Appendix A-1

American Innovative Minerals LLC
Letter Report: Crevice Mountain Compliant Resources and Reserves

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American Innovative Minerals LLC

Michael Werner, President
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June 18, 2015

Dear Mike:

I have had the opportunity to review the Crevice data and site and although a significant amount of historic drilling has been completed the historic resource reserve by TVX is not a modern compliant reserve. Resource standard have dramatically become more rigorous and there are some large gaps in the drilling and data. The numerous intercept are encouraging to indicate that there could be a significant amount of gold in the ground, the historic work is lacking some very critical quality control and geologic data that would allow the deposit to be consider a compliant resource.
At least 15% of the known resources intercepts would need to drill tested, from either an underground or surface platform with proper quality control, geologic definition, metallurgical testing to bring this deposit into resource. A feasibility study would need to be completed to announce different reserves categories.

This is a nice advance exploration property and with additional drilling, especially in the areas where gold has not yet be identified, will likely help to build a good resource. I will work with Andy to put together a plan and estimate of the time and costs to build this into a modern resource.

Sincerely,

Alan Branham
CPG-10979
President & CEO
American Innovative Minerals LLC

File MT-138

Appendix A-2

Geology of the Crevice Mountain Gold Mine, Park County, Montana

By Alan Branham, CPG #10979

5. **Geology of the Crevice Mountain Gold Mine, Park County, Montana**

by Alan Branham, CPG #10979

July 16, 2015

5.1 Historic Production

Mining began in the Crevice Mine area in 1879 with the discovery at the Highland Chief by Neil Gillis and Charles H. Wyman (Seager, 1944). Gillis and Wyman sold their interests in 1891 to Edgerton and Jewell who formed the Crevasse Mining Company. They constructed a 10 stamp mill which was enlarged to a 20 stamp mill. The Crevasse Mining Company was again sold in 1898 to W.D. Conrad and James Stanford of the Conrad-Stanford Bank in Helena. Production resumed in 1904 to 1908 on the Conrad zone and has been idle since that time. Production from 1898 to 1908 totaled $128,363.41(6,763 ounces gold). The mine was shut down due to difficult access and inadequate water supply from Palmer Creek. The steep access road made haulage to the Jardine mill difficult and expensive.

The McClauney was the most productive mine in the Crevice Mountain area. In 1911, eleven sacks of scheelite were mined from the McClauney. During World War II the mine was investigated for tungsten for the war effort but no production occurred.

In 1892 the Park View Mining Company was organized to develop the Tower Grove and Snowshoe Mines, but only the exploration work was completed. In 1931 a Herman type pebble mill was installed and in 1932 approximately 800 tons of 0.21 ounce per ton gold was produced (168 ounces gold). Production occurred in the summers with the establishment of a flotation mill and total production from the Snowshoe from 1934 to 1939 was $25,000 (718 ounce gold).

The Medona mine was worked from 1934 – 1937 by the Montana Vindicator Gold Company which produced 800 tons of ore that recovered 43 ounces of gold (0.054 ounce/ton(opt) and 15 ounces of silver. During World War I $2500 worth of scheelite was produced and sold from the Medona. Low grades inhibited the Medona from further development.

Total production from the Crevice District is estimated at 7,692 ounces of gold with minor byproducts silver and scheelite.

5.2 Exploration History

Initial modern exploration work began in 1974 under a joint venture between American Copper and Nickel and the Homestake Mining Company. Approximately 40 square miles around the Jardine area were explored for “Homestake type,” mineralization. The joint venture secured mineral rights in 21 square miles of this area. From 1974 to 1979 the companies conducted basic reconnaissance exploration which included stream sediment sampling, geologic mapping, soil surveys, rock chip sampling, petrographic work, magnetic surveys, I.P. surveys, and VLF- R surveys. In 1979 a few drill holes tested the Mineral Hill and Crevice Mountain areas. Discoveries were made and the initial focus was development of the Mineral Hill area. The Crevice Mountain area represented the second largest gold anomaly but because of access, better mining development and the better mill site along Bear Creek, the Mineral Hill Mine was developed first.

In 1993, when ore began to run out at Mineral Hill focus expanded to the Crevice area, where in 1980 several drill holes began the exploration of the Conrad zone. The joint venture had been spun off into a subsidiary named TVX. In 1994 additional drilling was conducted on the Conrad and Tower Grove zones, expanding the discovery. An idea to drive an underground drift two miles from Mineral Hill to beneath this new discover and mine the ore without having any surface disturbance visible from Yellowstone Park was approved. In 1996 additional drilling was conducted on the Conrad zone. The drilling focused on the area where the underground tunnel would be developed, so that a mineral resource and reserve could be planned. Surprisingly, much of the deposit from the surface to about 300 to 400 feet down dip along the vein zones were not drilled or sampled, due to focus on the areas near the planned underground tunnel. The tunnel was driven part of the way to the Conrad zone and hit some unexpected high water flow zones. The mine did not have a water discard permit, this, coupled with lower gold prices, caused it to shut the project down in 1997-98.

5.3 Geochemistry

Approximately 4150 surface samples have been collected across the district that are recoverable from the Inco-Homestake joint venture from 1974 to 1979, approximately 40 square miles. The samples are described by Davis (1979) as follows:

Soil samples were (2810) collected on grids approximately 400 feet spaced East-West lines; samples were collected at a 4 to 6 inch depth, screened to 10 mesh in the field and -80 mesh at the lab. Samples were analyzed for gold (+/- 20 ppb), silver (+/- 100 ppb), copper (+/-1ppm), lead, (+/-1ppm), zinc (+/- 5 ppm) and mercury (+/-10ppb). Some infill lines and tighter sampling was conducted in areas of interest.

Rock chips (146) were collected for analysis with a duplicate for thin section and petrographic work. Rocks were analyzed with the same geochemical analysis as the soils. Most of the rock samples were type samples from core but a few were collected at the surface in old pits and mine dumps. Surprisingly sparse surface sampling was conducted in the Conrad zone despite obvious veins at the surface.

Stream sediments (112) were collected as 1 to 3 pound samples of (-30 mesh) screened and pan concentrates on 500 yard or major drainage splits over the entire district. The stream sediments were sampled, dried and sieved in the labs to -80 mesh. Stream sediments were analyzed with the same elements and detection limits as the soil samples.

