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A PROPOSAL TO EXPLORE FOR EPITHERMAL GOLD AND SILVER DEPOSITS NECHAKO BASIN BRITISH COLUMBIA

- Prepared for -

EXATON RESOURCES LTD.
904 - 675 West Hastings Street
Vancouver, B.C. V6B 1N2

- Prepared by -

James M. Dawson, P.Eng.
Mining Geologist

April 17, 1989

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June 20, 1989

Nechako Basin Project

Current Progress

Since this regional exploration venture was proposed in mid-April 1989, progress has been made in defining a high priority target area for detailed prospecting and property acquisition. It is a circular fracture system defined by Earth Satellite mapping. This feature is believed to be a complex volcanic caldera-collapse sub-basin about 50 km in diameter filled with sedimentary and volcanic strata of lower tertiary to upper cretaceous age (see diagram enclosed). The Fish Lake copper-gold porphyry deposit is located on the south-west rim of the sub-basin and the Blackdome epithermal vein system is located on a NW trending structural feature that is tangential to the north-east rim. Two properties have been acquired by staking in this area as follows:

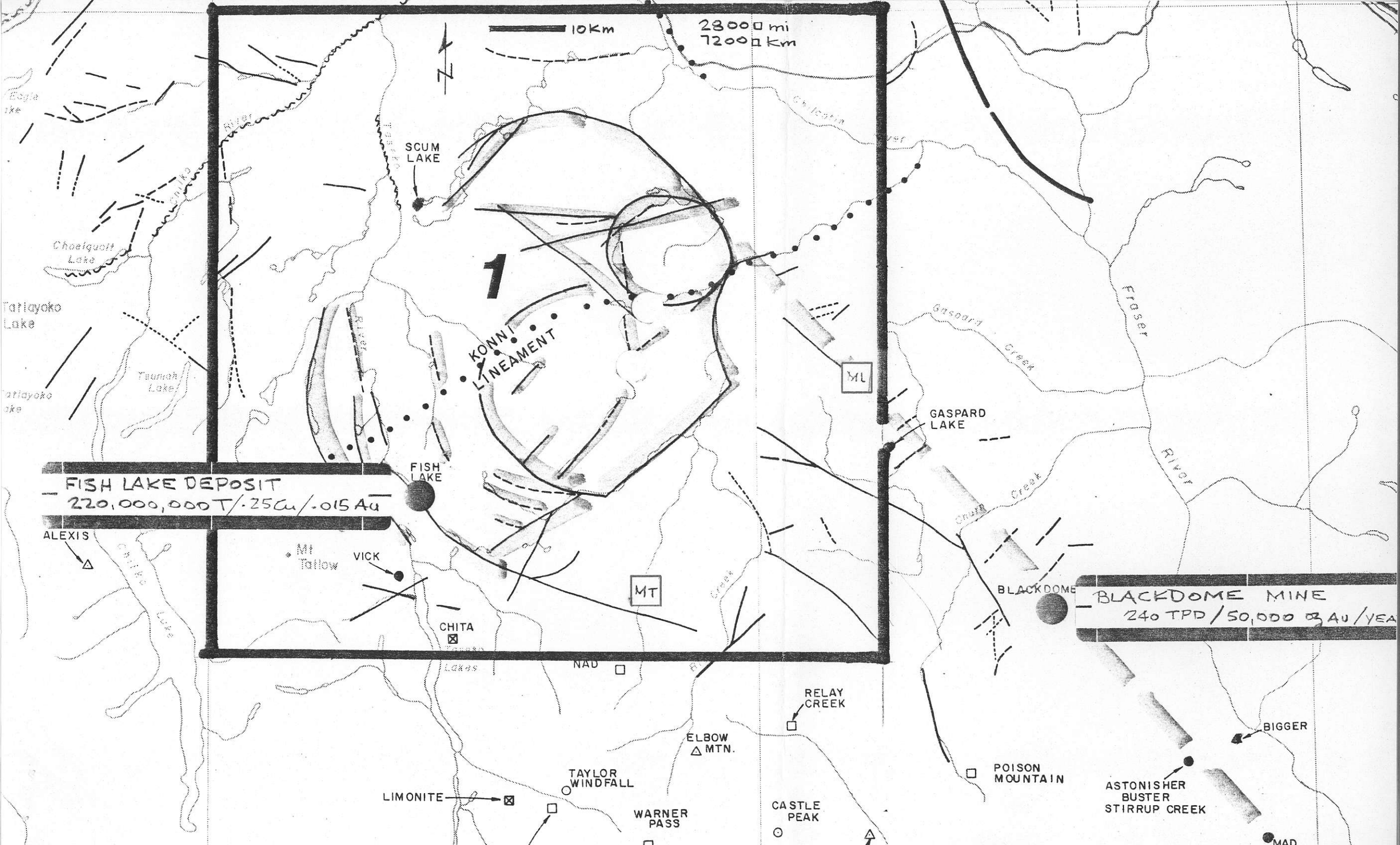
(i) MT Claims; at Mt. Tom located 50 km west of Blackdome where there are high concentrations of gold in stream sediments up to 900 ppb.

