History, Geology, Gold Resources, Discovery Potential and Proposed Exploration Drilling Program for the Pinion-Railroad Project, Elko County, Nevada

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3.0 Summary

Timothy D. Master, Exploration Manager Royal Standard Minerals, commissioned me to evaluate "History, Geology, Gold Resources, Discovery Potential and Proposed Exploration Drilling Program for the Pinion-Railroad Project, Elko County, Nevada by Timothy D. Master, Royal Standard Minerals Inc.-Manhattan Mining Co. unpublished report, July 30, 2003, 38 pages", which is attached. The intent of this review is to evaluate the validity of the information presented in the report, and if the conclusions and recommendations are solid. To facilitate this evaluation Royal Standard made available the principal background information used in preparing the subject report. Additionally, I

have extensive experience with the geology and mineral deposits of the region and specifically Royal Standard's properties, which was used in the preparation of this evaluation. This report is structured to include Master's entire contribution along with my comments, where appropriate. My comments are in Times New Roman 12 pitch type, Master's in bold italics (quotation makes not included), and Mater's quotations of others in normal italics. All tables and figures are from the Master report. No editing of Master's report was undertaken.

This is an in-house report for Royal Standard Minerals (RSM) and is a technical review and evaluation of the Pinion-Railroad Project located in Elko County, Nevada. The report was written as a progress report up-date of the Pinion Area and the addition of the Railroad area to the overall project. The report focuses on the understanding of the gold resources in both areas. The author grants permission for this report and other in-house reports by the author to be used as references in any future reports requested by RSM. The author completed a review of the known geological, geochemical, resource studies, metallurgical files, reports and land-lease documents. A title opinion was also completed by legal council previously used for writing some of the leases on the project and for other matters unrelated to the project. This title opinion has verified that all of the leases are valid, in good standing and properly recorded (deLipkau, 2003). The author also reviewed the drill and assay files for completeness and verification.

The Railroad – Pinion Project consists of two separate land blocks approximately 7,500 acres each containing approximately equal amounts of near surface, oxide gold resources. These gold resources have been pooled together for consideration of processing the gold at a central location. The combined total oxide gold resource measured to a depth of 300 feet is 6.25 million tons at an average grade of .043 troy ounces per short ton (opt). All of the gold resources occur in the Webb Formation siltstone.

The gold resource estimates have been classified in the measured category based on the density of drilling (30-150 feet drill spacing) and the predictability of the mineralized zones as shown on the 28 geological cross sections constructed through the gold resource areas. This report is primarily focused on the delineation of the measured oxide gold resources that have potential for open pit mining. The authors believe that gold resources and geological controls for the gold mineralization are accurately represented in both areas for classifying the resources in the measured category.

The likelihood of increasing the near surface oxide gold resource is good. Additional gold resources of 1.25 million tons at an average grade of 0.060 opt are estimated to be added by drilling the following locations;

1) ***the internal high grade shear zones that have not been tested, primarily at Pinion***
2) ***areas where sample recoveries in the center of the main gold zone were poor, primarily at Pinion***
3) ***extensions to the known mineralization primarily at Railroad***

4) fill-in to add additional tons at both Pinion and Railroad.

A delineation drilling program of 46 holes at the Pinion gold resources has been permitted and 39 holes at the Railroad gold resources is being permitted.

Metallurgical testing is very limited at Railroad and more complete at Pinion. Gold recovery from column leach tests at Pinion is approximately 60% and additional testing is planned to see if increased recovery can be achieved. Column leach testing has not been completed at Railroad and is part of the upcoming drilling and trenching program planned for this year.

Drill indicated mineralization occurs in the underlying Devils Gate Limestone primarily at Railroad and is the host for the major gold reserves at Newmont's Rain and Emigrant gold deposits. Discovery potential surrounding the Railroad gold resources is good.

A concealed trend along a mineralized fault zone containing hydrotheral karst breccia pipes is drill indicated below the Chainman sandstone approximately 1000 feet south of the Pinion area gold resource. A resistivity survey of the Pinion gold resource area indicates that a second concealed breccia pipe area may occur along this fault zone that has not been drill tested.

4.0 Introduction and Terms of Reference

4.1 Source of Information, Purpose of Report and Involvement of Qualified Persons

At the request of Royal Standard Minerals Inc., the authors have completed a technical review of geological and geochemical databases, gold resource estimates and land holdings. Sources for the data are unrestricted files and reports generated by Royal Standard Minerals Agnico Eagle, Cyprus Minerals, Newmont Mining Corporation, Teck Resources, Santa Fe Exploration, Kinross Gold USA, Cameco USA Exploration, Ramrod Exploration, Westmont Mining Corporation, Homestake Mining Corporation, Amax Exploration, and American Selco. The author has most recently visited the project during June 25, 2003 and has been working with the data for two years while reconstructing the gold resources, acquiring the important land for new discoveries and planning the drilling to increase the size and grade of the shallow oxide gold resources. This report presents the results of cross section mapping and a manual polygonal gold resource estimate of the shallow oxide resources compared to previous resource estimates.

Royal Standard Minerals has been actively involved in the Pinion area for 7 years with an intense exploration effort and land acquisition program prior to the authors' involvement. The reacquisition of key lands was recently completed along with the new acquisition of the Railroad area properties. This is the first time in history that both of these areas and their gold resources have been consolidated under one company name.

The following technical report is intended for use by Royal Standard Minerals and will be used for further funding of the project. This report describes the gold resources that might be economically feasible to recover, subject to a feasibility study and following an infill drilling program for expansion of the gold resources.

4.2 Terms of Reference (Canada 2000)

***Mineral Resource** - A Mineral Resource is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.*

***Inferred Mineral Resource** is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.*

***Indicated Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.*

***Measured Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.*

***Mineral Reserve** - A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes*

diluting materials and allowances for losses that may occur when the material is mined.

Probable Mineral Reserve ***is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting that economic extraction can be justified.***

5.0 Disclaimer

The geological logs are poorly represented for the Railroad part of the project area. A reliance on prior cross sections and coded geology in the database has made geological interpretations less reliable in the Railroad Area than in the Pinion Area. Assay records are more reliable for both areas with the ability to cross reference assays with the database spreadsheet and drill logs. Resource estimates are classified as measured given the geological and grade continuity along the trends of the gold resources and the adequate density of drilling to predict grades between drill holes. The author believes that gold resources and geological controls for the gold mineralization are accurately represented in both areas for classifying the resources in the measured category. Sample recovery problems are noted on many drill logs and there is no way of resolving the accuracy of the reported gold values in these intervals. Infill drilling is planned to increase the internal grade of the existing resources approximately 20 percent and to check the gold grades in areas of poor recovery. The peripheral drilling is designed to expand the gold resources an additional 20 percent.

6.0 Property Location and Description

Land records and documents pertaining to the various purchase agreements were not reviewed, and are beyond the scope of this evaluation. Mr. Master assured me that a title opinion and all of the purchase agreements exist in Royal Standard's Sparks, Nevada office, and are in good order. Master's description of the land status is as follows.

The Railroad - Pinion Properties are located in the Pinion Range approximately 10 to 20 miles south of the town of Carlin Nevada in Elko County (figure 1). The property holdings are contained in Townships 30 and 31 north, Range 53 east and consist of 2 separate land holding defined as the Railroad area land holdings to the north and the Pinion area land holdings to the south (figure 2). The properties are leased to RSM and comprise 493 unpatented claims (approximately 9,000 acres), 19 patented claims (226 acres) and 3,600 acres of fee land. Royal Standard Minerals owns an additional 115 claims (approximately 2,200 acres). The entire property position controlled by Royal Standard Minerals is approximately 15,026 acres. All of the leases were negotiated by Mr. Master and a recent title opinion by mineral attorney Ross deLipkau has verified that all of the leases are valid, in good standing and properly recorded (deLipkau, 2003). The entire property position has a holding cost obligation of $122,022. (USD) for the year 2003.

7.0 Accessibility, Climate, Local Resources, Infrastructure, Physiography

The Pinon area property is located about 10 miles south of Newmont's Rain mine, 25 miles southwest of Elko, Nevada. The main access from Elko is west on Interstate 80 to Carlin (25 miles) then south on State Highway 51 for 22 miles to the Trout Creek access road. The project area is 7 miles east along a well-maintained BLM gravel-dirt road to the area of extensive drilling.

The property lies along the steep western flank and crest of the Pinon Range at elevations ranging from 7000 feet to 7450 feet above sea level. Pine Valley flanks the range to the west and Dixie Flats to the east. Vegetation is dominantly sagebrush with Pinon Pine growing over carbonate lithologies. The climate is semiarid with the average exploration season extending from early April to late December. There is no infrastructure in the vicinity of the property; the nearest power line is 7 miles to the west along State Highway 51.

The Railroad area property is 4-5 miles from the Rain deposit infrastructure containing power. Access is again from state highway 51 and then 7 miles east from the Brown Ranch. Assess is also from Spring Valley west and through the old Bullion townsite. Roads are snowy in the winter and muddy in the spring through April. Elevations are 6,600 feet to 8,000 feet.

8.0 History of Development and Production

The Railroad and Pinion Properties have a long history of mining and exploration activity starting in 1869 with the underground production of silver, lead and copper in the Railroad Mining District. Approximately 100,000 tons of skarn hosted ore were mined from the Bullion Stock contact zone. The total metal production was 1.2 million ounces of silver, 25 million pounds of lead 7 million pounds of copper and .4 million pounds of zinc (Kinross, 1998, Burgess, 1952). The history of the properties can be summarized in four stages with the Railroad part of the properties receiving all four stages of activity and the Pinion part of the properties receiving only the Modern Era Gold Exploration.

8.1 1869-1887 Copper-Lead-Zinc Production

The early production accounted for over half the total copper produced and 80% of the total lead and silver produced from about 12 mines in the district. A smelter was established 2 miles northeast of the main workings on Bunker Hill at the Old Bullion Townsite. The gold resources of interest to Royal Standard Minerals are 1 mile north of the base metal mines and 1 mile west of the smelter site in the hills above the drainage haul route between the mines and the Smelter at the Old Bullion Townsite.

There is no recognized environmental or historical cultural impact on the gold resources of interest to RSM.

8.2 1905-1969 Deeper Production and Exploration

Mining of copper, lead, zinc and silver peaked during 1917 when 17 producers were operating in the district. Following the war, deeper production began to play out and significant exploration was completed. A mile long adit called the Davis Tunnel was completed to intersect the projection of productive shallow level mines but failed to intersect economic continuations of the ore chimneys at depth.

8.3 1967-1980 Modern Era silver-base metal exploration

U.S. Steel, Selco, El Paso-LLE, Placer Amex and Amax Exploration conducted exploration for silver and porphyry type copper and molybdenum deposits. The deeper core holes drilled by Selco reached 2,000 feet depth in Tertiary granodiorite. Mineralization discovered was subeconomic in the skarn and the granodiorite.

8.4 1980-Present Modern Era Gold Exploration

Gold prices began to increase and a shift to gold exploration in the shallow sedimentary rocks distal to the bullion intrusion began. The discovery of the Rain Deposit in 1980, four miles north of the Railroad gold resources attracted exploration to the Pinon Range south of the Rain Deposit which included both the Railroad and Pinion Areas. The Emigrant Gold Deposit and Satellites to Rain that are Gnome, SMZ, were soon discovered along with the Rain deep extension.

8.4.1 Railroad

Similar rock types to Rain which include mineralized Mississippian siltstone of the Webb Formation were discovered by Homestake Mining Co joined Amax during 1980 and Homestake discovered the Railroad POD deposit with their 5th drill hole during 1981. Homestake defined a gold resource of 120,000 ounces, which does not conforming to 43-101 methods of defining a resource. Homestake withdrew from the joint venture in 1982 and Nicor Mineral Ventures joined Amax in 1983 and continued to explore in 1985 when hole NR79 was drilled into the East Jasperoid Zone mineralization adjacent to the POD Zone. A name change from Nicor to Westmont Mining occurred in 1986 and exploration continued on Railroad into August 1993 when most detailed geological mapping and rock chip sampling was completed on the project. During 1993, Costain, parent company for Westmont Gold received purchase offers by Newmont and Cyprus for up to $3,000,000. US (Kinross, 1998). Eventually, they accepted a $4,000,000 US offer for a 31/2 year deal with Canadian junior Ramrod Gold.