Vegetation samples (82) were collected from pine, spruce, and juniper twigs, and analyzed. Not much information was noted from the vegetation sampling.

Homestake plotted all the samples without discriminating the type of samples using the same cut-off values for anomalies whether the samples were pan concentrates, rock chips or soils. Better analysis is recommended with this historic data.

Three gold and pathfinder anomalies were discovered outside the Jardine/ Mineral Hill areas:

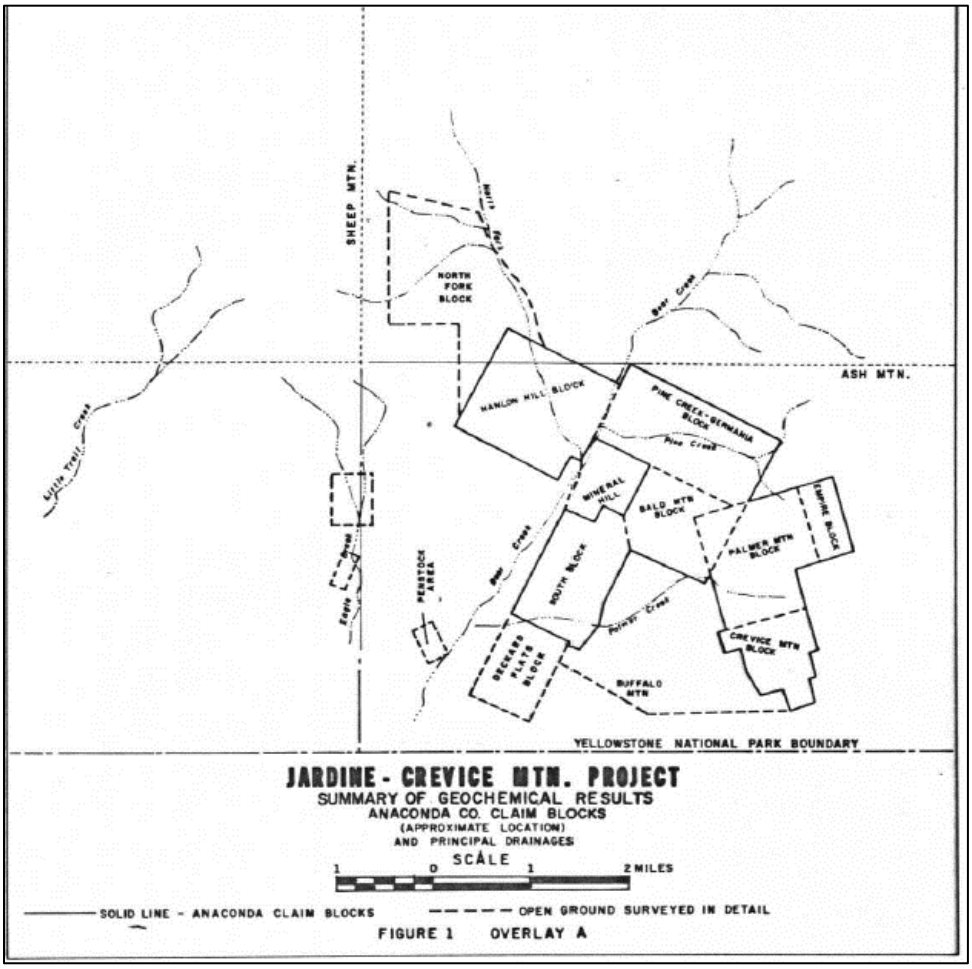
1) The strongest anomaly was the Crevice Mountain/ Conrad zone which was a strong gold anomaly with arsenic, lead, copper, and zinc. The anomaly was approximately 5000 foot long beginning around the historic Conrad Adit, striking N25E with a width of 400 to 5000 feet wide, the widest zone being across Buffalo Mountain area. Gold values over 10,000 ppb outlined the

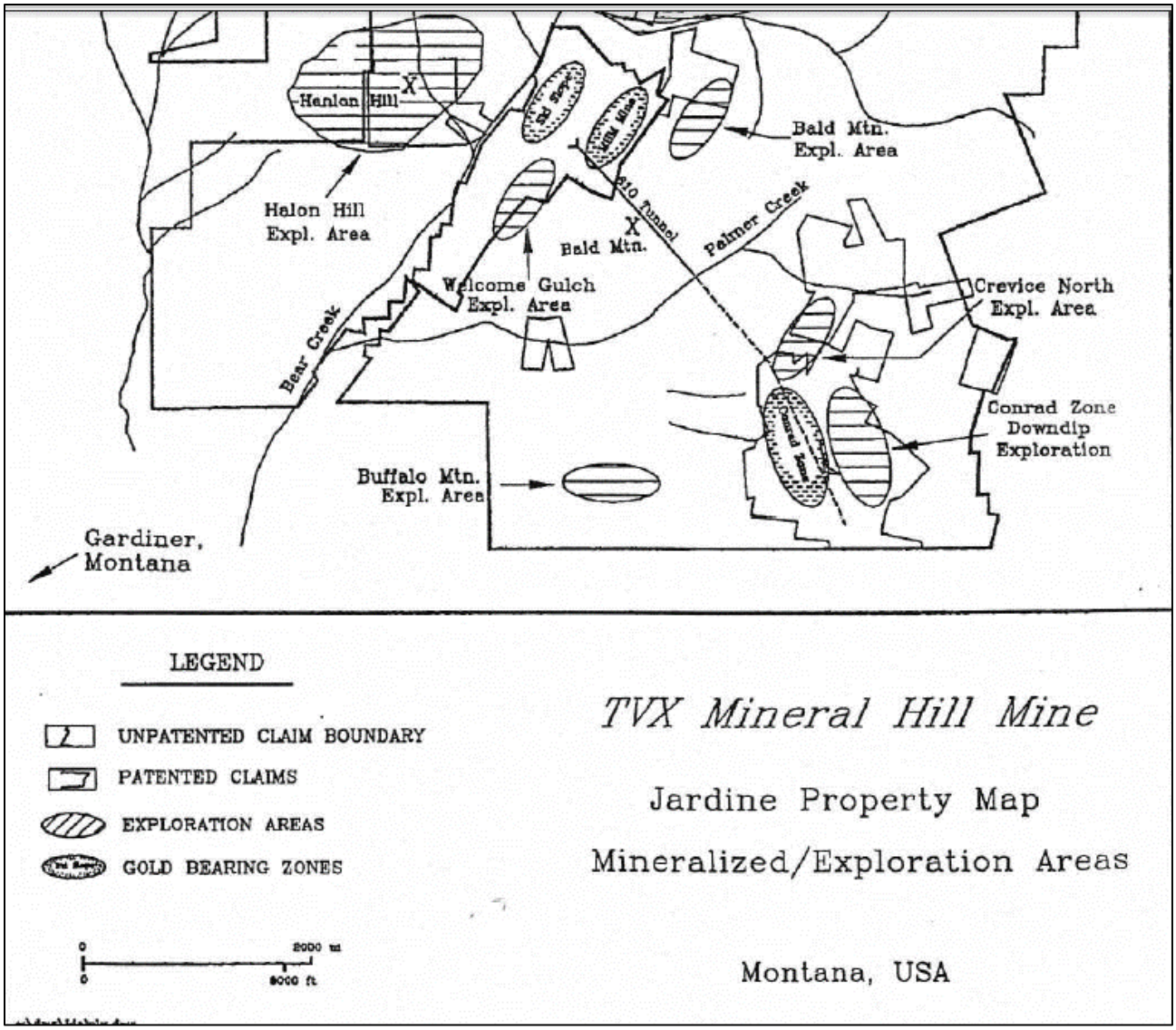
areas where the gold zone comes to the surface as 3 to 10 foot wide quartz veins. Several of the surface soil and rock chip anomalies match well with up dip projections of the vein/ strands discovered in the drilling.