(ii) ML Claims; on the headwaters of Gaspard Creek about 40 km NW of Blackdome where a mineralized fracture zone 8000 feet in length was identified by soil sampling about 15 years ago. Only copper and silver values define the anomaly with no gold analysis reported from the earlier work.

Two geological crews are presently in the field carrying out preliminary investigations of the ML and MT claims and making a general reconnaissance of the area.

A. F. REEVE

June 20, 1989



10Km
2800□ mi
7200□ Km
N
SCUM LAKE
1
KONNI LINEAMENT
ML
GASPARD LAKE
FISH LAKE
FISH LAKE DEPOSIT
220,000,000 T/.25 Cu/.015 Au
ALEXIS
Mt Tatlow
VICK
MT
CHITA
NAD
BLACKDOME
BLACKDOME MINE
240 TPD/50,000 oz Au/YEA
RELAY CREEK
ELBOW MTN.
TAYLOR WINDFALL
LIMONITE
WARNER PASS
CASTLE PEAK
POISON MOUNTAIN
BIGGER
ASTONISHER BUSTER STIRRUP CREEK
MAD
Choelquoit Lake
Tatlayoko Lake
Teuniah Lake
Chilko Lake
Chilko River
Taseko River
Chilcotin River
Gaspard Creek
Fraser River
Church Creek
Taseko Lakes

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PROPOSAL

TO EXPLORE

FOR

EPITHERMAL GOLD AND SILVER DEPOSITS

NECHAKO BASIN

BRITISH COLUMBIA

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Table 1: Production, Reserves, Host Rocks and Ages of Bulk-Mineable Precious Metal Deposits in Nevada

NECHAKO BASIN PROJECT
BRITISH COLUMBIA
LOCATION MAP

DAWSON GEOLOGICAL CONSULTANTS LTD.

DATE: MARCH, 1989 DWG No. 455-1

RWR

EARTH SAT RADAR STUDY

BOUNDARIES

JAN 21/92

NORTH	53° 00' N
South.	52° 38' N
WEST.	124° 15' W
EAST.	123° 39' W

VIN Campbell

93B 93C

SUMMARY

Exaton Resources Ltd. proposes to carry out a programme of geological reconnaissance and prospecting for epithermal gold and silver deposits in the Nechako Basin of south central British Columbia. The estimated cost of the programme is $265,000.00, including research of geology and mineral occurrences that has already been completed, as well as the acquisition by staking of the "88" gold prospect in the Capoose Lake area.

The Nechako Basin is an accumulation of Tertiary and Jurassic volcanic and sedimentary strata with an aerial extent of approximately 50,000 square kilometres between the coast range mountains and the Fraser River lying south of the northern transprovincial highway.