Ramrod Gold explored the property in 1994 and then within 1 year, relinquished their JV interest back to Costain. A discovery of deep mineralization in hole TO-94-07 was recorde in the the database 1,000 feet north of the POD deposit but was never followed up and to this date has not been verified. The project was again sold to Exploration Mirandor. Mirandor purchased the entire property for $2,000,000. US cash in late 1996 including both Amax's and Costain's JV interests totaling 100%. Mirandor drilled 54 holes in 1997 and then negotiated a earnin with Kinross Gold USA, Inc. in October 1998 calling for an expenditure of $7,000,000. US over 4 years to obtain 55% interest in the project. During 1998, 58 holes were drilled for 35,845 feet. The drilling was encourageing with encouragement from deep drilling. A CSAMT survey was completed that indicated potential for Rain Extention Style Faulting from the POD Zone. However, the 1999 drilling program failed to discover deep mineralization and the project was relinquished back to the Uhalde family in 1999. To this time, 252 holes have been drilled in the gold resource area.

Royal Standard Minerals with the Uhalde Family negotiated a lease agreement, August 1, 2002 and the project data was all acquired from the owner. The drill data on the gold resources has been worked into a measured resource and a drilling program has been designed to increase the tons and gold ounces as reserve feasibility is completed. The drilling is planned to commence this summer. The Kevin Tomera private land in sections 27 and 33 were leased on January 22, 2003 to consolidate the gold resources. A proposed 55 hole drilling program is currently being permitted with the Bureau of Land Management.

8.4.2 Pinion

DeMatties and Monroe have reported the history of the Pinion gold resource area in detail, January 2003 as follows.

"The 1980 discovery of the Rain gold deposit 10 miles to the north, prompted Newmont to conduct a regional stream sediment survey in the Pinon Range. One of the geochemical anomalies identified was sourced up the Trout Creek drainage. Follow-up prospecting revealed baritic jasperoidal Webb Formation in Section 22 (Photo1). Unfortunately for Newmont the ground was previously staked by L.L. Trease and H.D. Christian in 1979 (as a barite prospect).

At about the same time in 1980, the Cyprus Exploration Co.- AMOCO joint venture leased the Trease and Christian ground (claims "TC"-1 through 11) and located an additional 16 claims in Section 22. Cyprus completed 27 reverse-circulation (RC) holes in the immediate area of geochemically anomalous, gold-bearing jasperoid outcrops. Of these, 21 intersected anomalous gold values, the best of which was 0.04opt/6.5 meters. Cyprus subsequently dropped the property.

Freeport acquired the property, which now consisted of 27 claims, in 1983. The company constructed 7 RC holes that also intersected anomalous gold. The best intercept was in the last hole drilled, averaging 0.036opt/41 meters. This ore-grade hole was never

offset and Freeport dropped the property in 1985. The claim block was soon acquired by Desert Ventures (DCDV Corporation) later in 1985 and optioned to Teck Resources by 1986.

Teck Resources formed a joint venture with Lord River Mines to continue exploration of the property. The joint venture completes 33 RC holes, geologic mapping (1"=100') and a soil survey in the immediate discovery area.

At the same time, Newmont acquired the private fee lands in adjacent Section 27. Recognizing the deep potential, it began drilling off the down-dip extension of the shallow gold mineralization identified in Section 22. By 1989, 65 RC holes identified a deep mineral resource (South Bullion gold resource) containing 20 million tons grading 0.026opt. Newmont later drops its lease deeming the resource uneconomic.

By 1990 Crown Resources purchases the TC claims in Section 22 from the Teck Resources/Lord River Mines JV, locates additional claims and is successful in leasing and optioning private fee lands/mineral rights that include adjacent Section 27. The large land position established, which formed the original Pinon project area of interest, consisted of surface and mineral rights to 34,000 acres (total and fractional mineral rights) of the Pereira Trust lands, 2600 acres of mineral rights (Etchevery mineral estate) and 3 sections of unpatented lode claims.

From 1990 to early 1994 Crown completed 122 RC holes mainly in Section 22 of the resource area, as well as limited metallurgical testing, additional claim staking, detailed mapping (1'=100'), rock chip sampling and soil geochemical surveys (800 samples), ground geophysical surveys (ground controlled source audio magneto-tellurics or "CSAMT") and an airborne magnetic-electromagnetic-radiometric survey. For this effort Crown delineates two shallow but small mineralized zones (Main zone and Central zone aka North Pod) with a total mineral resource of 8.1 million tons grading 0.026opt gold in Section 22 (see Section 19).

Considerable exploration by Crown in other locations of the project area resulted in discovery of a second small mineral resource designated "Dark Star" (7 million tons @ 0.022opt Au) in T30N, R53E, Section 25. It is interesting to note that Crown drilled this resource with only 50% of the mineral estate under its control and was never successful in acquiring the remaining 50%. By 1994 Crown had drilled a total of 202 RC holes in the project area and expended approximately US$3 million.

In September 1994 Cyprus Gold Exploration Corporation, through its subsidiary Pinon Exploration Corporation, formed a joint venture with Crown to earn a 70% interest in the Pinon Project. Cyprus focused drilling (74 RC holes) on the entire South Bullion mineral resource (Sections 22 and part of the east half of 27), confirming and expanding the total resource to 31 million tons at 0.026opt gold (see Section 19). Within the resource in-fill drilling further delineated shallow gold mineralization in the Main zone and North Pod within Section 22. By 1995 Cyprus had spent a total of US$1.45 million but still had not vested its 70% interest in the project.

By early 1996 Cyprus farm out its interest to Southeastern Resources Inc., (SER, predecessor to RSM). SER successfully negotiated an agreement with Cyprus. During negotiations, SER, formally a private corporation, established itself as a publicly traded company changing its name to RSM.

By the end of 1996, RSM had expended US$380,000 on exploration that included a preliminary resource feasibility assessment and 1,354 feet of shallow, large-diameter (HQ) core drilling (7 holes) on the Main zone and North Pod. This was the last drilling program conducted on the TC claims in Section 22.

To help fund its earn-in commitments, RSM completed a corollary joint venture agreement with Cameco in April 1997. The terms of that agreement relative to the Pinon Joint Venture called for Cameco becoming the operator and acquiring 51% of RSM's interest. RSM vested its 70% by the end of the year after Cameco spend US$377,200 on the project. With Crown having a carried 30% interest, Cameco continued to operate and fund exploration in the Pinon project area. Their work included geologic mapping, ground geophysical surveys (CSAMT), surface rock chip sampling and drilling (27 RC holes) However, because of restrictions under the terms of the agreement with RSM, no exploration was ever done in Section 22. Lack of any significant success finally forced Cameco to drop out of the joint venture in mid -1999 after spending over US$2 million on exploration.

No additional exploration was conducted in the project area after the Cameco left the joint venture. By 2001 the joint venture partners reduced their land position to the TC claim block in Section 22 that controls the mineralized Main zone and North Pod. In September 2002, RSM acquired Crown's 30% interest and assigned the property to its subsidiary company PEC."

A program of re-acquisition began with the leasing of Cord Ranch August 30, 2002, The Tom Tomera private land August 30, 2002 and the Tomera Family private land September 25, 2002. This has consolidated the resource area again and at lower holding cost. The gold resources were mapped with serial sections and a manual resource was determined and is presented in the section on gold resources. A 2003 drilling program of 46 holes to increase the grade and tons of the gold resource has been permitted with the Bureau of Land Management.

9.0 Geological Setting

The Railroad-Pinion properties are along the southern extension of the Carlin Trend, which is one of the more prolific gold belts in the world. As such, the subject properties are in a well-mineralized region, which only adds to the potential for expanding the known gold deposits and making new discoveries. Master's report does not detail the exploration potential of the properties away from the known gold deposits, except for referencing to the several companies that have explored the area and the extensive database that is in Royal Standard's control. Much of the district wide exploration was undertaken prior to the start of the 21st century. Since the mid-1990s the cumulative

knowledge of "Carlin-Type" gold deposits has expanded tremendously. This expanded knowledge can be used to a re-interpretation of all of the available data, which will likely identify new exploration targets on the ground controlled by Royal Standard. Also, during the last 10+ years numerous high-grade gold deposits have been discovered along the Carlin Trend that can be mined using underground techniques. Many of these deeper deposits are associated with surface oxidized gold deposits. Essentially no deeper exploration has been conducted under the Railroad and Pinion deposits, or at other places on the property. This exploration opportunity offers the possibility for discovery of additional gold deposits at Pinion-Railroad. In summary, the Pinion and Railroad properties can be characterized as modestly explored, at best, and discovery of additional gold deposits is possible.

9.1 Paleozoic Stratigraphy and Deformation

Geology of the Railroad – Pinion Area is a north trending mountain range called the Pinon Range that exposes Ordovician and lower Devonian dolomite and dolomitic sandstone. These older rocks are considered to be autochthonous "lower plate" rocks deposited on a carbonate platform described as the eastern facies depositional zone. These Ordovician and Lower Devonian Age rocks from oldest to youngest are the Pogonip Group dolomite and shale, Eureka Quartzite, Hansen Creek Formation dolomite and shale, Lone Mountain Dolomite Beacon Peak Dolomite, Oxyoke Quartz Sandstone and upper dolomite member (fig. 3). This lower section is mineralized although economic gold deposits have not been found to date.

The Upper Devonian through Mississippian Age rocks exposed in the Pinon Range were deposited on a shelf margin during subsidence of the carbonate platform at the start of the Antler Orogeny. The Late Devonian Devils Gate Limestone was deposited on a subsiding platform followed by flysch shelf sedimentation of the Mississippian Webb siltstone and interbedded limestone, followed by Chainman (DaleCanyon) Sandstone conglomerate and Diamond Peak (Tonka) Conglomerate. The Devils Gate Limestone and Webb Formation are the hosts for all the known economic gold deposits in the area. The Webb was also deposited on top of the thrust Woodruff mudstone and chert, the Devils Gate equivalent of deep basin facies to the west and then thrust faulted over Chainman Sandstone. This allochthonous Webb is not a host for economic gold mineralization in the district (Mathewson, 2000). Subeconomic mineralization is also found in the Chainman Dale Canyon) and Diamond Peak (Tonka) Formations.

Structural deformation in the district is the early thrust event of Middle Missippian Antler thrusting starting at the top of the Chainman sandstone depositional age, with possibly early "Rain Fault" WNW strike slip movement and the arching and folding of the host rocks that are mineralized at a later date.

9.2 Tertiary Igneous Rocks and Structural Deformation

Early Tertiary (Eocene-Oligocene) extensional dip-slip faulting in both a north and west-northwest direction developed horst and graben faulting in both directions. The Pinon Range is characterized as a north trending horst block with the flanks of the range down-dropped and flanked by Tertiary Age volcanic flows and tuffs.

In early Oligocene, the Bullion Stock (37-35MA) domed and intruded the Paleozoic Rocks and formed the skarn deposits in the Railroad District. The Bullion Stock is a quartz monzonite to diorite intrusion located geographically between the Railroad and Pinion gold resources. The sulfide deposits near the stock are high silver and low gold with dominant copper-lead and zinc, uncharacteristic of gold systems in the district. Rhyolite intrusions consisting of sills, dikes and plugs that are altered and weakly mineralized were emplaced along faults and along bedding in the Paleozoic Rocks following the stock emplacement and are associated with the gold mineralization in the gold resource areas at Railroad. The author believes that these dikes and the underlying intrusions are genetically connected to the deposition of the gold deposits.

Latite and dacite ash flow tuffs and andesite - basalt intrusions flank the Pinon Range and are downdropped along the flanks of the Pinon Range. The authors consider these volcanic rocks to be Oligocene age and younger and are crosscut by northeast and north trending faults primarily developed during post mineral faulting and development of the basin and range topography of the district. At least one location of crystal tuff in the Railroad gold resource area is mineralized. This location is along the East Side of the East Jasperoid Zone (hole NR093) where a mineralized fault crosscuts Webb Siltstone and the overlying volcaniclastic crystal tuff. Some of the north and northeast trending faults are strongly mineralized and host gold grades of 1-3 ppm. The author believes that these mineralized faults developed in early Tertiary Age and post mineral basin and range faulting has reactivated some of these earlier faults and developed a new set of barren faults with large vertical displacement along the flanks of the Pinon Range.

10.0 Deposit Types

The essence of Master's report is a description and determination of the size and grade of the Railroad and Pinion gold deposits. Master has captured the salient points of the two known deposits. They are in the Mississippian Webb Formation and the underlying Devonian Devils Gate Limestone. As Master points out, the Webb Formation is an excellent host for disseminated-style gold deposits, with higher grades along structural zones that could extend into the underlying limestone. These types of deposits, of which there are several examples in eastern Nevada, have a consistency of grade that makes resource estimates more reliable. The Railroad deposit is hosted in a structural zone, which is not uncommon for sedimentary rock hosted gold deposits in northeastern Nevada. The geology here limits the exploration potential to along strike and down-dip in the structural zone, unless areas are discovered where mineralization spreads into the surrounding Webb Formation. Oxidization is limited to a few hundred feet below the

surface, which also limits the resource expansion down-dip in the structure, unless there is a dramatic increase in gold grades. More specific information about the deposit types is as follows.

