose which makes the Technical Report misleading.

10. I am NOT independent of the issuer applying all of the tests of Section 1.5 of National Instrument 43-101.

11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with that instrument and that form.

12. I consent to the filing of the Technical Report with stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 8th day of January, 2007.

Signed, Steven D. Craig, CPG # 10997