The basin rocks are passively deformed by crustal extension into open folds and normal fault patterns accompanied by felsic intrusions of Tertiary to Cretaceous age. Numerous occurrences of epithermal gold and silver bearing silica with related alteration zones in the basin have been reported and some general comparisons with the "Great Basin" gold districts of Nevada can be made. The Blackdome Mine located in the south extremity of the Nechako Basin began production in 1986 at 50,000 oz. per year with many other epithermal prospects being explored.

The basin terrain is generally recessive with rolling wooded hills and no community facilities in the area's interior. During the past 10 years, an extensive network of logging roads and clear cut areas has developed providing ideal access and new rock exposure for geological reconnaissance and prospecting.

Geological research that has been completed includes preliminary structural mapping using 1:250,000 scale landsat thematic mapper scenes and shuttle imaging radar data. Three high priority target areas are prominently defined by fracture patterns and mineralized trends.

The exploration work will be carried out and managed by a group of geologists and prospectors with a broad background in the geology of epithermal gold deposits and local field experience.

INTRODUCTION

Epithermal gold-silver deposits have become a prime target for exploration in the western United States and to a lesser degree in western Canada. A large number of low grade, bulk tonnage deposits and several, smaller, high grade "bonanza type" vein deposits have been outlined in the U.S. in the exploration surge which has taken place over the last 10 years.

Some of the attractive features of these deposits are: simple mineralogy - leading to low benificiation costs, ease of access, low cost mining, and in many cases, amenability of parts of the deposits to low cost, heap leaching techniques.

The bulk of the these deposits are located in the "Great Basin" of the western United States. This report will outline an exploration proposal in an area considered to be a geological analog to the "Great Basin" in British Columbia.

In addition to having similar geological characteristics, the Nechako Basin has excellent access, reasonable terrain, a moderate climate and is close to existing infrastructure.

Precious metal deposits delineated in this area would be much more economically attractive than many currently being explored in more remote areas of British Columbia.

MANAGEMENT AND TECHNICAL RESOURCES

The Nechako Basin exploration project is operated by Exaton Resources Ltd., a private B. C. company formed in 1974 and managed by Jurgen T. Lau and Albert F. Reeve, mining geologists of Vancouver. The project is owned 55% by Exaton, and 15% each by Pat Duquette, a veteran prospector, G. D. Belik and J. M. Dawson, who are mining geologists. All of the principals have a vested interest in the project and will take an active part in the exploration work. Lau, Dawson, Duquette and Reeve participated in the exploration and development of the Blackdome Mine; while both Gary Belik and Jim Dawson have extensive experience on exploration projects in the Great Basin gold districts of Nevada.

BACKGROUND ON EPITHERMAL MINERAL DEPOSITS

Epithermal mineral deposits are formed by ancient hot spring systems in near surface environments. Commercial precious metal deposits normally form at depths of 100 to 1000 metres below the paleo-hot spring surface. Extensive examination of the characteristics of these deposits in the Western U.S. has resulted in the development of generalized models for those deposits hosted by sedimentary rocks (the so called Carlin-type deposits) and those hosted by volcanic rocks (see Figures 455-2 and 455-3).

As can be seen from these idealized cross sections, the systems can be divided into a series of mineralogical and alteration zones based on depth below the paleo-surface. Thus the complete system will range from hot spring sinter deposits at surface, through barren or weakly mineralized silica caps, bonanza precious metal zones; precious metal-base metal zones to ultimately a porphyry-style high level intrusive stock with associated copper or copper-molybdenum ± base metal mineralization.