Host rocks for the majority of the mineralization at Pinion (Main Zone and North Pod) and Railroad (POD Zone and East Jasperoid) is the Mississippian Webb Formation siltstone. The deposits at Railroad are hosted in the upper Webb Formation siltstone compared to the deposits at Pinion that are hosted in the lower to basal Webb formation siltstone. These deposits are unlike Newmont's Rain- Deep Rain Extension and the Emigrant Deposits that are primarily hosted in the Devils Gate Limestone underlying the Webb siltstone. The potential for economic gold mineralization in the Devils Gate Limestone under the Pinion gold resource has not been tested and is planned for testing with the 2003 drilling.

The structural controls for the Railroad POD Deposit are different from the Pinion Area Deposits with the POD deposit restricted to a steeply dipping shear zone and no stratabound mineralization in the mineralized zone. The Pinion Main Zone contains a strong stratabound control in the basal Webb siltstone with higher-grade mineralization in the fractured fold crest and fold axis. North Pod and East Jasperoid have characteristics of both deposit types. The structural control for the Railroad POD Deposit is more similar to the deep Rain Extension than the other deposits. The north-south fault control to the East Jasperoid Zone is similar to the Emigrant Gold Deposit 4 miles north. The author does not see evidence for thrust faulting at the Webb/Devils Gate contact. This contact is a depositional unconformity with sedimentary karst breccia developed at the top of the Devils Gate Limestone subject to brecciation during folding and crosscut by higher angle faulting. The contact is a site for hydrotheral alteration and hydrothermal karst type brecciation and replacement.

Alteration is similar for the Railroad and Pinion Deposits. Silicification, illite, barite, dickite, kaolinite, dolomitization, calcite are crudely zoned away from the center of the deposits. A dolomite zone has been mapped in cross section overlying the Pinion Main Zone. Decalcification is common in the center of the deposits with sparry calcite occurring peripheral as veins and in some cases under and within the mineralized zone, possibly as a late alteration event. Carbon and fine disseminated pyrite occur in the core of the Railroad POD Deposit surrounded by strongly oxidized mineralization. Alteration at Railroad and Pinion is similar to the Rain and Emigrant Deposits.

10.1 Exploration Model

The author accepts a sedimentary-hosted replacement model for the Railroad and Pinion Gold Deposits that is similar to the Alligator Ridge Gold Deposit 50 miles south of Pinion and the Rain-Emigrant Gold Deposits 4 miles north of Railroad. Host rocks and alteration is similar. However, the Carlin Trend Gold Deposits north of the Rain occur in different host rocks and fault directions although with similar alteration. Host rock control is important for localizing higher-grade mineralization along fault zones, similar to the Carlin Trend Gold Deposits north of the Rain Gold Deposit. Pipe-like

hydrothermal collapse breccia is commonly developed along mineralized faults in the Devils Gate Limestone as replacement bodies in the wall rocks. These pipe like karst breccias have been identified at Rain and also down dip from the Pinion gold resource. Further discussion of the karst breccia bodies is discussed in section 12 under exploration.

11.0 Mineralization

The mineralization is characteristically a high gold/silver ratio of less than 1/1 to 1/3 and is associated with oxidized sulfide minerals of pyrite, stibnite, arsenpyrite. Gold grain size is in the range of 5-20 microns. Gold mineralization reaches a maximum grade of 0.85 OPT in the drilling of the Railroad POD Zone. Section 19.0 defines the grade of gold mineralization in each of the zones. Carbon-sulfide mineralization occurs in the core of the Railroad POD zone which has not been oxidized by surface oxidizing groundwater and is surrounded by strongly oxidized mineralization.. The carbon-sulfide mineralization constitutes only 15% of the mineralization in the POD zone.

12.0 Exploration

New discovery potential for a larger mineralized system has been identified 1000 feet south of the Pinion gold resource. Prior drilling has partially delineated a breccia pipe like mineralized zone developed in the Devils Gate limestone along a fault zone parallel to the gold resource and concealed under the Chainman (Dale Canyon) sandstone. This circular breccia zone is further defined by an in-house resistivity contour map identifying a circular resistivity high approximately 1500 feet in diameter. A second circular resistivity high is located approximately ½ mile northwest along the concealed fault trend under the Chainman sandstone and has not been drilled.

The prior exploration history of the Pinion resource area is well documented in the report completed by DeMatties and Monroe, 2003. The following sections of their report have been included.

12.1 Pinion Resource Area

"The following documentation of exploration on the property and adjacent ground is based upon reports supplied by the current joint venture partners. Since 1989, approximately US$6.9 million has been spent on the Pinon Joint Venture. Of this, it is estimated that at least US$2.5 million was expended on exploration within the TC claim block. The current joint venture partners have documented these expenses in company annual reports.

As previously noted, Crown acquired the Pinon properties (including the TC claims) in 1989 and completed considerable surface rock chip-soil-stream sediment sampling, geophysics (airborne magnetic-electromagnetic and ground controlled source audio magneto-tellurics [CSAMT] surveys), drilling (205 RC holes) and metallurgical testing

at a total cost of $3.0 million. At least half of this the program (including 121 RC holes) was focused on the shallow portion of the Bullion gold resource within the TC claim block. Cyprus in 1994, advanced the prospect by drilling an additional 74 holes (RC), completing further mapping, rock chip-soil-stream sediment sampling, metallurgical testing and economic feasibility studies, spending $1.5 million through the end of 1995. Most of their effort was concentrated in Sections 22 and 27 proving up the South Bullion gold resource.

Following the Cyprus acquisition in 1996, RSM completed a detailed grid rock chip sampling survey, a large-diameter diamond drilling program (7 holes) and commissioned a preliminary feasibility assessment at a total cost of $380,000. All of this exploration was within in the claim block. By 1997 Cameco Gold had entered the joint venture as operator and completed additional exploration of the property that included geologic mapping, surface rock chip sampling, geophysics (ground CSAMT) and drilling (27 RC holes), spending over $2 million through early 1999. Only a small fraction of this work (7 RC holes) was completed on the deep South Bullion resource; no exploration was ever conducted within the TC claim block.

As far as the author is aware, company staff and independent contractors conducted all exploration work including drilling, geological-metallurgical-economic investigations and geophysical-geochemical surveys. For the purpose of this report only geological, rock-chip geochemical and drilling exploration data generated in Section 22 are considered.

12.1 Geology

Extensive reconnaissance and grid mapping/ re-mapping and drilling since 1989 has established the detailed stratigraphic and structural framework described in Section 9 that underlies the TC claim block and South Bullion mineral resource area (Figs.9, -10 and -11).

12.2 Geochemistry

12.2.1 Rock chip sampling –1995 and 1996

From 1994 to 1995 Cyprus collected 914-rock chip sample as well as compiled geochemical results for samples taken by previous companies exploring in the Pinon project area (including the TC claim block). The objective was to establish target areas by delineating primary gold dispersion patterns. Many altered rock exposures on the TC claim block were sampled where outcrop was abundant. Approximately 200 samples were collected and assayed on the claim block. Later in 1996 follow-up grid sampling (225 samples on 100'centers) was completed by RSM.

12.2.2 Results

The Cyprus survey outlined a number of primary gold anomalies exceeding 0.005ppm in the original Pinon project area; one was identified in the South Bullion resource area (Sections 22 and 27; Fig.6). As would be expected, gold values are associated with

silicified and limonite-stained rocks. The designated "South Bullion anomaly" is approximately 2 miles long and 1,500 feet wide. Most of the anomaly has been drilled in Sections 27 and the southern half of 22. It is interesting to note that both the Main zone and North Pod are expressed as anomalous values ≥ 0.1ppm.

At the northern end of the South Bullion anomaly (north of the North Pod in Section 22), previous sampling by Crown (1989) also located anomalous gold up to 1.2ppm gold (with supporting arsenic, antimony, barite and mercury anomalies). Further follow-up rock chip sampling by Cyprus (1995) confirmed anomalous gold values in the area (Au values up to 0.939ppm). These assay results define two mineralized showings (Ridge zone and Northern Extension) hosted within steeply dipping (70°- 80°) moderate to strongly silicified (jasperoidal), brecciated and baritic Webb Formation (Fig.7).

In 1996 RSM began detailed rock chip grid sampling (100' centers) and mapping at the south end of the Ridge zone. This work identified a strong primary gold dispersion pattern hosted in a north-south trending zone of silicification and jasperoid replacement (pervasive silicification and open space fillings) at the mapped Devils Gate -Webb Formation contact. The gold dispersion pattern, which is roughly the size of the North Pod zone, has a width of 450 feet, is over 600 feet in strike length and open to the north. Over 40% of the gold values that delineate the anomaly are greater than 200ppb; the highest concentrations reported include 1.7ppm and 1.5ppm gold. It is supported by overlapping arsenic and mercury dispersion patterns and associated with an antimony anomaly. The gold dispersion pattern remains open to the north (Figs. 16a, -b, -c, -d and -e).

12.3 Drilling

12.3.1 South Bullion gold resource

To date, approximately 321 drill holes (includes drilling before 1989) define the South Bullion gold resource in Sections 22 and 27 (Fig.12). Assay data generated from these holes allowed Cyprus in 1995 to manually calculate a mineral inventory of approximately 31 million tons of mineralized rock grading 0.026opt gold (see Section 19). Most of this resource is deep (>300 feet) and located in Section 27.

12.3.2 Main Zone-North Pod

Approximately 261 drillholes constructed within the TC claim block (Section 22) evaluated the near surface portion of the South Bullion resource. As previously mentioned, two shallow mineralized zones, designated the Main zone and North Pod, have been delineated (Figs. 9, -10 and-11.; see Section 19).

Drilling results indicate shallow (≤ 300') gold mineralization within the northwest trending Main zone has a strike length of approximately 1000 feet, varies from 80 feet to 200 feet wide at surface (partially crops out as baritic jasperoid outcrops), is localized within lower silicified Webb Formation at or near its contact with Devils Gate Formation and structurally controlled occupying the thicken crest of the Pinon anticlinal fold axis (Figs.13a through 13d). The lower-grade mineralization generally thins out (≤ 20', locally 80' true thickness) to the southwest along the gently dipping (10°- 20°) fold limb

but thickens to >60 feet (commonly >100 feet true thickness) along the broad anticlinal crest. Mineralization extends down dip (generally ≤ 40°) along the fold's northeast limb to depths greater than 300 feet (deep resource) where it remains fairly thick (generally ≥ 50'). Badly broken (and brecciated) ground along the fold crest encountered during core drilling was probably due to brittle fracturing along the fold structure (see drill core logs, Appendix E). Many of the RC holes drilled in this area either could not reach or penetrate the entire zone (because of bad ground conditions) or were drilled down the dip of the northeastern fold limb.

A surface grade-thickness map and vertical assay cross sections prepared by Cyprus indicates relatively good continuity and correlation of gold grades from 0.01opt to 0.025opt within the Main zone (Fig.10, -13a through 13d). Numerous stratiform lenses of higher gold grades (>0.025opt) occur within lower grade mineralization. The thickest mineralized intervals and generally best grades are localized along the axial plane of the fold structure (e.g. DDH- 96-146 @ 0.062opt/140'). Gold grades exceeding 0.1opt are controlled by high-angle faults that cut the zone and may have acted as local feeders. These feeders are "vein like" containing higher-grade shoots.

The Main zone is bounded to the southeast by a northeast trending cross fault (Figs. 9 and 10). Deeper (>300') but similar style gold mineralization lies immediately to southeast of this structure (part of the deep resource). Deep drilling in this area has identified a possible northwest trending, high-grade feeder structure defined by drillholes SB-079, -111 and –78.

The nearby (800' north), north-south trending North Pod has a strike length of approximately 700 feet and ranges from 100 feet to 300 feet wide at surface (partially crops out as jasperoid outcrops). Similar style gold mineralization is hosted within lower silicified Webb but extends into underlying Devils Gate limestone. Structurally the zone is located along the steep (50° - 70°) eastern limb of the Pinon Anticline. The zone also exhibits similar grade continuity to that of the Main zone. 1996 drilling (DDH-SB-145; Fig.12) outside of the North Pod suggests gold mineralization extends further to the west-southwest. However, drilling results also confirm that the Main zone and North Pod do not connect at shallow depths.

12.3.3 Ridge zone and North extension .

The Ridge zone was partially tested by 5 scattered, shallow RC holes drilled by Freeport, Teck and Amoco along 1,400 feet of strike length. It appears that most of these holes failed to reach the target horizon (Webb-Devils Gate contact); 4 out of the 5 were vertical holes that were drilled into steeply dipping (70°-80°) strata.