2) The Tower Grove anomaly is the second largest gold anomaly approximately 1500 feet long in a N30W strike again with strong surface gold anomalies up to 0.3 ounces per ton.
3) The NW Flank of Crevice Mountain and west of Jones cabin defined a gold anomaly associated with Banded Iron Formations (BIF) that is said to be 3000 feet long and 1000 feet wide in N54W strike. This anomaly may be cut-off or hidden to the north by post mineral glacier gravel.

The anomalies are well summarized and illustrated by large scale (1:6000) geochemical map scans collected from Kinross data review.

The data is best summarized by Davis, 1977 in his “Geochem Report,” copied from the Kinross data room.





5.4 Geophysical Surveys

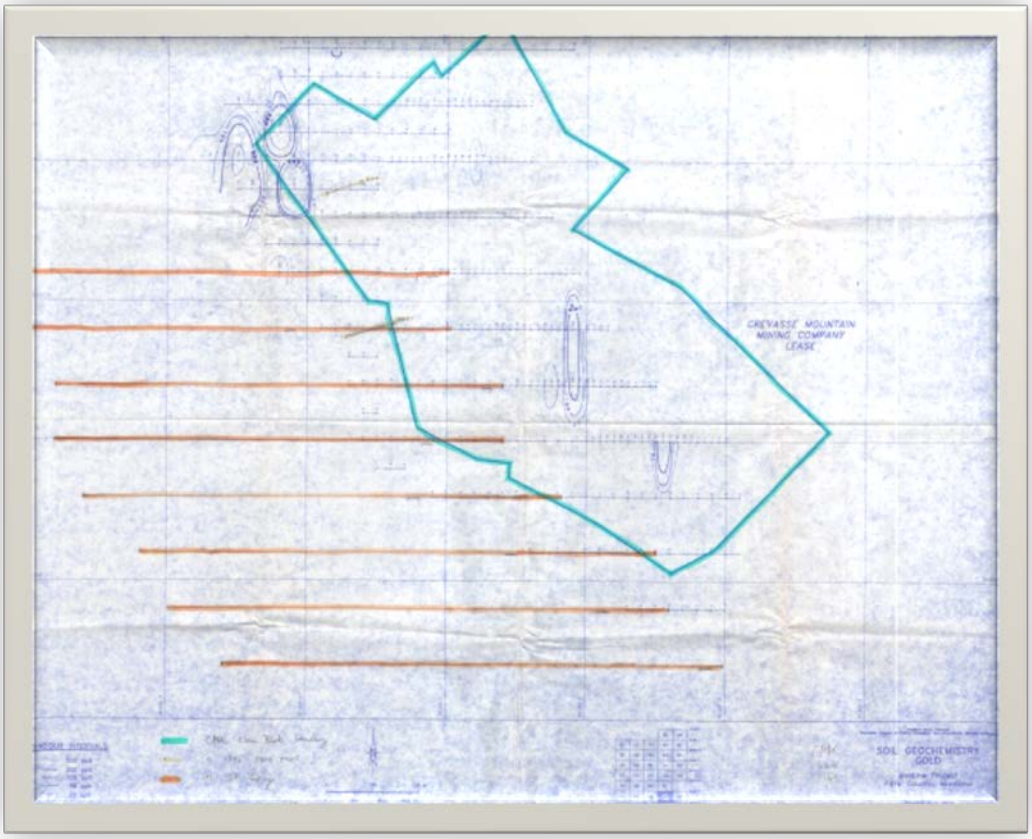
Four types of geophysical surveys were conducted over the Crevice Mountain area; airborne magnetic survey, ground magnetic surveys along soil lines, Induced Polarization (IP) and VLF-R surveys.

The magnetic surveys were useful in mapping Banded Iron Formation (BIF) and iron rich cummingtonite schist zones that are associated with the gold zones. Intrusions were also well mapped. A broad airborne survey was conducted over the entire land package in 1980 and a detailed ground magnetic survey was conducted on 400 foot spaced east- west striking soil lines over the Conrad area. A detailed interpretation of the magnetic surveys was not found in the Kinross data, but the BIF zones surrounding the gabbro intrusion, north of Tower Grove were clearly identified.