The discovery of large numbers of sediment-hosted or Carlin-type epithermal deposits in the western U.S. initiated the search for similar deposits elsewhere in the Cordillera. This exploration was largely unsuccessful and lead to the recognition

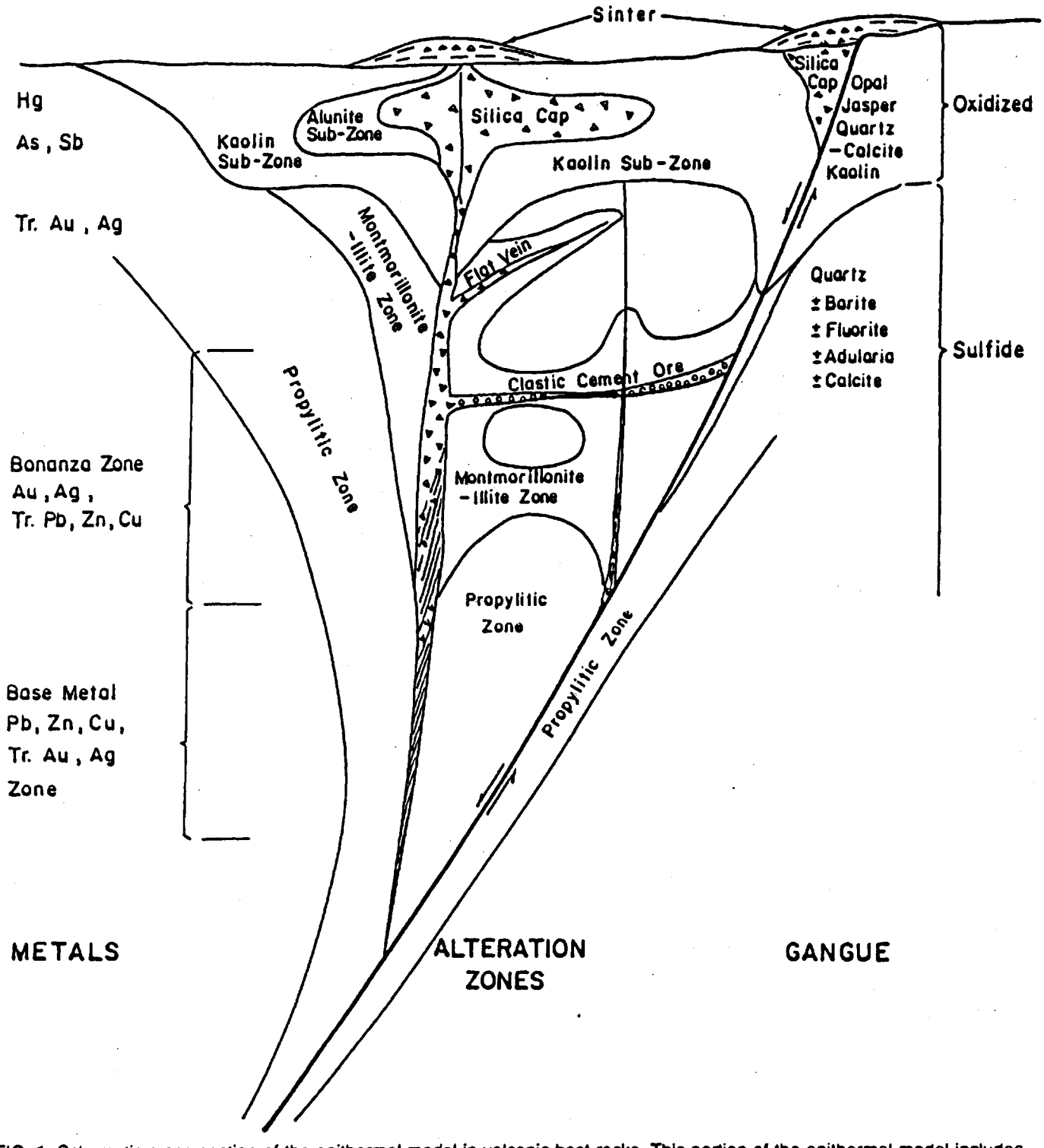

FIG. 1. Schematic cross section of the epithermal model in volcanic host rocks. This portion of the epithermal model includes the following segments: sinter, silica cap, bonanza zone, base metal zone, and clastic cemented ore. Precious metal ore can occur in the silica cap (e.g., Round Mountain, Divide, and Borealis, Nevada); in the bonanza zone (e.g., Cripple Creek, Colorado; Comstock, Red Mountain (Esmeralda Co.) and Tonopah, Nevada; and Pachuca, Mexico); and in the base metal zone (e.g., Silverton, Colorado). Flat veins can occur with any of these zones. Clastic cemented ore, the geothermal reservoir of some modern hot spring systems, is common in many districts (e.g., Creede, Colorado; Talapoosa, Nevada; and Trench, Arizona). Whereas simple sulfides like stibnite, realgar, or argentite can be found with oxide minerals and native gold and silver in the silica cap, silver sulfosalts characterize most bonanza ores. Electrum, native silver, and silver sulfide can occur with the sulfosalts in the bonanza zone.

x

FIGURE 455-2

of the "Great Basin" of the western U.S. as being somehow unique. Plate tectonic theory now recognizes this area as being somewhat different from the rest of the Cordillera. It represents a large area of prolonged crustal extension during the Cenozoic era. This extension is manifested by extensive sub-aerial volcanism and normal block faulting. Prolonged and extensive hot spring activity was (and is) associated with the waning phases of this volcanism.

Extensional regimes and epithermal precious metal systems do exist elsewhere in the Cordillera, but their extent is limited and the unique set of circumstances producing the sediment-hosted epithermal systems is rarely repeated outside of the "Great Basin".

Thus in British Columbia, there are a number of epithermal districts but with the notable exception of Cinola, they are largely volcanic hosted. The more significant epithermal precious metal districts in British Columbia are the Toodoggone Camp, the Stewart Camp, and parts of the Okanagan and Atlin districts. However, the largest contiguous area of epithermal systems in British Columbia is the Nechako Basin - an area which can be considered to be a small analog to the "Great Basin".