The Northern Extension was also partially tested by Freeport, Amoco and Crown. A total of 10 scattered RC holes along 2000 feet of strike length. Most of these holes were angled. Encouraging results from this drilling include:

TC-3	*175'-200'*	*25' @ 0.031opt Au*
TC-5	*0-70'*	*70' @ 0.024opt Au*
CPR-114	*200'-230'*	*30' @ 0.035opt Au*
CPR-117	*0-30'*	*30' @ 0.019opt Au*

12.4 Reliability of data

Based upon recent and past property visits, as well as a rigorous review of available information, the author has concluded that geologic, geochemical and drilling data generated on the property from the Crown, Cyprus and RSM exploration programs, is of generally high quality and therefore deemed reliable. In the opinion of the author all described mapping, rock chip sampling and drilling operational procedures preformed were standard and acceptable methods currently in use by the mining-exploration industry."

There has been no additional ground exploration on the Pinion Area except for geological observations on the deposits and confirmation of surface geology relating to cross section mapping of the gold resources. The author agrees with the conclusion by Dematties and Monroe that the data for the Pinion Area is generally of high quality and reliable for estimating a gold resource.

12.2 Railroad Resource Area

An intense Modern Era gold exploration program was conducted by Westmont Mining following the discovery of the POD Zone by Homestake Mining. During 1984-1993, Nicor-Westmont's program consisted of 1:6000 scale outcrop mapping, rock chip sampling and soil grid sampling followed by the drilling of 74 reverse circulation drill holes to define the gold resources (Kuhl, 1987). Drilling continued in 1994 with Ramrod Gold who discovered deep mineralization in two holes north and northwest of the POD Zone. It is unclear if a CSAMT survey influenced the location of these deep holes. Mirandor continued with a drilling campaign to add resources to the discoveries at POD and East Jasperoid.

Kinross in 1996-1998 completed the largest soil-sampling program on a 200' X 400' grid spacing. The results were not very useful for targeting drilling. The first year of drilling was moderately successful for the deep exploration with the discovery of deep alteration and associated high level arsenic with weak gold 1-mile northwest of the POD Resource. The 1998 follow up drilling failed to find gold mineralization and the project was dropped. Exploration companies in the Railroad Resource Area drilled a total of 252 holes mostly for shallow oxide gold mineralization.

The author has reviewed the drilling data, mapping and geochemical sampling programs for the Railroad area and has concluded that the mapping by Westmont and the drilling data is generally of high quality and professsional. The data can be relied upon to make conclusions and recommendations. The resource estimates have a reliable database. Lithologic logs are lacking for the Railroad POD Project, although lithologies have been digitized in the database and cross sections contain lithologic data from the drill logs that are missing.

During 2003, Newmont Mining was given permission by RSM to complete a gravity survey on the Railroad Resource Area. This gravity survey identified a gravity high 4,000 feet northwest of the POD Zone with similar intensity to the gravity high on the POD Zone although much larger. This gravity high has not been drill tested. Drilling 1000 feet north and west of the POD gold resource intersected deeper gold mineralization in the Devils Gate Limestone and underlying dolomite of the Nevada Formation that has not been followed up.

The cross section mapping of the mineralized trends at POD and East Jasperoid has identified extension areas for drill testing. This testing is currently being permitted for drilling and includes confirmation drilling of the deeper zone north of the POD gold resource (Master, 5/2/03).

13.0 Drilling

Drilling at both Railroad and Pinion was completed with rotary reverse circulation drill rigs supplied by local contractors from Elko Nevada and recognized in the industry as providing good service. Johnson Drilling Co. was a major contractor at both project areas. Hackworth Drilling also assisted at Railroad. The author has not investigated a complete record of all drilling contractors at Railroad. There has been coring by RSM at Pinion and the gold values from coring are generally the same grade as the nearby drill hole results from reverse circulation. The coring at Pinion did not improve the ability to recover samples and extend the drilling through broken zones. The author recommends that future drilling be attempted with a reverse circulation drill rig fitted with a center return hammer for improved sample recovery.

Vertical drill holes were completed primarily on the Pinion Gold Resource Area and more closely represent the true thickness of the relatively flat lying mineralized zone. High angle shear zones internally within the gold resources are planned for testing with the currently permitted angle hole-drilling program. The gold resources that were estimated from apparent thickness in drill holes were adjusted back to true thickness on cross sections prior to tonnage estimates. At the Railroad POD Resource, a majority of angle holes were drilled to determine true thickness of the mineralized intervals and vertical holes drilled at low angles through the mineralized intervals were adjusted to true thickness on the cross sections prior to tonnage estimates.

Silver State Surveys Inc. completed down hole surveys for both Railroad and Pinion. Deviation was not significant for the shallow oxide gold resources drilled in both areas

and deviation was plotted on cross sections prior to estimating the gold resources. Drill hole collar locations were surveyed at both project areas and drill holes were reclaimed with cement plugs as required by regulation.

Dematties and Monroe, January 2003 filing, provide a more detailed account of the drilling at the Pinion Gold Resource in the descriptions as follows.

"Approximately 220 standard reverse circulation and 7 large-diameter (HQ-sized) diamond drillholes have been constructed to date within the TC claim block (Fig. 12). Drilling density in the immediate South Bullion Resource area ranged from 30 feet to 150 feet between holes. Information available to the author concerning drilling operations only extends back to 1994 beginning with Cyprus' program.

Cyprus' 1994 and 1995 drilling contracts were awarded to Johnson Drilling Co. of Elko, Nevada. An MPD-1500 track-mounted (with 10-foot lengths of 4-inch diameter pipe and tools) and Drilling Services TH-100 truck-mounded reverse circulation rotary drill rigs were utilized. A total of 74 holes (41,469 feet) were drilled at a direct cost of US$13.50 to US$11.50 per foot. Of these 35 were drilled within the TC claim block.

During operations the upper 400 feet of each hole was generally drilled dry. However, in almost all cases silicified gold-bearing zones required mud drilling. Drilling wet generally formed a mud casing and little down-hole contamination was detected according to Cyprus drill logs; caving was most notable at rod breaks. Cyprus did not complete statistical review of the 10 and 20-foot rod breaks. However, they note no obvious assay spikes or smeared zones. Drilling the mineralized zones with mud is believed to have reduced contamination, caving and improved sample recovery.

All drill cuttings were logged at the site describing lithology, veining, and alteration. A representative sample was collected for each 5-foot interval drilled (Appendix A). These samples weighed approximately 4 ounces and were collected in clear plastic vials and placed in core boxes.

To determine drillhole deviation, Cyprus contracted Silver State Surveys, Inc of Elko, to conduct down-hole surveys using a gyroscopic survey tool (Appendix B). All 74 holes were surveyed; deviations on most deep holes are significant. West Tech Inc. of Elko was contracted to survey hole collar locations and elevations for all of the Cyprus drillholes. All new drillholes and several older ones found open were filled with bentonite and drill cuttings with a 10-foot concrete plug placed at surface in compliance with state drillhole plugging regulations.

Bort-Longyear Company was awarded the diamond core-drilling contract for RSM's 1996 program. Because of the poor availability of core rigs, the company mobilized a Longyear 44 skid-mounted drill rig from their central zone in Minnesota. A total of 1354 feet of HQ-size (~ 3" diameter) core was drilled at a direct cost of $23/foot; this does not include tractor support and drilling mud costs.

Drilling mud was required for every hole because of poor ground conditions encountered. It is believed by RSM that the high core recovery (70%-100%) achieved was in part due to heavy mud use during the drilling operation. Core samples were generally collected on 10-foot drill runs and placed in core boxes.

Seven shallow vertical holes (SB96-140 though SB96-146) were completed from September 26 through October 25 before adverse weather conditions forced the operation to stop for the season. Three holes were collared on the southwest margin of the Main zone, one on the south margin of the North Pod zone, two in between the zones and one near the center of the Main zone. These holes appear to be a good documentation in core of mineralization in both zones.

Core from each hole was logged in detail describing rock lithology, structure and alteration; rock quality determinations (RQD) were also calculated (Appendix E). All holes were surveyed during construction of the hole for deviation using a down-hole Sperry-Sun camera; no significant deviations were noted. Collar co-ordinates and elevations were located by theodolite from previously surveyed RC hole locations and control points on an established engineering grid. All drill holes were permanently abandoned by plugging (with a 10-foot cement plug at the surface) in compliance with state regulations."

14.0 Sampling Method and Approach

The reverse circulation drill holes were split with a Jones splitter when dry and a rotary splitter when wet. Sample size has not been documented but is normally in the 5-15 pound size range. The size of the sample collected from the resource zones is not critical in this deposit given the fine dissemination of the gold (5-20 microns) and the reproducibility of the high grade gold values of +- 20% shown on the assay sheets. The author finds no problems with the sampling.

A more detailed account of sampling is described for the Pinion Area by Dematties and Monroe, 2003.

14.1 Rock chip sampling

"Samplers (contract or in-house, non-officers of the company) using a hammer and chisel collected all Crown, Cyprus and RSM outcrop samples. Rock exposures were chipped (grab sample) or channel/chipped and cuttings caught by or placed in a cloth bag. Sample weights varied from 2 to 5 kilograms. Sample sites were located on established survey grids or by inspection and/or using a GPS unit. Bags were labeled, tied and at the end of the day placed in a secure area or locked vehicle. Although it is unclear from the available data, the author estimates at least 200 rock chip samples taken on the claim block. Of the 425-rock chip samples collected by Cyprus in the Pinon project area, nearly 1/3 were from the claim block while RSM collected 225 grid samples). Both silicified and unsilicified rock specimens are described as being collected. Both Cyprus and RSM sent their samples were directly from the field site to the ALS Chemex preparation lab in Elko, Nevada. It is not clear from available reports who

prepared and analyzed Crown samples. It was likely one of the larger labs operating at the time.

14.2 Drillhole sampling

14.2.1 Reverse circulation drillholes

Samples of dry drill cuttings collected (after every 5-foot run) were ¼ to ½ splits from a Gilson bar splitter mounted along side of the drill rig. Mineralized zones were sampled with a rotary wet splitter. Splitters were continuously adjusted to provide at least a 20-pound sample or removed to collect the entire sample. In general, waste rock samples averaged approximately 40 pounds and mineralized samples 15 pounds. Samples were analyzed for gold and silver on 5-foot intervals within mineralized zones and 10-foot composite intervals in barren sections. Composited 50-foot intervals were analyzed for silver, arsenic, antimony, mercury and barium. Bagged samples were stored in a secure area at each drill site then taken directly to ALS Chemex preparation lab in Elko, Nevada.

14.2.2 Diamond drillholes

Boxed HQ-sized (~ 3" diameter) core samples from a secure area at the drill sites were transported directly to RSM's core lab in Elko on a daily basis. After logging and photographing, core of both mineralized and unmineralized material from all holes drilled were split on 5 to 10-foot intervals using a La Fount hydrologic core splitter. Half of the core was bagged and the other half placed back into the core box for reference. A total of 136 samples were collected.

14.2.3 Sample quality

After reviewing procedures documented by both Cyprus and RSM, the author has concluded that rock chip and drillhole sample quality is good and that sampling is representative of mineralized and unmineralized rock present in the claim block. The only potential problems would have been gold contamination by caving in RC holes. However, significant contamination was avoided by mud drilling. This is supported by core assay data and assay intervals that agree well in magnitude and location with surrounding RC holes.

Sample density for rock chip sampling is deemed adequate, covering most of the claim block. As previously stated, drillhole spacing in the two identified mineralized zones is good ranging from 30 feet to 150 feet."

15.0 Sampling Preparation, Analysis and Security

The quality of samples and assays must be addressed for an exploration and development program. Unfortunately, there is no direct information available on possible down-hole sample contamination, sample integrity from drill hole to lab, and assay quality for the various drilling programs. Assay results on cross sections do not indicate analytical spikes at 20-foot intervals (where drill pipe would be added) as might be expected if there were a problem with down-hole contamination. Down-hole contamination above the

water table is commonly not a problem in these types of deposits. ALS Chemex, and predecessor companies, conducted essentially all of the analyses on samples from the property. Chemex is one of the high quality laboratories in the mining industry, and quality control over the long period can be expected. Given the large number of geologists and numerous companies involved on the properties it is highly unlikely that systematic sample tampering was a problem. The weight of the evidence indicates that assays used in calculating the resources are reliable. Master presents the following information in support of sample quality.

ALS Chemex Labs was contracted for the lab analytical work for both Railroad and Pinion. Assays were primarily completed on one assay ton, 30-gram samples and analyzed for total gold with the fire/A.A. finish method. Check analyses were run on at least 20% of the high grade samples above 0.10 opt grade of gold. The authors find no reason to doubt the analytical method and results for this type of deposit. Dematties and Monroe describe a more complete description of the lab procedure in the following sections.