Figure 5.4 -1 **Ground magnetic survery lines in the Crevice Mountain area**

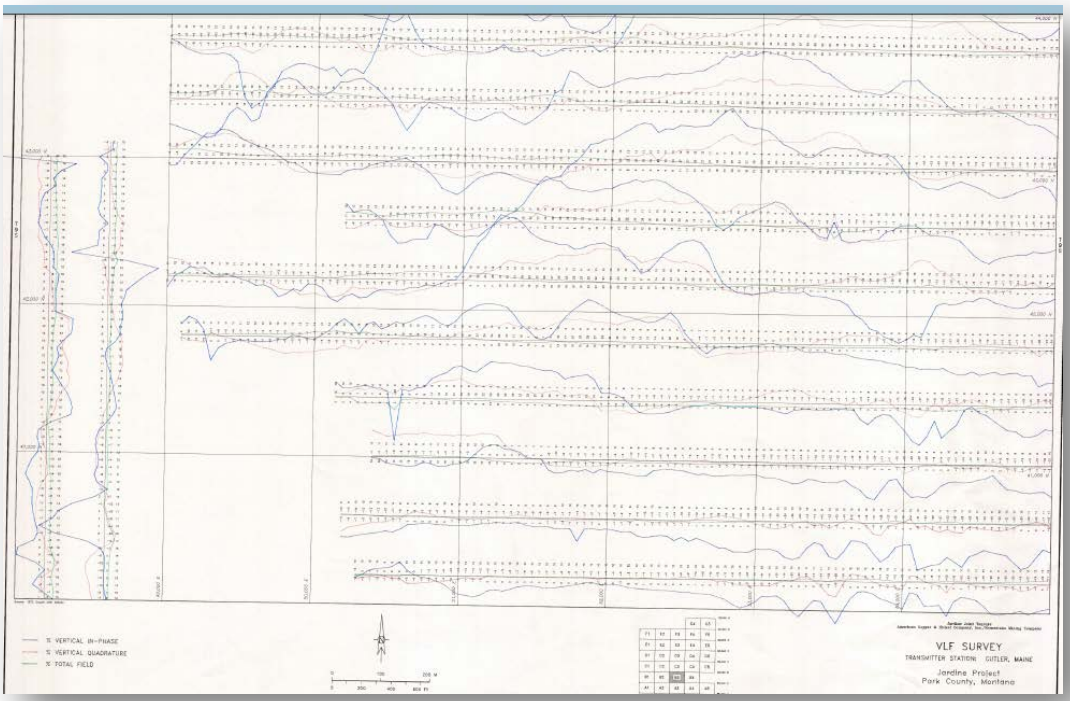
The IP surveys were used in limited areas to help focus drilling in the Jardine/ Mineral Hill areas for sulfide mineralization associated with the high arsenopyrite associated with the gold. Eight IP surveys were conducted in the Crevice Mountain area along the 400 foot spaced soil lines, as shown in Figure 5.4-2 below. Anomalies were identified and tested by drilling.

Figure 5.4-2 IP Survey lines in Crevice Mountain area



The VLF-R surveys were used to help identify faults and mineral zones but were considered of limited use. The surveys were used to help delineate alluvial and gravel thickness and identify faults. Shown below are the soil lines that were used where VLF-R was conducted in the Crevice Mountain area.

Figure 5.4-3 VLF-R survey lines in Crevice Mountain area (1991)



5.5 **Drilling (sampling, logging, quality control, data)**

Drilling was conducted over a several year period and was almost entirely core. The only uncertain holes were the 1973 holes drilled by Anaconda, which are lacking descriptions and logs. However, Anaconda typically used core holes during that period of time in Montana. Assays of the few 1973 holes by Anaconda are included in the database.

All the holes drilled by Inco, Homestake, or TVX used the same protocol. The holes were drilled, a deviation survey was conducted, the collar was surveyed by either brunton and tape to a known mine grid, or later by a surveyor with a transit. The holes were logged by a geologist and sample intervals were collected to as small as 1.5 feet but typically no more than 5 or 6 feet, using geologic boundaries as sample points. Cores were split in half and assayed. The samples were assigned a sample number which was also included on the drill log. Early holes were assayed for gold, copper, silver, and tungsten. Later holes were mainly sampled for gold and occasionally tungsten. Gold was assayed in triplicate from the first sample.

Apparently, a uniform protocol was used in assigning rock type and alteration assemblages, although it may have evolved and expanded as the drilling progressed. Similar log sheets were used that recorded rock type, alteration. In some of the 1981, all the 1994 and 1996 RQD, bedding angle to core axis, and veins or structure angle to core axis were recorded. All this data was put into the Boris database and most of it was recovered in the digital database. Additional angle to core axis of mineralized intervals are recorded on drill logs but are not in the digital database.

In terms of quality control for the gold and silver assays, the project was typical of the exploration groups of the time period. Gold and silver were run as a fire assay, typically at the mine site or with a well-known lab, typically ALS/Chemex Labs in Reno. The assays were noted to be fire assay with an Atomic Absorption finish. The assay size is not noted on the assay sheets but typically was a standard assay ton (34 grams) during that time period, although in the early 1980's a 10 gram fire assay was occasionally used at Chemex . Triplicate fire assay were conducted on the 1994 and 1996 samples and in a few cases screen fire assays of up to 500 to 1000 grams were conducted but no reports were made to summarize the duplicate checks with the screen fire assays. Gold values were averaged from the duplicate and triplicate samples and a separate gold average was reported in the database. Just a visual check showed that in most cases the duplicate check assays reported similar values but it was not uncommon to have occasional high and null assays, suggesting nugget gold. A systematic review of this issue is recommended.

During that time period, in the US, companies did not conduct systematic blank, duplicate, and standard checks on the gold assays, simply because they planned to mine the deposit themselves. Also, there were no chain of control standards, which are necessary for today's published resource reserves.

It is recommended that an attempt be made to locate and survey at least 20 % of the holes in key areas, before mining starts, with a differential gps to check accuracy of the survey of the drill collar locations. There were two different mine grid coordinate systems, the Anaconda Mine grid and the Mineral Hill Mine grid. The check would verify that each generation of drill holes were accurately surveyed and reported in the database. Many of the sites have been reclaimed but often drill casing is left buried in the ground and a metal detector and gps can sometimes verify these sites and at a minimum check, if the hole falls within a reclaimed area, there is some confidence that the survey of the collars were completed correctly.

Crevice Mountain and Tower Grove drill holes recovered in the database			
Years	**# Holes**	**Total Footage**	**Company**
1973	14	9,916.0	**Anaconda**
1979-1983	67	31,062.6	**Homestake/ Inco**
1994	70	48,650.4	**TVX**
1996	47	22,561.0	**TVX**
Total		112,190.0	

Drill logs were collected from a digital database for the 1996 holes drilled by Mine Development Associates. The earlier holes were retrieved in the 1970-1983 holes were hand entered by a college student from the original drill logs and assay sheets. The 1994 holes were converted from Notepad of the Boris files into Excel spreadsheets for future mine development use. The data was converted into collar locations, downhole surveys, rock types, and assays tables. It is strongly recommend that a check of at least 20% of these retrieved drill hole databases be done against the original drill logs and assay sheets before modeling begins, particularly the assays.