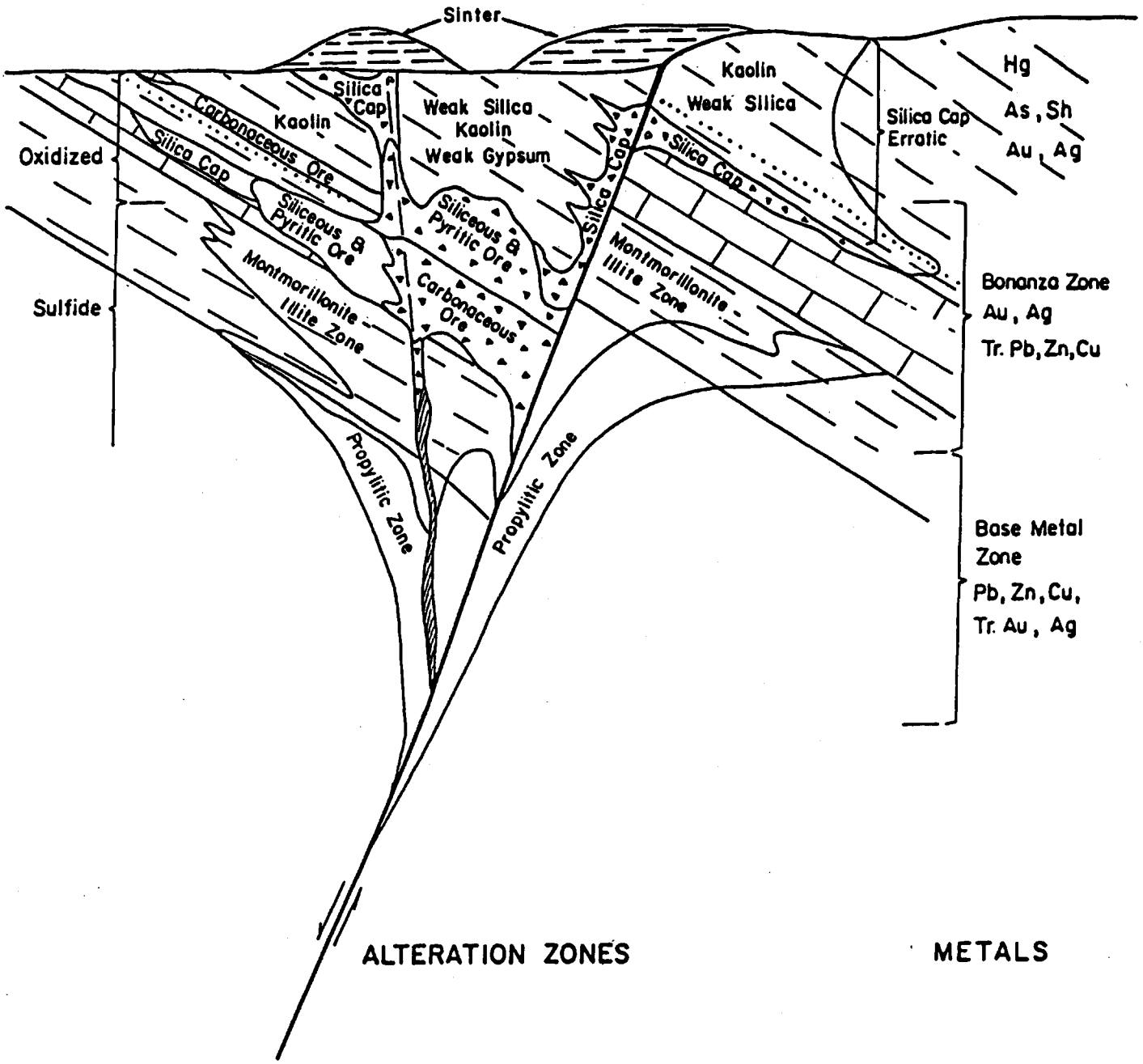

FIG. 2. Schematic cross section of the epithermal model in sedimentary rocks. This portion of the epithermal model includes replacement ore as well as the sinter, silica cap, bonanza breccia and stockwork zone ores and base metal ore when deposited in sedimentary rocks. Limestone is replaced preferentially among the sedimentary rocks. The silica cap commonly contains a jasper-rich mass popularly called jasper. However, kaolin, gypsum and weak silicification occur in the silica cap with the jasper and quartz. Sulfide ores equivalent to the bonanza zone of the volcanic-hosted epithermal system are divisible in many districts into siliceous pyritic and carbonaceous ores (e.g., Carlin and Santa Fe, Nevada).