14.1 Rock chip sampling

" Samplers (contract or in-house, non-officers of the company) using a hammer and chisel collected all Crown, Cyprus and RSM outcrop samples. Rock exposures were chipped (grab sample) or channel/chipped and cuttings caught by or placed in a cloth bag. Sample weights varied from 2 to 5 kilograms. Sample sites were located on established survey grids or by inspection and/or using a GPS unit. Bags were labeled, tied and at the end of the day placed in a secure area or locked vehicle. Although it is unclear from the available data, the author estimates at least 200 rock chip samples taken on the claim block. Of the 425-rock chip samples collected by Cyprus in the Pinon project area, nearly 1/3 were from the claim block while RSM collected 225 grid samples). Both silicified and unsilicified rock specimens are described as being collected. Both Cyprus and RSM sent their samples were directly from the field site to the ALS Chemex preparation lab in Elko, Nevada. It is not clear from available reports who prepared and analyzed Crown samples. It was likely one of the larger labs operating at the time.

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area at each drill site then taken directly to ALS Chemex preparation lab in Elko, Nevada.

14.2.2 Diamond drillholes

Boxed HQ-sized (~ 3" diameter) core samples from a secure area at the drill sites were transported directly to RSM's core lab in Elko on a daily basis. After logging and photographing, core of both mineralized and unmineralized material from all holes drilled were split on 5 to 10-foot intervals using a La Fount hydrologic core splitter. Half of the core was bagged and the other half placed back into the core box for reference. A total of 136 samples were collected.

14.2.3 Sample quality

After reviewing procedures documented by both Cyprus and RSM, the author has concluded that rock chip and drillhole sample quality is good and that sampling is representative of mineralized and unmineralized rock present in the claim block. The only potential problems would have been gold contamination by caving in RC holes. However, significant contamination was avoided by mud drilling. This is supported by core assay data and assay intervals that agree well in magnitude and location with surrounding RC holes.

Sample density for rock chip sampling is deemed adequate, covering most of the claim block. As previously stated, drillhole spacing in the two identified mineralized zones is good ranging from 30 feet to 150 feet."

16.0 Data Verification

Copies of the original assay sheets are included with the lithological logs and are in good order. The author compared the assay sheet to some of the polygonal gold resource blocks to verify the grades and thickness used in the manual resource estimates.

17.0 Adjacent Properties

There is one adjacent property called Dark Star that may be added to the property position at a later date. This property has a low-grade gold resource that may be of interest if a production was started on the other gold resources.

18.0 Mineral Processing and Metallurgical Testing

There is also very little representative metallurgical test work available that can be used to develop an estimate of the leachability of the deposits. Much of the metallurgical testing that is available is from drill chips, which commonly produce optimistic leachability characteristics. More larger diameter core and/or bulk samples are needed to better define leaching characteristics for the deposits.

18.1 Pinion Main Zone

The following quote was taken from the DeMatties and Monroe report filed with SEDAR and the Canadian exchange for the Pinion Area Gold Resources. There has been no additional metallurgical work completed on the Pinion Gold Resource since the filing of the report.

"Preliminary metallurgical testing of gold mineralization identified on the TC claims was initiated by Crown in 1992. McClelland Laboratories was contracted to conducted bottle roll tests on 8 weighted composites prepared from 158 five-foot samples of mineralized RC drillhole cuttings (Reference Report No.2). Results showed that the cutting composites were readily amenable to direct cyanidation treatment at the cuttings feed size. Gold recoveries ranged from 75% (composite #8) to 91.3% (Composite #3), with a mean average recovery of 81.8% in 96 hours of leaching. Gold recovery rates were fairly rapid and extraction was substantially complete in 6 to 24 hours. Cyanide consumption was low and lime requirements were moderate to high (Calloway, 1992).

The most recent metallurgical work was completed in 1994 again by McClelland Laboratories (see Appendix K). Direct agitated cyanidation (bottle roll) and column percolation leach tests were preformed on 35 drillhole cuttings composites (1 kilogram samples) and a surface bulk sample (880 pounds). Results/conclusions are presented in Appendix K and summarized below.

Table 1 *1994 metallurgical results for surface bulk sample.*

	Recovery %		****Head Grade***
Size	***Column***	***Bottle***	***opt Au***
62% - 2"	*52.8*	*---*	*0.036*
82% - ¾"	*61.5*	*---*	*0.039*
- ½"	*---*	*55.9*	*0.034*
10 mesh	*---*	*70.3*	*0.037*
65 mesh	*---*	*71.0*	*0.031*
100 mesh	*---*	*80.6*	*0.036*

** Note head grades are higher than the average gold grades in the resource and may reflect some near surface supergene enrichment.*

Bottle roll recoveries for 35 drillhole cuttings composites range from a low of 42.9% to a high of 84% (average 60%-70%) with head grades ranging from a low of 0.01opt to 0.08opt gold depending on feed sizes.

The tests demonstrate that the drillhole cuttings composites and bulk surface sample are generally amenable to direct agitated cyanidation treatment. McClelland concluded:

1) *Drillhole cuttings composites were amenable to direct agitated cyanidation treatment at 10 mesh feed size. Grinding to 80% -65 mesh in size improved*

recovery. Treatment of the bulk sample at feed sizes ranging from 55.% up to 80% at minus ½ inch to 100 mesh (Table 2)

2) *Gold recovery rates were fairly rapid with cyanide consumption and lime requirements low to moderate; recovery and recovery rate tended to increase with decreasing feed size.*
3) *Column percolation leach tests on the surface bulk sample were amenable to simulated heap leach cyanidation treatment. Gold recoveries ranged from 62% -2 inch and 82% minus ¾ inch.*
4) *Lime requirements for the column leach tests were low but cyanide consumption high. However McClelland believes that cyanide consumptions should be substantially lowered during commercial production.*
5) *Further column percolation leach tests on representative bulk samples are recommended to verify feed size sensitivity.*

A review of the McClelland data by DMBW, Inc. in 1996, concluded that (after graphing recovery data) a 67.5% recovery could be anticipated from material crushed to ½ inch in size (Appendix I). This assumption seems reasonable given the available data but requires verification by further testing along the lines outlined by McClelland.

It should be noted that all metallurgical results to date on samples from the mineralized zones are considered preliminary in nature. There is a reasonable chance that extensive testing could significantly improve recoveries at acceptable crush sizes (including run of mine material) for heap leaching".

18.2 Pinion North Pod Zone

There has been no metallurgical testing that the author is aware of completed on the Pinion North Pod Zone. The rock type and alteration are the same as the Main Zone and little difference in the metallurgical characteristics are anticipated.

18.3 Railroad POD Zone

Limited metallurgical testing has been completed on the Railroad POD Gold Resource. Cyanide soluble gold analyses on drill cutting from 10 drill hole crosscutting the POD Gold Zone were analyzed by Newmont Mining Corporation during 1992 and compared to the fire assays from the same intervals. The number of samples analyzed is approximately 150. Cyanide soluble gold recovered from the red oxidized mineralization, regardless of grade is greater than 70%. The Cyanide soluble gold recovered from the black unoxidized carbon rich sulfide mineralization is less than 20%.

18.4 Railroad East Jasperoid Zone

There is no metallurgical testing for the East Jasperoid Zone. The oxided mineralization at East Jaspperoid is similar in lithology and alteration as the oxided zone at POD and no difference is anticipated.

19.0 Mineral Resource and Mineral Reserve Estimates

Master has taken a classical cross sectional approach in determining the resource size and grade of the Pinion and Railroad gold deposits (see Master's table 1 below). All of the work sections and calculations were made available to me. After checking many of these sections, I concluded that Master's calculations are reasonable estimates of the two deposits' size and grade. To attest to the consistency of grade, the maximum value for gold in the two deposits is 0.85 opt Au. This lack of extreme gold grade variation resulted in no grades being cut for the resource estimates, also a reasonable approach. Both deposits are near surface, with the entire Pinion and the vast majority of the Railroad, being oxidized. Therefore, these deposits have potential to be developed into low-cost open-pit heap leach operations. Having said that, the resource calculations are limited by previous drilling. Many of the drill holes are vertical, which have not tested the several structural zones within, and below, the deposits. Several of the holes were not completed because of drilling problems, which therefore failed to completely test the mineralized zones. If there are higher-grade areas in these deposits they are likely to be in these structural zones. Finally, drilling has not completely defined the margins of the deposits. Tonnage factors used in the calculation of the resources are based on reasonable estimates for the rock and alteration in these deposits. All of the above suggest that at the end of the proposed drilling program the deposits may be larger and higher grade. Specific gravity measurements are needed from representative samples to accurately define the tonnage factors before the next resource calculation is completed. My conclusion is that the resource estimates present reasonable views of tonnage and grade in these two deposits, and initial tests suggest that the deposits can be heap leached. The specifics of Master's approach are as follows.

Gold resources were manually estimated for the Railroad and Pinion gold resources. These resources are drilled to a density of approximately 30 to 150 feet spacing. Structural cross sections were constructed perpendicular to the trend of the mineralized zones approximately 100 feet apart and the geological boundaries for the mineralization were then mapped. A total of 28 cross sections were constructed to estimate the gold resources. The grade boundaries of 0.010, 0.020 and 0.100 opt gold were then contoured on the cross sections to fit the geological control. Pit slopes of 50 degrees were used to restrict the shallow oxide gold mineralization to a maximum depth of 300 feet as an estimated cutoff for oxide gold resources that are considered for open pit mining. The waste/gold resource ratio is less than 5.2/1 except on 2 sections. Tonnage, grade and contained gold ounces were then estimated for the gold mineralization greater than 0.010 ounces per ton gold. A density of 13 cu.ft./ton was assumed for the Pinion gold resources and 13.5 cu.ft./ton for the Railroad gold resources. These densities are estimated to be 10% low given the large percentage of barite and silicification in the mineralization. The following table summarizes the estimates for the four resources (series of 6 reports by Master, 11/02-5/03).

The oxide gold resource estimates in the following tables conform to the standards for determining measured gold resources (CIM Bulletin #100, 1996, Cummins 1973). The

continuity of the mineralization and predictability of the grade show little variability along the trend of the gold zones. The sum of the four measured gold resources is 6.27 million tons containing an average gold grade of 0.043 troy ounces per short ton. The addition of silver to the resource increases the equivalent gold grade by a small amount to 0.046 opt. The author recommends that no infill drilling is necessary to confirm the gold resources that have been estimated. The recommended infill drilling is designed to intersect higher-grade shear zones internally within the deposits and to test zones where sample recovery was lost and holes were not drilled through the entire mineralized zone. The increase in the total ounces, as a result of improving the grade in the measured resource, is not anticipated to be greater than 20%. Extension drilling of the gold resources is also estimated to add an additional 20% to the tons and ounces of the measured resources. The author considers the estimated gold resources to be adequately delineated for use in an economic feasibility study consisting of defining reserves, designing a mine plan and beginning the permitting process. Additional drilling is planned in conjunction with the feasibility study to increase the gold resources and gather data for metallurgical studies primarily on the Railroad gold resources.

TABLE 1 Summary of Gold Resources
(manual estimates, 0.010 cutoff)

LOCATION	TONS	GRADE	OUNCES
		opt gold	gold
Pinion Main Zone	2,755,576	0.044	121,669
Pinion North Pod	951,923	0.04	38,077
Railroad POD	1,550,942	0.0503	77,956
Railroad East Jasp.	1,013,808	0.031	31,742
TOTALS	6,272,249	0.043	269,447

Silver estimate of 1,250,000 ounces = .003 Au equiv. 19,181 oz Au equiv.

19.1 Pinion Main Zone

The Pinion gold resources crop out along the side of a slope with approximately 1400 feet of exposed mineralization. The mineralization plunges 20-23 degrees to the southeast on the main zone and the north pod zone. The highest-grade mineralization will be accessed from the start of the mining (sections 4600NW-4200NW) with the smallest amount of overburden (Master, 11/06/02). The infill drilling is designed to improve the grade of the resource on sections 4100NW through 3650NW (Master, 11/6/02).