5.6 Regional Geology

The Crevice Mountain Mine lies on the southern portion of the Snowy Mountains, in the Jardine district. The Crevasses/Jardine district lies in the Beartooth Absaroka uplift in which Archean metasedimentary schist and gneiss have been uplifted, and eroded over 10,000 feet of Mesozoic and Paleozoic sediments in the late Cretaceous or Early Tertiary (Seager, 1944). The Jardine district has two structural blocks, the Mineral Hill-Jardine block and the Crevice Mountain block.

In the Jardine block, at Mineral Hill, the rocks were originally interpreted to be metasedimentary greywacke and mudstone, of at least 2660 Ma and dating of zircon by Mogk (1988) suggest an age of 3200 Ma, the oldest rocks in the Beartooth Mountains. The rocks likely formed offshore of the Archean Continent in a turbindite environment in which volcanic activity shed derived quartz, clay and feldspar were swept into offshore basins. As these basins filled, underwater hotsprings were depositing siliceous mudstone, chert, and banded iron formations with gold, arsenic, silver, and minor tungsten, copper, lead and zinc. The ages of the rocks are determined by Brooks who reports a minimum age of the Crevice Mountain granite stock at 2660 Ma with a thermal metamorphic overprint of 1600 to 1800Ma. Montgomery and Lytwyn (1984) report a Rb-Sr age of 2620 to 2760 Ma for the Crevice Mountain granite and a metamorphic reset age of 1800 Ma, and a 3000 Ma for the age of the sediments. Two ages of diabase dikes and sills intrude the Jardine mine: the oldest diabase sills are sheared and folded and there is a younger event that is undeformed; intruding after the metamorphic events. . Since the Crevice Mountain stock is said to be undeformed, the initial folding and amphibole grade metamorphic events are thought to occur between 3200 Ma and 2620 Ma. This makes the sediments in the district likely the oldest in the Beartooth Plateau, likely much older than the 3200 Ma.

The Jardine rocks are thought to be allochthonous, a terrane unique from the rest of the Beartooth Archean rocks that was tectonically emplaced against the western margin of the Archean continent. These rocks suffered a strong deformational history after being deposited upon the sea floor, they were likely subducted along this margin forming the metamorphic overprint. Jablinski and Holst (1992) report three phases of folding in the Jardine rocks with metamorphic grades reaching upper amphibolite. At Mineral Hill the gold occurs in an intensely folded (recumbent and isoclinal) iron formation that was later folded by more moderate broad open folding events. Peak metamorphic is estimated at 560˚C and pressures of 2.9 kb, which could be interpreted as a maximum burial depth of 10 km. As the rocks were accreted to the continent and uplifted, plates tectonic subduction was likely occurring beneath the metamorphic rocks causing melting; resulting in the emplacement of the Crevice Mountain granite and gabbro intrusions in the sediments. The intrusion of the granite and gabbro likely allowed for the remobilization and concentration in the iron formations, at Mineral Hill and in the veins at Crevice Mountain. The final low grade metamorphic event likely occurred at 1800 Ma. The Laramide Orogeny

(Cretaceous- Tertiary) was underlain by shallow subducting plates from the Pacific Ocean causing considerable uplift. Structural blocks appear to be controlled along northeast and northwest striking high- angle brittle faults such as the Bear Gulch and East Faults. These later brittle faults are thought to be dip slip but lack of markers across the faults elude movement definition.

At Crevice Mountain area, the host rocks have a similar metasedimentary rocks that have been metamorphosed to a greenschist-amphibolite grade. The rocks appear to have a slightly lower metamorphic grade, lacking the garnet and sillimanite seen at Mineral Hill. These rocks are intruded by the Crevice Mountain granite stock to the southwest and a gabbro intrusive to the northeast of the mine. The deformational history appears less complicated with simple boudin shearing along the bedding planes and possibly a broad gentle doming event around the gabbro intrusion, north of Tower Hill. The gold event is different in style than Mineral Hill. At Crevice, the gold is associated with clear quartz veins and quartz stock work in the quartz biotite schist. The veins occur in the Conrad zone, a 300- 400 foot wide zone of sheared quartz biotite schist. Quartz veins in the Conrad zone appear to be stacked in shear zone with at least six and possibly as many as 11 different horizons. TVX geologist interpreted these as metamorphosed exhalite chert or silica zones that were shears and metamorphosed. An alternative interpretation is they were originally emplaced as quartz veins into the sedimentary rocks as hotsprings along a fault or specific horizon. These silica exhalite or veins were recrystallized and sheared during the amphibolite grade metamorphic event. Gold is generally coarse grained and appears to be associated with the veins. Six small zones of banded iron formation are mapped in different horizons across Crevice Mountain. Minor latite or andesite porphyry dikes or sills have been noted on the Crevice property. These are intrusions likely associated with the Yellowstone volcanic rocks to the south. In two drainages, pockets of Tertiary tuffs are deposited on the Archean rocks. An unmapped major northeast striking fault (in Palmer Creek?) may exist and separate the Mineral Hill structural block from Crevice Mountain.

5.7 Deposit geology

In the Crevice deposit the gold is deposited in quartz veins and in chlorite- biotite schist zones that surround the veins. The veins average 3.5 to 4 feet in width and vary from 1.5 feet to over 12 feet in drill intercepts. Veins are deposited parallel to folitation or bedding as sheared and boudin pods and beds of silica. In a few locations gold is associated with quartz cummington schist, likely with minor quartz and/or sulfides. Seager (1944, page 44) reports quartz gold veins transitioning into granite pegmatite in the Crevices area, suggesting very high temperature vein development. Seager also notes, “From an economic standpoint, the most striking and significant feature of the veins in the district is their irregular and generally unpredictable habit as regards thickness, continuity, and grade. Veins minerals occur along the mineralized zones both as lenticular masses of extremely variable size and habit, and as associated disseminations in hydrothermally altered schist. Values in gold, tungsten, and arsenic are irregularly distributed.”