FIGURE 455-3

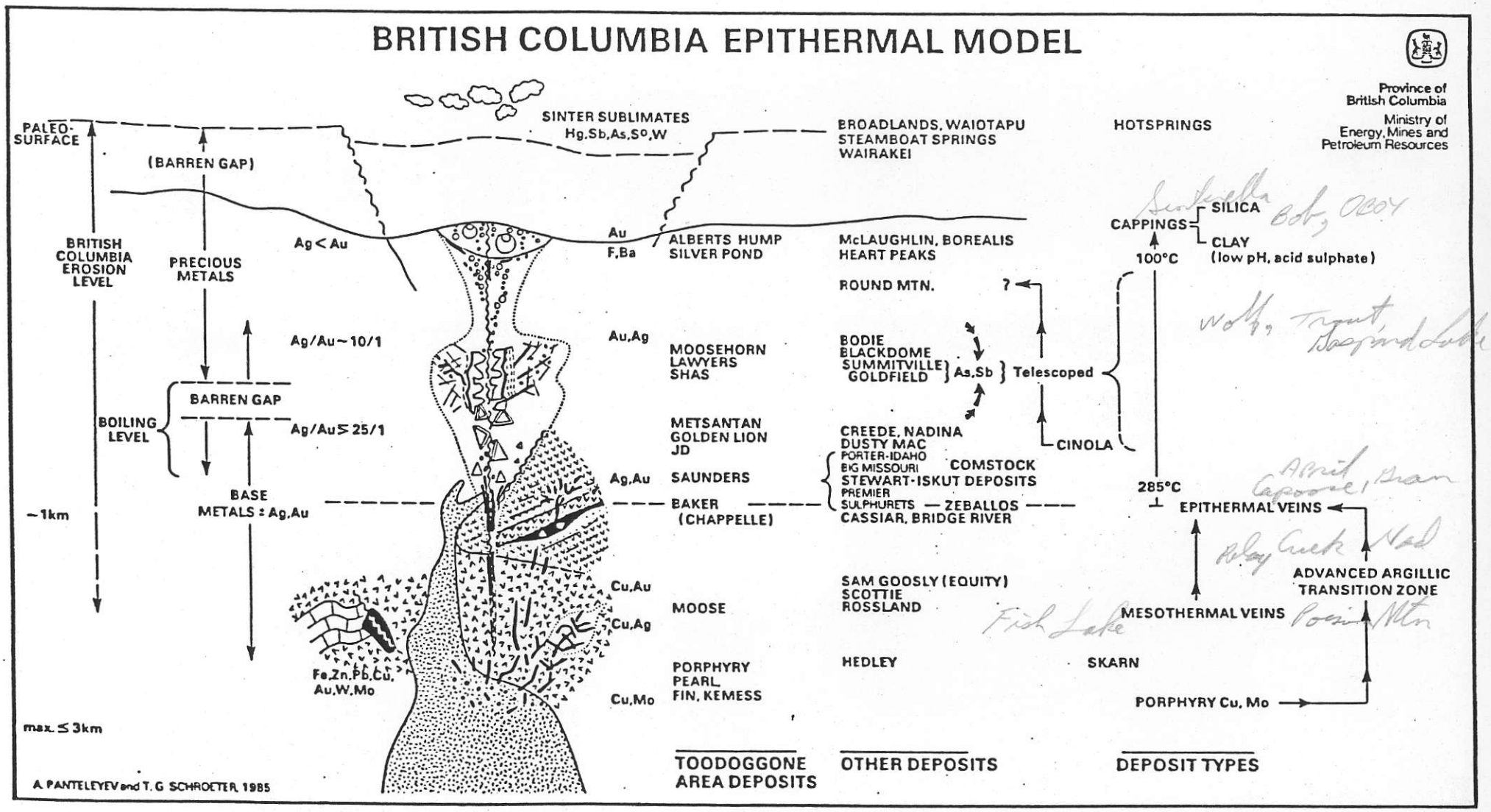
BRITISH COLUMBIA EPITHERMAL MODEL
Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
PALEO-SURFACE
(BARREN GAP)
SINTER SUBLIMATES
Hg,Sb,As,S°,W
BROADLANDS, WAIOTAPU
STEAMBOAT SPRINGS
WAIRAKEI
HOTSPRINGS
BRITISH COLUMBIA EROSION LEVEL
PRECIOUS METALS
Ag < Au
Au
F,Ba
ALBERTS HUMP
SILVER POND
McLAUGHLIN, BOREALIS
HEART PEAKS
CAPPINGS
SILICA
CLAY
(low pH, acid sulphate)
100°C
ROUND MTN.
?
Ag/Au ~ 10/1
Au,Ag
MOOSEHORN
LAWYERS
SHAS
BODIE
BLACKDOME
SUMMITVILLE
GOLDFIELD
As,Sb
Telescoped
BARREN GAP
BOILING LEVEL
Ag/Au ≥ 25/1
METSANTAN
GOLDEN LION
JD
CREEDE, NADINA
DUSTY MAC
PORTER-IDAHO
BIG MISSOURI
COMSTOCK
STEWART-ISKUT DEPOSITS
PREMIER
SULPHURETS — ZEBALLOS
CASSIAR, BRIDGE RIVER
CINOLA
Ag,Au
SAUNDERS
BASE METALS : Ag,Au
BAKER
(CHAPPELLE)
285°C
EPITHERMAL VEINS
~1km
Cu,Au
SAM GOOSLY (EQUITY)
SCOTTIE
ROSSLAND
ADVANCED ARGILLIC TRANSITION ZONE
MOOSE
Cu,Ag
MESOTHERMAL VEINS
Fe,Zn,Pb,Cu,
Au,W,Mo
PORPHYRY
PEARL
FIN. KEMESS
HEDLEY
SKARN
Cu,Mo
PORPHYRY Cu, Mo
max. ≤ 3km
TOODOGGONE AREA DEPOSITS
OTHER DEPOSITS
DEPOSIT TYPES
A. PANTELEYEV and T. G. SCHROETER, 1985