PINION PROJECT STARTER PIT, MAIN ZONE RESOURCE WITH DRILLING							
BUDGET TO INCREASE THE GRADE AND TONS AT A COST <$5./OUNCE							
Section	Tons	Ounces	Grade	Overburden; Strip Ratio	Planned # holes	Total feet	$13./ft. (all costs)
5100NW	no drilling				4	1100	14300
4600NW	270000	12150	0.045	249230; .92/1	3	900	11700
4350NW	276923	15542	0.056	197000; .71/1	4	1290	16770
4200NW	173077	13846	0.08	76923; .44/1	3	1200	15600
4100NW	268269	7243	0.027	490961; 1.83/1	1	300	3900
3900NW	383654	14195	0.037	577500; 1.50/1	3	1150	14950
3750NW	388461	12042	0.031	546154; 1.41/1	2	700	9100
3650NW	367500	12128	0.033	2421135; 6.59/1	6	2160	28080
3450NW	627692	34523	0.055	2949231; 4.70/1	4	1520	19760
Combined	**2755576**	**121669**	**0.044**	**7508134; 2.72/1**	**30**	**10320**	**134160**

19.2 Pinion North Pod Zone

The Pinion North Pod Gold Resource is similar to the main zone although increases in depth more rapidly than the main zone (Master, 11/15/02). The extension drilling is planned to connect the north pod with the main zone along a fault and to extend mineralization along the axis of the fold crest. A coring attempt by Royal Standard Minerals in 1996 to connect the main zone with the north pod zone was unsuccessful in locating a connector fault. The cross sections completed for this report show that two of the core holes were placed west of the possible north-south connector fault and in the trough of a weakly mineralized syncline (section 4600).

Block	*ounces*	*ore tons*	*grade*	*overburden*	*strip ratio*
5100NW	*38,077*	*951,923*	*.040*	*4,983,846*	*5.2/1*
4600NW	*35,336*	*721,154*	*.049*	*11,442,307*	*15.9/1*
TOTALS	*73,413*	*1,673,077*	*.044*	*16,426,153*	*9.8/1*

19.3 Railroad POD Zone

The oxide gold resource crops out at the surface and trends west up a 20-degree slope. The mineralized zone is approximately 150 feet wide and dips 50-70 degrees north and down a steep slope reducing the overburden (Master, 2/11/03, 2/26/03,).

GOLD RESOURCE STUDY OF THE POD ZONE AT RAILROAD BULLION by T. D. Master 2/19/03

Section #	Oxide Resource >.02 opt Au			Oxide Resource .01-.02opt Au						TOTALS		
	Tons	Ounces	Grade	Tons	Ounces	Grade				Tons	Ounces	Grade
382574	0	0	0	148148	1630	0.011						
382410	48611	2285	0.047	88889	1244	0.014						
382328	44444	1956	0.044	0	0	0						
382246	16000	800	0.05	170370	1763	0.01						
382164	27778	1222	0.044	92593	1111	0.012						
382082	101852	7255	0.071	92593	1204	0.013						
382000	107407	12714	0.118	88889	1289	0.014						
381918	155555	17222	0.111	0	0	0						
381836	188851	16638	0.088	0	0	0						
381754	105556	6018	0.057	44444	622	0.014						
381672	28962	2983	0.103	0	0	0						
381590	0	0	0	0	0	0						
381426	0	0	0	0	0	0						
381262	0	0	0	0	0	0						
381098	0	0	0	0	0	0						
SubTotal Cn Sol.	**825016**	**69093**	**0.0837**	**725926**	**8863**	**0.013**	**Total Oxide Resource =**			**1550942**	**77956**	**0.0503**
Section #	**Shallow Refractory > .02 opt A**			**Deep Refractory >.02 opt Au**			**Deep Refractory .01-.02 opt Au**					
	(mined with oxid		0	0	0	0	0	0	0			
382574	0	0	0	0	0	0	0	0	0			
382410	0	0	0	0	0	0	0	0	0			
382328	0	0	0	0	0	0	0	0	0			
382246	0	0	0	0	0	0	0	0	0			
382164	0	0	0	0	0	0	0	0	0			
382082	0	0	0	0	0	0	0	0	0			
382000	18519	556	0.03	0	0	0	0	0	0			
381918	29630	1852	0.062	0	0	0	0	0	0			
381836	78704	5212	0.066	0	0	0	0	0	0			
381754	38889	2917	0.075	0	0	0	0	0	0			
381672	96964	9987	0.103	0	0	0	0	0	0			
381590	0	0	0	194445	18100	0.093	88889	1511	0.017			
381426	0	0	0	94167	4539	0.048	0	0	0			
381262	0	0	0	0	0	0	129630	1815	0.014			
381098	0	0	0	333333	10000	0.03	0	0	0			
SubTotal Refrac.	**262706**	**20524**	**0.0781**	**621945**	**32639**	**0.0525**	**218519**	**3326**	**0.0152**	**1103170**	**56489**	**0.0512**
							GRAND TOTAL RESOURCE=			**2654112**	**134445**	**0.0506**

19.4 Railroad East Jasperoid Zone

The East Jasperoid zone is a flat lying mineralized zone at the surface trending north to south with little overburden. Additional drilling is planned to connect this zone to the East End of the POD Zone. Access to both deposits cropping out can then be from the intersection of the two deposits (Master 4/4/03).

		0.010 grade cutoff	
Section	***Tons***	***Grade***	***Ounces***
2106600N	***250,000***	***0.024***	***6,000***
2106200N	***100,000***	***0.017***	***1,700***
2106400N	***269,231***	***0.040***	***10,769***
2106500N	***250,346***	***0.039***	***9,667***
TOTAL	***1,013,808***	***0.031***	***31,742***

The above resource estimates for the Pinion Area can not be compared directly to prior estimates because prior estimates grouped measured and indicated gold resources together and or included measured gold resources downdip of the shallow surface

oxide gold resources. The following table summarizes earlier estimates for gold resources in the Pinion area.

Table 4 " Prior gold resource estimates (measured and indicate)" contained within a larger global resource.

"Main Zone + North Pod Resources (million tons @ opt Au)		Cutoff opt	Measured (million tons @ opt Au)	Indicated
Crown (1991)	8.11 @ 0.026	0.01	Can not be reclassified to CIM definitions	
Cyprus (1995)	6.56 @ 0.027	0.01	5.67 @ 0.027	0.89 @ 0.027
Bharti (1996)	10.78 @ 0.025	none	Can not be reclassified to CIM definitions"	

20.0 Other Relevant Data and Information

The company can reduce the claim position and claim filing cost if peripheral claims are not justified to hold without jeopardizing the lease. None have been identified at present.

21.0 Interpretation and Conclusions

The drilling results have been adequately integrated with the surface mapping to develop a predictable geological model as a basis for continued expansion of the gold resources and for evaluating areas with discovery potential. The geological model constructed for restricting the gold grade boundaries and resource estimates meets the criteria required for gold resource estimates in the measured category. Metallurgical results are lacking on the Railroad gold resources and column leach tests have not been completed at Railroad for a feasibility study. Column leach tests have been completed on the Pinion gold resource, however sample description and distribution from the gold resource is lacking.

21.1 Interpretations

21.1.1 Railroad Gold Resources

The author has interpreted the Railroad resource to be a lense of gold mineralized breccia confined to a fault zone crosscutting Webb Formation siltstone and dipping 50-75 degrees. The gold mineralization has a top and bottom with the top restricted to the basal Chainman sandstone and the bottom not restricted to a lithological contact. This lense of gold mineralization is believed by the author to have developed from a lateral migration of hydrothermal solutions from the west. The western end of the POD gold zone plunges down the structure and transitions into a deep zone of weaker gold mineralization with zinc and strong oxidation below the Webb Formation and into the

underlying Devils Gate Limestone. This style of deep mineralization occurs in another drill hole 1000 feet west of the gold resource, 1000 feet north of the POD zone and numerous holes north of the East Jasperoid Zone.

21.1.2 Pinion Gold Resources

The author concurs with the interpretations for the Pinion gold resources that are proposed by DeMatties and Monroe. A high grade, steeply dipping gold mineralized shear zone has been identified from constructing the cross sections through the gold resource in the main zone and confirms their hypothesis. This high-grade zone occurs on the north limb of the plunging fold axis near the crest. A second high-grade control to the high-grade gold mineralization in the fold axis is the open fracturing and small displacement reverse faulting developed in the axis along axial plane cleavage. Hydrothermal fluid flow is hypothesized to have migrating up the axis and faults and along the basal Webb siltstone where the fluids reacted with the basal Webb siltstone to precipitate the gold. This flow model will be tested by drilling angle holes across the fold axis in the underlying Devils Gate limestone to determine if gold mineralization and alteration continue at depth. A second hypothetical fluid flow model is to derive the fluids from the fault zone and karst breccia 1000 feet south and parallel to the Pinion gold resource. The fluids migrated up the south limb of the fold containing the gold resources and deposited most of the gold in the brecciated fold axis.

The following is the discussion by Dematties and Monroe on the interpretations of the Pinion Resource.

"Gold-silver mineralization identified to date on the Pinon property has been interpreted as typically Carlin style. It is similar in geologic setting, stratigraphic and structural controls and geochemical characteristics to many other deposits within the district.

The author interprets the Main zone as peripheral low-grade gold mineralization overlying possibly two high-angle primary feeder zones that extend into the deeper portions of the larger South Bullion resource. The first structural zone trends parallel to and may actually breach the crest of the Pinon anticlinal fold. Evidence for its presence in this location include the linear clustering of high-grade intercepts along the thicken but badly broken anticlinal axis (Fig.10; e.g. SB96-146 @ 0.083opt Au/68'with 0.30opt Au/10'). A high-angle, near vertical, tabular-shaped structure would have been easily missed or not recognized at all along or below the fold crest by previously drilled vertical RC holes. Cameco recognized the extension of this structure into Section 27 and attempted to test it with two angled RC holes (SB-140 and –141) drilled perpendicular to the inferred structure. RC-140 successfully reached the target and intersected shallow (~ 220'vertical depth) gold mineralization grading 0.031opt over 110 feet (~ 95' true thickness) with values up to 0.094opt. The higher values are interpreted as marking the structure in the fold crest area. Drilling to date suggests, this inferred structure has the potential to extend along the entire length of the Main zone (including its deeper extension in to the Bullion resource) and an unknown distance down dip. Gold grades

averaging ≥ 0.09opt over mineable widths along the structure at open pit depths may define a potentially viable higher-grade core to the Main zone and boosting the overall grade of the resource.

A second deeper parallel structure is interpreted at the southeast end of the Main zone near the southern margin of the claim block (Section 22). It is defined by drillholes SB-111 (0.11opt Au/60' with 0.25opt Au/15'), SB-78 (0.16optAu/25') and SB-97 (0.08opt Au/10'); the orientation of vertical hole SB-111 appears to have been significantly effected by this structure causing severe deviation. Gold mineralization intersected thus far has been oxidized but is likely to be sulfide bearing at deeper depths (> 600'). If mineralization is of high enough grade (>0.1opt) and not prohibitably deep (excessive striping ratio), it could possibly be inventoried into the Main zone resource. Exceptionally high grades (≥ 0.5opt) over mineable widths in deeper portions of this structure may also render it economically viable. Access from a ramp developed in the North pit (if the Main zone is developed) or a decline could possible allow underground mining."

21.2 Conclusions

The proposed drilling program is designed to test areas that have the potential for higher-grade zones within the deposits, and to test for extensions of these deposits. The proposed exploration program is a reasonable next step to take in the evaluation of the properties. Pages 4-5 and 26 of Master's report contain statements that predict the amount of grade and tonnage increase that will be produced by the proposed drilling. These statements are conjectural and may not prove to be accurate. This next drilling program is focused on the two gold deposits and does not include any drilling on the "blue sky" exploration potential of the two properties. Exploration of the rest of the property will be deferred until another program.

Except as noted above, I concur with Timothy D. Master's findings and programs as outlined in the subject report. The proposed drilling program is well thought out and will increase the knowledge about the deposits. Drilling across structural zones is likely to discover higher-grade gold mineralization and fill-in areas where data is needed. Drilling around the margins of the deposits is also likely to add to the mineralized tonnage. At the end of the drilling program sufficient information will be available to consider a feasibility study. Before such a study is undertaken specific gravity measurements and better metallurgical samples are needed.

The author concludes that:

1) ***The combined gold resources of Railroad and Pinion are adequate tonnage and grade to be considered for a feasibility study and preliminary mine designs.***
2) ***The potential to add gold resources is almost certain given the internal drilling problems from past drilling, lack of angle hole drilling across steeply dipping mineralized faults and the likelihood of extending mineralization into undrilled segments of the mineralized trends.***

3) The discovery potential for new gold resources is very good given the evidence for gold mineralization in mineralized faults containing single drill holes that have not been offset with angle holes along the projection of the mineralized faults.

4) The Devils Gate limestone is under-explored in the Railroad and Pinion gold resource areas and contains most of the ore at the Rain and the Emigrant Deposits. New discoveries are likely to be discovered in the Devils Gate Limestone and the underlying Nevada Formation.

22.0 Recommendations

Complete the planned drilling to increase the combined gold resources and grades to approximately 7.5 million tons at an average grade of .046 opt gold (table 2). This program is likely to add 1.25 million tons of .06 opt grade gold mineralization. Trench and collect metallurgy samples from the Railroad POD deposit. Drill test the top of the thick zone of mineralization 1000 feet north of the POD deposit to confirm the gold mineralization and to explore across the fault zone that possibly contains higher-grade gold mineralization. A budget of $370,000 (USD) is proposed for drilling 80 holes.