5.8 Ore zones

In the Crevice district, the historic “veins” were also called “strands,” which consist of two or more quartz veins a few inches to 10 feet in width generally 5 to 10 feet apart. These strands or “veins” are 10 to 75 feet thick in which the actual quartz gold veins are echelon within the strand. Photo shown below illustrates that sheared and boudin nature of the quartz veins in a strand. The separate “strands” or veins as they were historically called, generally exhibited more intense shearing within the strand with less deformed biotite schist around the strand. Seager, 1944 reports some strands had only 15 to 20 % quartz vein material that necessitated the need for selective mining and sorting in the strand zone. A mineralized lode can consist of a single vein with distinct wall rock but more commonly consisted of closely associated strands. The strands often are complex with the veins occurring in an echelon pattern that pinch and swell along strike and dip. The boundaries can be distinct fault/ bedding plane boundaries but also have “schist veins” in which the boundary is an economic boundary developed by the amount of sulfide and small quartz stringers with gold in the schist. Initial development work may need to drill on 25 foot to 50 foot centers to properly define these strand/ vein zones for mining.

In reviewing approximately 10 % of the “ore” / gold bearing zones in the 1994 and 1996 logs, an unusual notation of assays were noted on the drill logs, especially in vein zones that had identified visible gold. A couple of examples of merit:

Hole 96CR-30- sample 80 assayed 570.4 to 570.6 feet (0.2 feet) that contained 1.816 opt gold and the intervals below from 570.6 to 572.3 (4.4 feet) show no assay. It is possible that the 1.816 included the entire 4.6 feet but not described as such in the log.

Hole 96CR-69 assayed 238.1 to 238.7 feet (0.6 feet) with an average of 0.210 opt gold. The interval below with visible gold shows no assay from 238.7 to 239.6 feet (0.9 feet). Again it is highly likely the true interval of the assay sample was from 238.1 to 239.6 but notations on the log do not denote as such. A surprising amount of NS (none sampled) material occurred in the drill holes. In reviewing the drill logs the occurrence of visible gold usually indicted a higher grade horizon but gold grades could vary from over 1 opt to less than 0.02 opt.

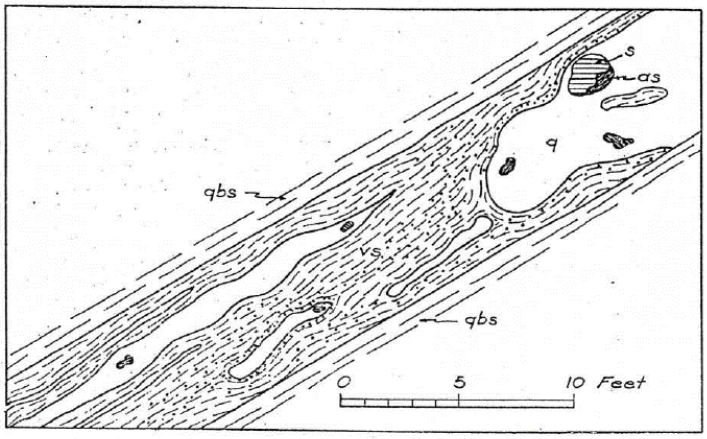
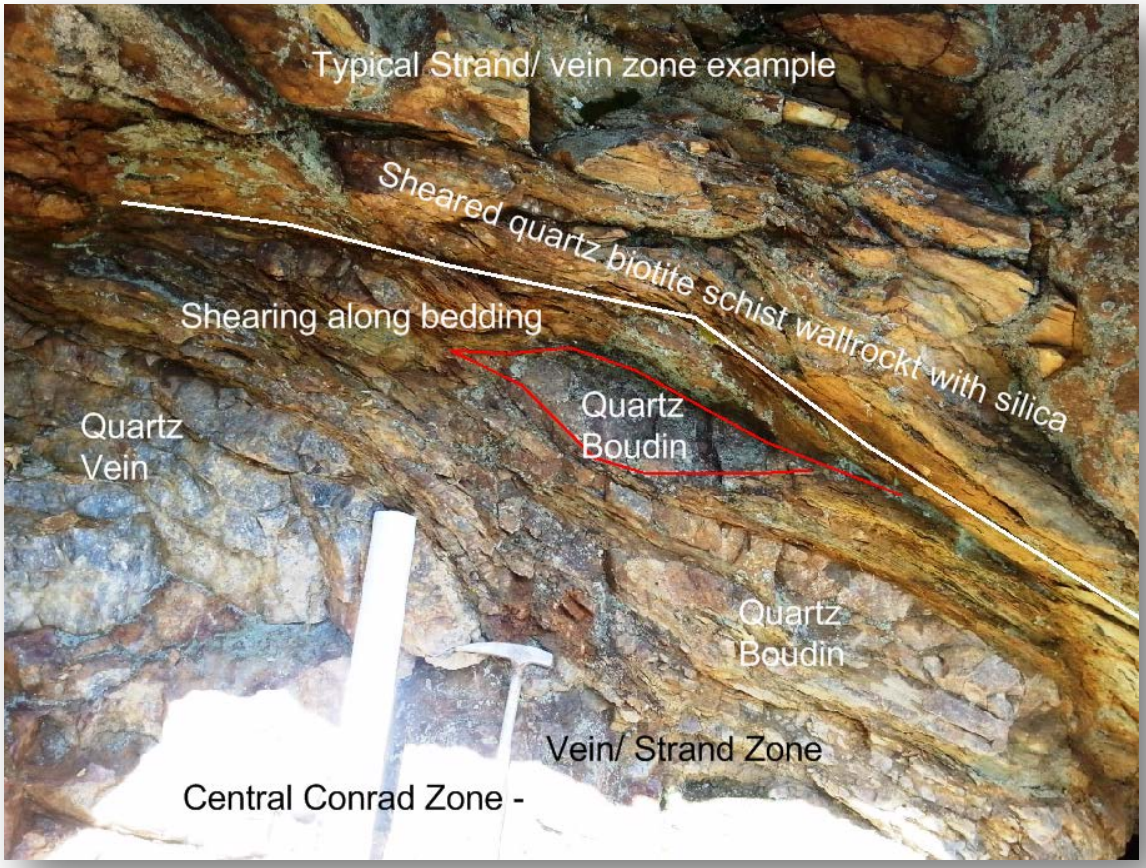


Figure 3.---Composite sketch illustrating characteristic features of No. 2 vein, Jardine mine. Vertical section perpendicular to the strike of the vein. Features shown are typical of quartz veins occurring in quartz-biotite schist (qbs). Shows lenticular form of the quartz bodies, variations in the relative amounts of quartz (q) and vein schist (vs), and the mode of occurrence of arsenopyrite (as) and scheelite (s). Modified after S. H. Cathcart.


Typical Strand/ vein zone example
Sheared quartz biotite schist waltrockt with silica
Shearing along bedding
Quartz
Vein
Quartz
Boudin
Quartz
Boudin
Vein/ Strand Zone
Central Conrad Zone -

Mineralogy- The mineralogy of the Crevice gold zones appears to be three vein types

1) Clear quartz- sulfide veins associated with strong cummingtonite schist,

2) Quartz gold veins with limited arsenopyrite and minor sulfides (pyrrhotite, pyrite, marcasite, gold and occasionally chalcopyrite, galena, and sphalerite.)

3) Oxidized quartz gold veins.

The mineralogy of these veins is well described in the attached table from Seager, 1944

Table 4

Mineral development in veins and wall rocks of the Jardine-Crevasse Mountain district

	Sedimentary deposition	Development of schist minerals*	Intrusion	First stage (silicate stage)	Second stage (sulphide-scheelite stage)	Third stage (gold stage)	Fourth stage (carbonate stage)	Period of supergene alteration
		Period of regional metamorphism		Period of hydrothermal mineralization				
			Deformation of schist**			Fracturing		
Minerals in quartz-biotite schist and biotite quartzite	Quartz Kaolin Iron oxide Feldspar Sericite Chlorite Zircon Apatite Magnetite Tourmaline ?	Quartz Biotite Chlorite Feldspar Muscovite Zircon Apatite Magnetite Tourmaline ?	Crevasse Mountain gabbro, fine-grained diabase, and granite	Quartz Biotite Garnet Muscovite Oligoclase Tourmaline Andalusite Zoisite	Quartz Arsenopyrite Pyrite Scheelite Chalcopyrite Galena Chlorite Gold	Quartz Chlorite Galena Gold	Quartz Barite (Calcite)	Calcite ? Cerussite Chalcedony Covellite (Gypsum) Limonite Marcasite Melanterite Native copper Quartz Scorodite Tungstite
Minerals in quartz-cummingtonite schist	Quartz Siderophyllite Kaolin Iron oxide	Quartz Cummingtonite Hornblende ? Magnetite		Quartz Fibrous cummingtonite Hornblende Biotite Garnet (Oligoclase) (Tourmaline)	Quartz Arsenopyrite Pyrite Scheelite Pyrrhotite Chalcopyrite Sphalerite Chlorite Gold	Quartz Chlorite Gold	Quartz Siderite (Barite) Pyrite Calcite	do + Gypsum

*Initial recrystallization under regional metamorphism to produce schist. Some minerals listed, such as the accessory minerals zircon, apatite, and perhaps tourmaline (if an original constituent), are considered to have occurred in the original sedimentry rocks, and were little affected by metamorphism.

**Deformation of schist, with development of drag folds. Granulation and recrystallization of quartz, and fracturing of early-formed sulphides and scheelite.

Note: Minerals underlined predominate; those in parentheses not observed, but probably present in subordinate amount; and those of uncertain genetic relation are questioned.

5.9 Alteration/ Wall Rock Controls

Descriptions of alteration are limited to reviews of drill logs which are mostly numeric with limited descriptions and a brief one day visit to historic surface prospects. A review of numerous 1994 and 1996 drill logs suggest that visually the gold zones may be difficult to predict unless visible gold is noted with the veins. Logging focused on the presences of quartz veins, especially with sulfides such as arsenopyrite, sphalerite, and galena. Weathering of the veins appear to be limited with sulfides noted within 50 feet of the surface, although in a few spots later weathering of sulfides to limonite and clay have been rarely noted as deep as 700 feet. Presence of biotite rich schists, grunerite, and cummingtonite schists were highlighted in logging and may prove useful markers for more productive vein/strand zones. It may be difficult to distinguish high grade veins (>0.25 opt) within the strand zone from low grade (<0.15 opt gold) simply using quartz veins and wall rock alteration simply due to the large amount of deformation and metamorphism that have altered the veins since formation. It appears that most of the gold, however, does occur with quartz veins and quartz stockwork with sulfides in the schists. More iron rich zones were highlighted by TVX geologist.

5.10 Historic Mineral Resources and Methodology

The historic resources of TVX currently do not meet the current resource reserve standards for a Canadian 43-101 compliant report because of:

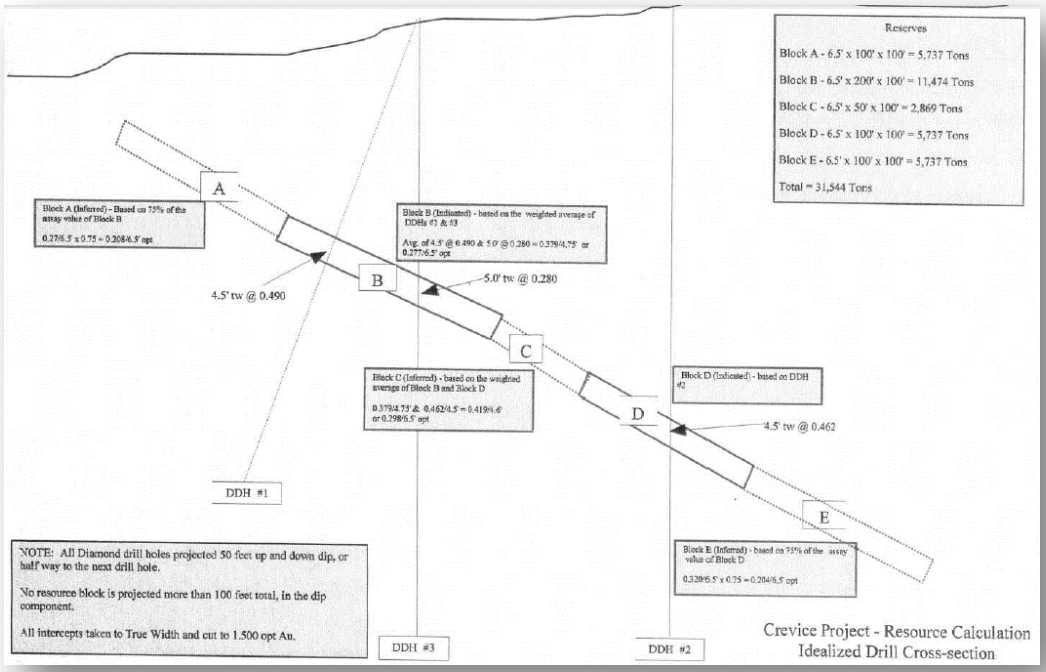
1) Lack of chain of control protocol
2) Lack of lab blanks and gold standards in the assay control,
3) Lack of defined survey control of the drill collars
4) Weak geologic structural control modelling.