Table 2, Recommended Program

DRILLING BUDGET TO INCREASE SURFACE OXIDE GOLD RESOURCES

LOCATION	# HOLES	DRILL FEET	BUDGET $s	GOAL- ADDED TONS/GRADE/OUNCES	cost/ounces added
				gold only	
Pinion Main Zone	30	10,000	130,000	* 0 / .055 / 30,000	$4.33/ounce
Pinion North Pod	16	5,000	65,000	** 250,000 / .044 / 10,000	$6.50/ounce
Railroad POD Zone	24	7,500	97,500	** 500,000 / .040 / 20,000	$4.88/ounce
Railroad East Jasp.	15	6,000	78,000	** 500,000 / .030 / 15,000	$5.20/ounce
TOTALS	80	28,500	370,500	1,250,000 / .060 / 75,000	$4.93/ounce

FINAL UPGRADED SURFACE OXIDE GOLD RESOURCE = 7,522,249 TONS @ 0.046 OPT GOLD, 0.048 Au equiv.

CONTAINING 346,023 OUNCES Au, 361,068 Au equiv.

* This additional drilling adds grade to internal blocks calculated as low grade or as no recovery and no grade.

** Additional tons and grade added to existing gold resource

23.0 References in Appendices II

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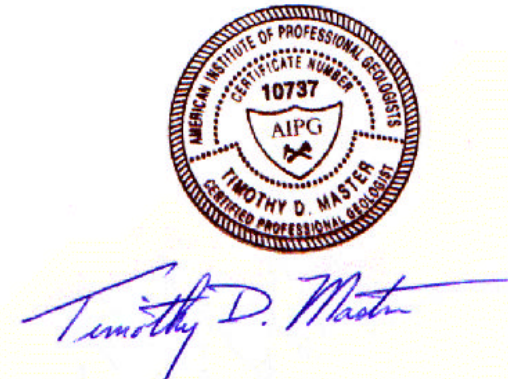
Master, T.D., 2/26/03, Gold Resource Calculations of the POD Gold Zone at Railroad Bullion

Master, T.D., 4/4/03, Preliminary Report on the Mapping of the East Jasperoid Gold Zone, NE Corner Sec 34, T31N, R53E, Railroad Project, Elko County, Nevada

Master, T.D., 5/2/03, Discovery Potential Surrounding the POD – East Jasperoid Gold Resources in the Railroad District, Elko County, Nevada

23.0 Date and Signed By



July 30, 2003 Timothy D. Master

CERTIFICATE OF REVIEWER OF THE HISTORY, GEOLOGY, GOLD RESOURCES, DISCOVERY POTENTIAL AND PROPOSED DRILLING PROGRAM FOR THE PINION- RAILROAD PROJECT REPORT

I, Roger C. Steininger, Ph.D. do hereby certify that:

I am an independent consulting geologist with a residence and business address of: 3401 San Mateo Avenue, Reno, Nevada 89509

I have received the following degrees in geological sciences:

Geology, B.S., Western Michigan University, 1964

Geology, M.S., Brigham Young University, 1966

Geology, Ph.D. Colorado State University, 1986

I am a certified and licensed geologist with the American Institute of Professional Geologists (AIPG), License # 7417.

I have been practicing as a professional geologist for 36 years since my graduation from university.

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

I have reviewed the technical report titled History, Geology, Gold Resources, Discovery Potential and Proposed Exploration Drilling for the Pinion-Railroad Project, Elko County, Nevada, Royal Standard Minerals Inc.-Manhattan Mining Co., dated July 30, 2003 by Timothy D. Master, Exploration Manager. I have also reviewed the several background reports referenced in Master's report. I have visited the Pinion and Railroad properties several times during the last 20 years and evaluated data packages from those properties. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Reports, the omission to disclose which makes the Technical Reports misleading.

I am responsible for the preparation of the brief summary of this report titled A Review of the Railroad-Pinion Property Evaluation, August 18, 2003, which supports the findings of Master's report.

I am independent of the Company, applying all of the tests set out in Section 1.5 of National Instrument 43-101.

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

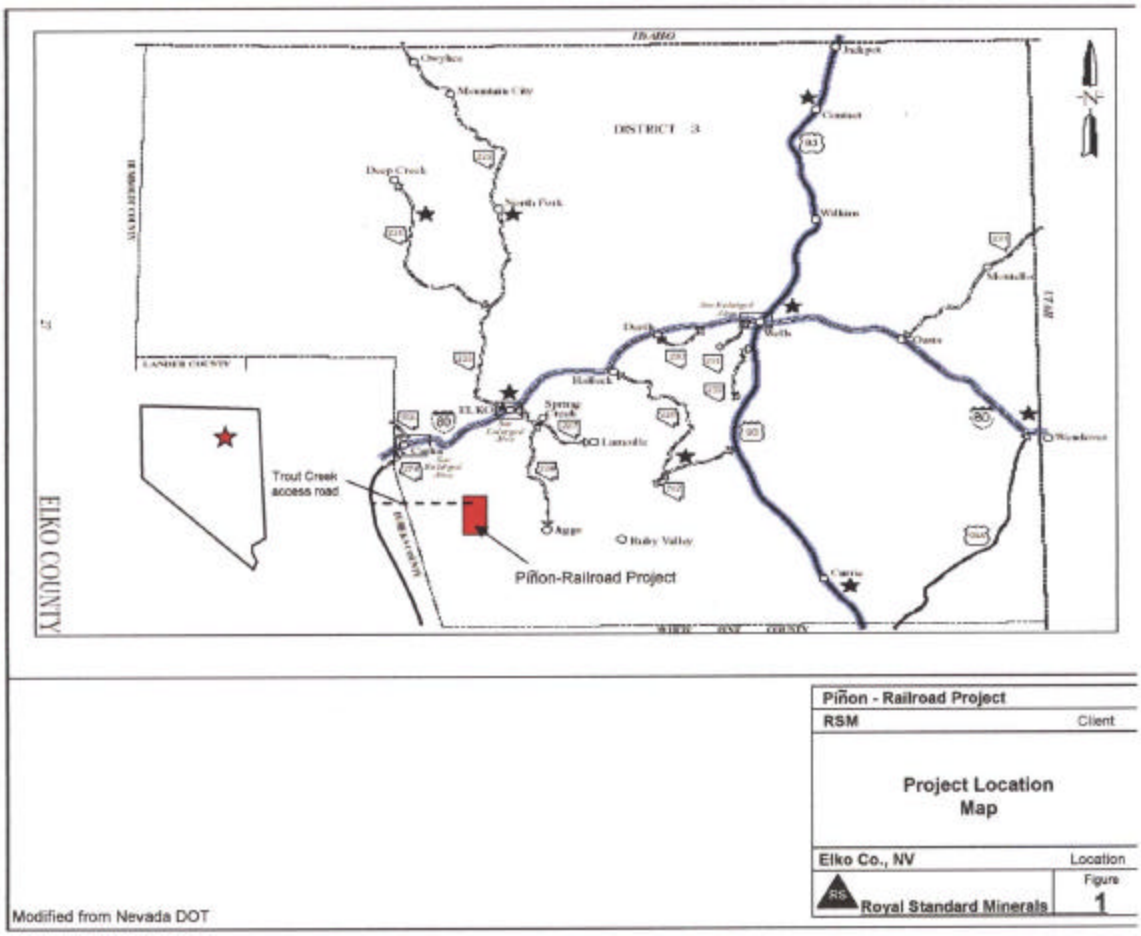
Dated this 23th Day of August, 2003

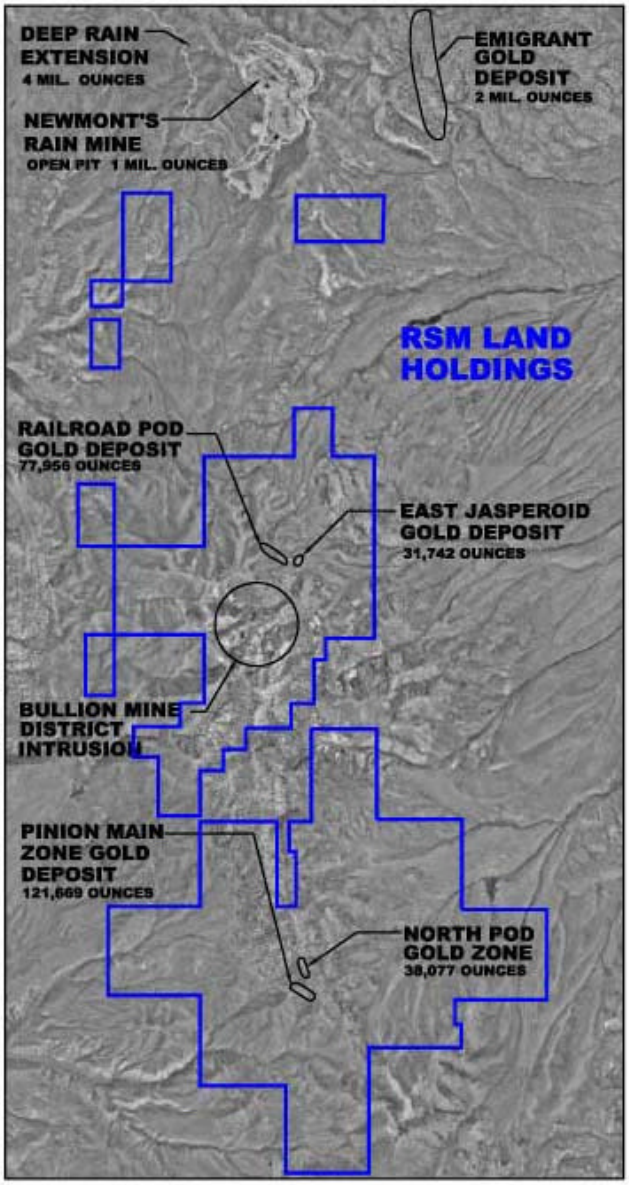
_____

Roger C. Steininger, Ph.D., CPG #7417

Stamp

List of Figures





ROYAL STANDARD MINERALS INC.