Although most of these controls are not defined in the current database, during the time the work was conducted there is no reason to expect that reasonable samples protocol and collar survey control was conducted, just not defined or present in the data at hand. The lack of blanks and standards with the gold assay labs is typical of that time period and the high use of duplicate and triplicate sampling suggests that results are reasonable, although this data needs to be rigorously reviewed.

The geologic model of the current resource could be dramatically improved by conducting a detailed structural map and detailed sampling of trenches, exposed veins, and historic workings at the surface projection of the Conrad zone. This data could be used to tie and better define the proposed vein/ strand zones modelled by TVX. This data, along with the structural data collected on the drill logs for the strand zones from the core logging, could create a much tighter geologic model. The lack of structural definition in the current deposit, that is clearly structurally controlled, could present some unpleasant surprises, especially if the strand zones are faulted and displaced. In order to prepare for mining and developing ore control plans, a systematic sampling of one or more of the historic mines on 2 meter intervals with one meter long samples across the vein zones is strongly recommended.

One modelling parameter that was not checked was the conversion and dilute of the smaller veins to a 6.5 foot diluted resource model. This parameter should be checked by a detailed comparison on at least six polygonal cross section block models across the deposit to insure that the polygonal model was correctly diluted in the resource and reserve that was imported into the current 3D models.

There is some variation between the resource reported in April 1997 by TVX and the summed totals of the blocks that were imported by Mine Development Associates for this review. The variance suggest that the MDA has more resource than the TVX model. This might be due to the fact that the MDA included all the polygonal blocks on the section and in the resource report. There were clearly blocks that had been modelled that may not have been included in the resource due to mine planning or perhaps were added later as the data came in from the 1996 exploration program.



5.11 Geologic Recommendations

Mining preparation

- Detailed sampling of historic workings.
- Check the dilution polygonal estimates for tonnage and gold grade from the original drill logs and assays.
- Survey at least 20% of each phase of drill hole collars to insure proper locations.
- Plan to drill the first round of targeted ore at 50 foot centers to insure reproducibility with TVX model. If the drilling does not show reproducible and predictable results then 25 foot centers need to be drilled.
- Build a better geologic map on topography with all known drill holes in the Conrad Zone
- Plot all the roads, workings and drill holes with known gold samples on the surface and geologic.
- Build better detailed structural model on cross and long sections (on at least 100 foot centers) and plan maps in the first three years planned to be mined.

Converting to public reserve

- The work above is strongly recommend as a first step to building a better geologic model for reserves.
- At least 15% of the historic drilling would need to be re-drilled and tested using compliant quality control to convert the current deposit into a resource.
- To convert the resource to a reserve, mining a portion of the deposit would be instrumental in having a third part sign off to demonstrate economic viability.
- One might consider twinning 6 to 10 core holes with surveyed RC (reverse circulation) drilling that is conducted at 1 meter intervals. The deposit appears to have very competent rock with small amounts of water, with limited opportunities for downhole contamination from RC drilling. RC drilling offers a larger diameter and thus a larger sample through the deposit which could improve the predictability of the gold in the strand zones. There are sluice boxes that test the waste coming off the RC rigs now that offer over 150 pound test sample on each 5 foot interval which is very attractive in defining coarse gold zones. If the RC drilling gave good drill results, then expansion drilling cost could be cut by 60 to70%.

Drilling recommendations

- An additional 40,000 feet of drilling would test the up dip extensions of current resource, which is to be mined in the near future. This will not likely double the resource but would dramatically expand the current planned resource. This might be as viable from an underground platform as part of resource development.

5.12 Exploration Potential/ Recommendations

The exploration potential of the Crevice Mountain project is very good. The current resource was drilled to be exploited by an underground tunnel from Mineral Hill. Consequently, most of the defined resource starts 200 to 400 feet down dip of the historic structures and was drilled on about a 300 to 400 foot down dip extensions. Surprisingly, the easiest gold zone to test from the surface down to the resource was not drilled and barely sampled at the surface, though good veins and historic workings offer ample opportunity to expand the zones. The sampling that was conducted at the surface and limited historic workings seem to line up very well with the “vein zones” defined by TVX. The current “resource” defined by TVX is said to be just over 490,000 ounces. If this zone is drilled to the surface, and extended down dip 300 to 400 feet, it is not unreasonable to expect this resource, using the same modelling parameters as TVX, could easily exceed 1 million ounces.

Work conducted by TVX, Homestake, and Inco defined over six stacked BIF horizons with large soil and geophysical anomalies in the Tower Grove, Buffalo Mountain, and West Buffalo Mountain areas that suggest other gold veins are likely present. The mineral rights over these anomalies should be acquired as they represent the opportunity to grow this project into a multimillion ounce gold district.

The challenge at Crevice Mountain is not to find additional gold, but to actually develop the mining techniques that can economically extract the gold from the Conrad zone which currently is the most attractive gold zone. The narrow and erratic nature of the sheared vein zones/ strands and the lack of

water to process the ore limited development in the 1900s and is still the challenge today. Once the mining of the current deposit is defined to be profitable, then exploration could proceed to expand the resources in the district to well over 1 million ounces.

Exploration recommendations:

- Convert the current geochemical and geophysical data into a GPS compatible database so property boundaries, topography, and geology can be compared.
- Detailed structural mapping of the Conrad zone and historic workings.
- Detailed sampling of historic workings.
- Black light historic workings to determine the amount of scheelite present with the gold zones.
- Trench in planned waste dump area and sample before stacking waste to prevent burying easily accessible high grade gold veins that could be extracted before the waste dumps are built.
- Dig hand dug trenches in up dip vein zones in areas with little or no soil and sample the exposed veins.

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