RAILROAD-PINION PROJECT MAP

SOUTH CARLIN GOLD TREND

INDEX AIR PHOTO LOCATING MEASURED OPEN PIT OXIDE GOLD RESOURCES OWNED BY RSM

Figure 2

North

0 1 2

SCALE: MILES

1: 125,000

Compiled by : Tim Master
Digitized by: Mario D
Date : 04-23-03

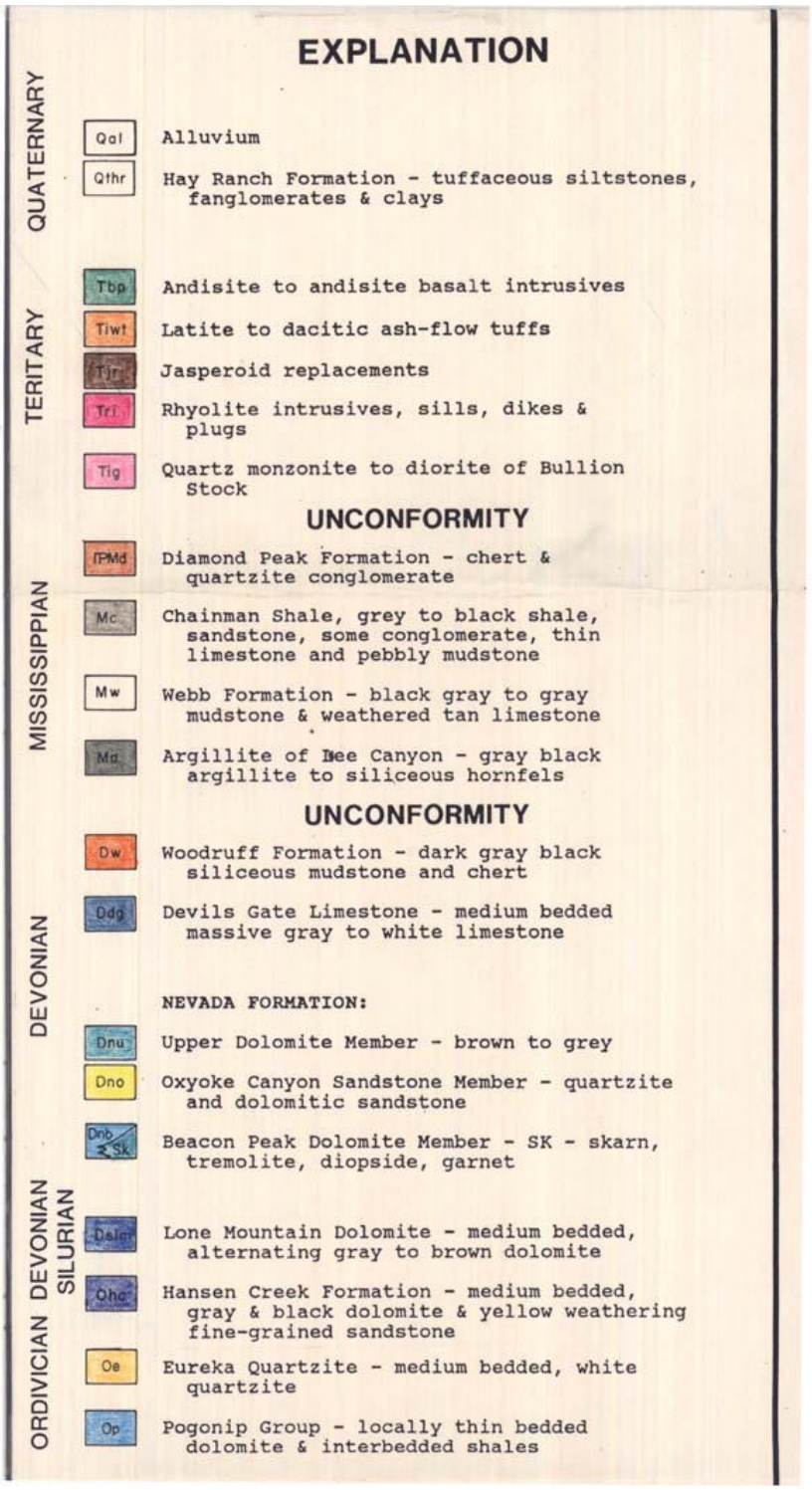
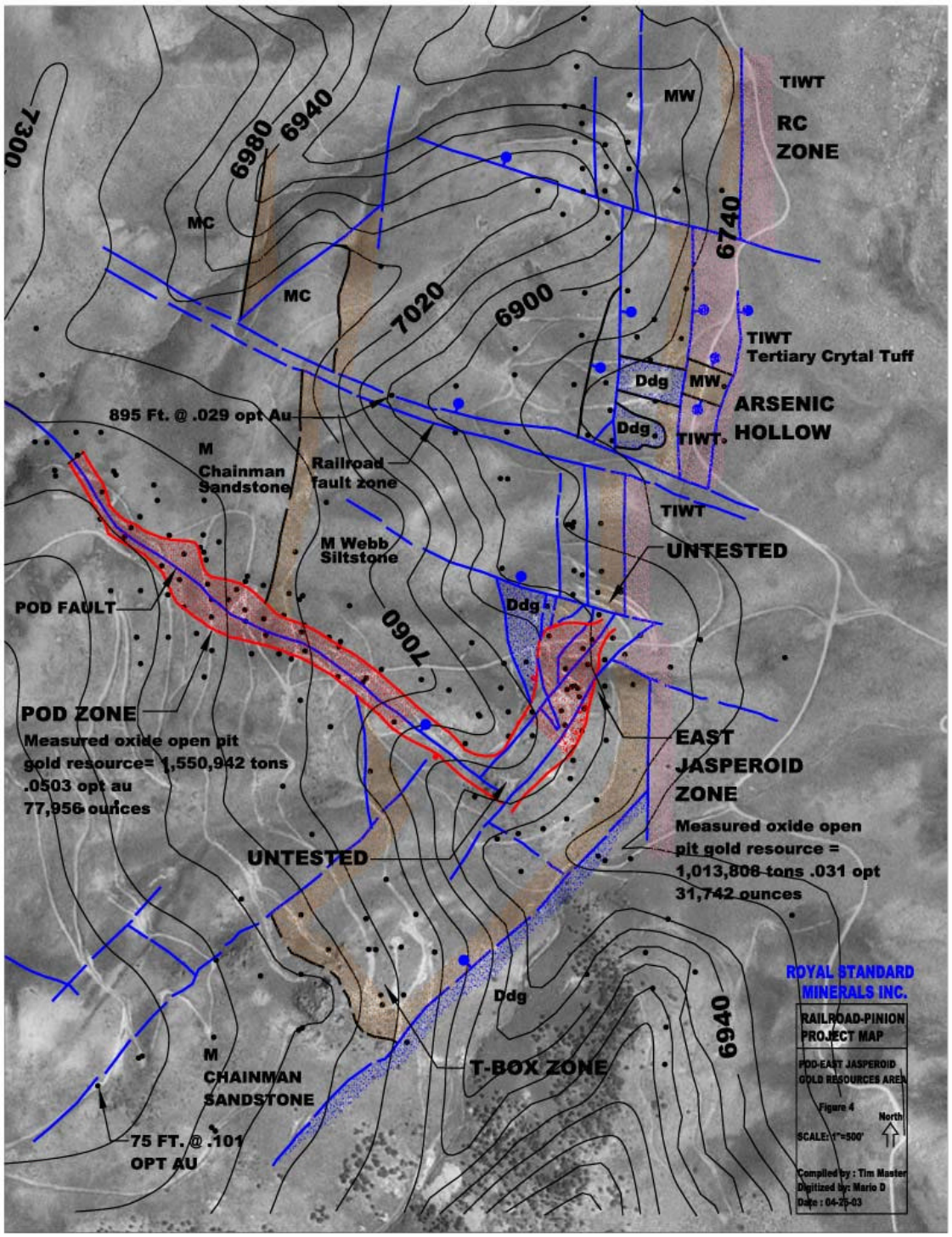

EXPLANATION
QUATERNARY
Qal
Alluvium
Qthr
Hay Ranch Formation - tuffaceous siltstones, fanglomerates & clays
TERITARY
Tbp
Andisite to andisite basalt intrusives
Tiwt
Latite to dacitic ash-flow tuffs
Tjr
Jasperoid replacements
Tri
Rhyolite intrusives, sills, dikes & plugs
Tig
Quartz monzonite to diorite of Bullion Stock
UNCONFORMITY
MISSISSIPPIAN
PMd
Diamond Peak Formation - chert & quartzite conglomerate
Mc
Chainman Shale, grey to black shale, sandstone, some conglomerate, thin limestone and pebbly mudstone
Mw
Webb Formation - black gray to gray mudstone & weathered tan limestone
Mg
Argillite of Bee Canyon - gray black argillite to siliceous hornfels
UNCONFORMITY
DEVONIAN
Dw
Woodruff Formation - dark gray black siliceous mudstone and chert
Ddg
Devils Gate Limestone - medium bedded massive gray to white limestone
NEVADA FORMATION:
Dnu
Upper Dolomite Member - brown to grey
Dno
Oxyoke Canyon Sandstone Member - quartzite and dolomitic sandstone
Dnb
Sk
Beacon Peak Dolomite Member - SK - skarn, tremolite, diopside, garnet
ORDIVICIAN DEVONIAN SILURIAN
Dslm
Lone Mountain Dolomite - medium bedded, alternating gray to brown dolomite
Ohc
Hansen Creek Formation - medium bedded, gray & black dolomite & yellow weathering fine-grained sandstone
Oe
Eureka Quartzite - medium bedded, white quartzite
Op
Pogonip Group - locally thin bedded dolomite & interbedded shales

Figure 3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Railroad
fault zone
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UNTESTED
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Siltstone
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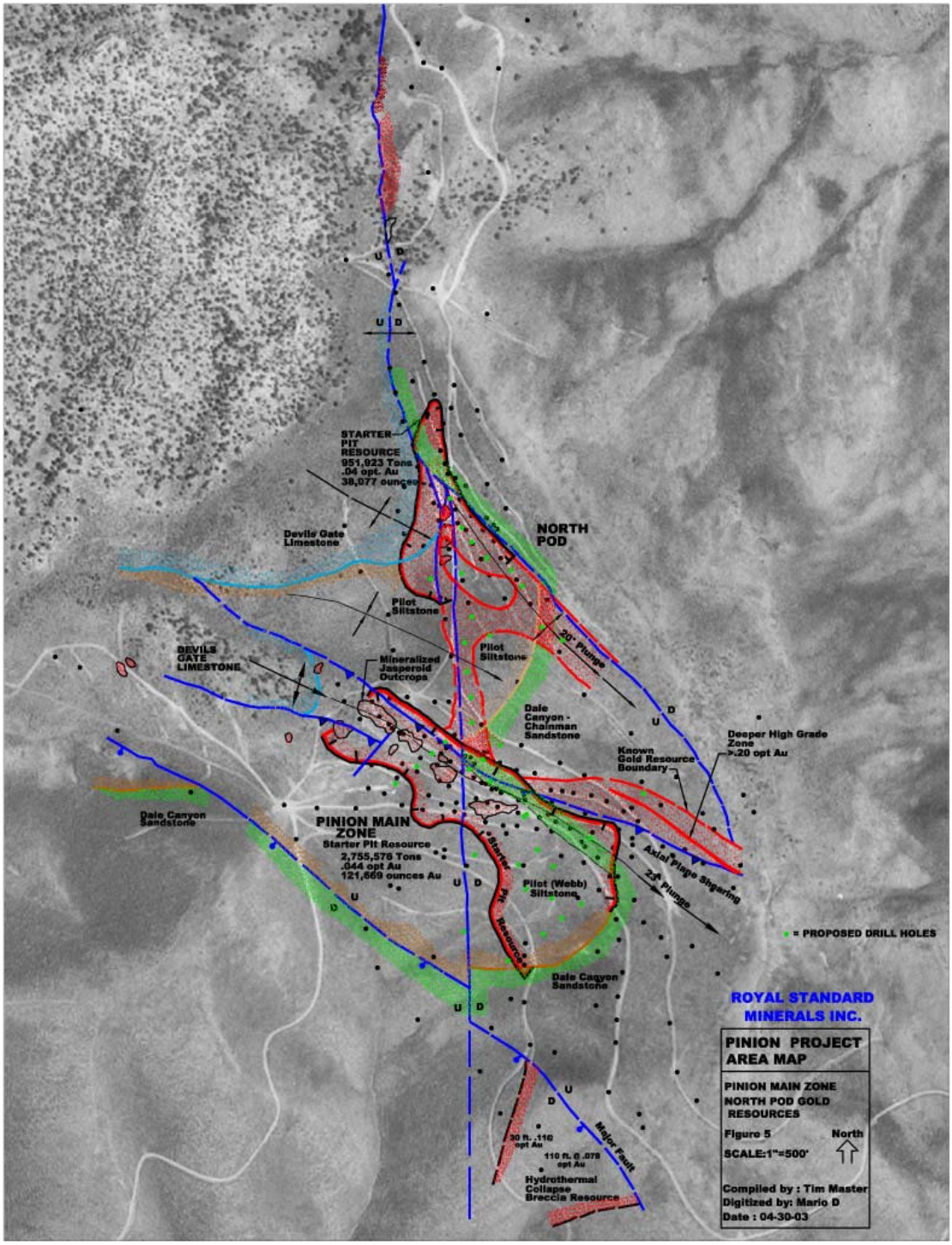
Ddg
7060
POD ZONE
Measured oxide open pit
gold resource= 1,550,942 tons
.0503 opt au
77,956 ounces
EAST
JASPEROID
ZONE
Measured oxide open
pit gold resource =
1,013,808 tons .031 opt
31,742 ounces
UNTESTED
Ddg
6940
T-BOX ZONE
M
CHAINMAN
SANDSTONE
75 FT. @ .101
OPT AU
ROYAL STANDARD
MINERALS INC.
RAILROAD-PINION
PROJECT MAP
POD-EAST JASPEROID
GOLD RESOURCES AREA
Figure 4
SCALE: 1"=500'
North
Compiled by : Tim Master
Digitized by: Mario D
Date : 04-25-03


STARTER PIT RESOURCE
951,023 Tons
.04 opt. Au
38,077 ounces
Devils Gate Limestone
NORTH POD
Pilot Siltstone
20° Plunge
Pilot Siltstone
DEVILS GATE LIMESTONE
Mineralized Jasperoid Outcrops
Dale Canyon - Chainman Sandstone
Deeper High Grade Zone >.20 opt Au
Known Gold Resource Boundary
Dale Canyon Sandstone
PINION MAIN ZONE
Starter Pit Resource
2,755,576 Tons
.044 opt Au
121,669 ounces Au
Starter Pit Resource
Axial Plane Shearing
23° Plunge
Pilot (Webb) Siltstone
= PROPOSED DRILL HOLES
Dale Canyon Sandstone
ROYAL STANDARD MINERALS INC.
PINION PROJECT AREA MAP
PINION MAIN ZONE
NORTH POD GOLD RESOURCES
Figure 5
North
SCALE:1"=500'
Compiled by : Tim Master
Digitized by: Mario D
Date : 04-30-03
30 ft. .116 opt Au
110 ft. @ .078 opt Au
Major Fault
Hydrothermal Collapse Breccia Resource