FIGURE 455-4

EXPLORATION POTENTIAL OF THE NECHAKO BASIN

The Nechako Basin is a wedge-shaped area bounded on the west by Late Jurassic to Early Tertiary crystalline rocks of the Coast Plutonic Complex and on the southwest and south by predominently Jurassic and Cretaceous supracrustal rocks of the Tyaughton Trough. The eastern margin consists of late Paleozoic to Middle Jurassic strata and intrusions of the Cache Creek Terrane (see Figures 455-5 and 455-7). A Middle Jurassic paleo-topographic high known as the Skeena Arch forms the northern margin.

The Nechako Basin Project area as defined in this proposal is bounded on the west and southwest by the Coast Crystalline Belt and the east boundary of Tweedsmuir Park, on the north by Provincial Highway 16 and on the east by the Fraser River (see Figure 455-1). It therefore includes parts of the Tyaughton Trough and the Cache Creek Terrane and does not extend as far north as the Skeena Arch. An area 24 km in diameter centered on Blackdome Mountain is excluded from the project area to preclude any conflict of interest between Exaton and Blackdome Mining Corporation. There is a similar 2 km perimeter of exclusion around the Wolf property (see Figure 455-6) because J. M. Dawson is an insider of Lucero Resource Corp., one of the Joint Venture Partners in this property.

Geologically, the basin consists of a thick and varied sedimentary succession of Jurassic through Eocene strata cut by syn-and post-depositional faults. Most of the region appears to have bean emergent after late Middle Jurassic time and was the site of Late Jurassic, Early Cretaceous to Late Tertiary continental (subaerial) volcanism.

Scattered through the basin are intrusions of various ages - from Late Triassic to Mid Tertiary (see Figure 455-5). Some of the Late Cretaceous and Early Tertiary intrusives are probably consanguinous with the Ootsa Lake and related volcanic sequences. They may have provided the heat to drive the convecting epithermal systems.

Recent work by the Geological Survey of Ganada has located several extensional metamorphic terranes around the margins of the basin, e.g. Tatla Lake Complex, Bridge River Complex, Central Gneiss Complex (in Whitesail Lake area), and the Corkscrew Creek Orthogneiss in the Vanderhoof area. Hickson (1989) states that the presence of these metamorphic complexes (with reset ages), the abundance of block faulting (at least in the northern part of the basin), and the widespread presence of Miocene and younger plateau basalts in the central and southern parts attest to the important role of <u>crustal extension</u> in the younger history of the Nechako-Chilcotin region.

Numerous writers have noted the genetic relationship of epithermal precious metal systems with subaerial volcanism, e.g. Sillitoe (1977). This is true on a grand scnle in the "Great Basin" of the western United States and to a significant extent in the Nechako Basin (the number of known epithermal occurrences in the Nechako Basin may be a function of the amount of exploration to date). Block faulting is also an important control in the localizing of such systems. In addition, the clustering of deposits in zones or "trends" e.g. the Carlin Trend, the Battle Mountain-Eureka Trend points to some underlying, fundamental, tectonic controls. Both these latter features are noted from the limited amount of data available on the Nechako Basin.

A compilation was made of known epithermal and possibly epithermal-related mineral occurrences in the Nechako Basin (see Figure 455-6). These are subdivided according to the categories on the models shown in Figures 455-2 and 455-4 showing a number of prospective trends and indicating the depth of erosion relative to hot spring paleo surfaces in the basin.

A total of 50 mineral occurrences are documented within the area of intereat that can be characterized as either: (a) epithermal alteration zones (i.e. very high level); (b) high level epithermal precious metal showings; or (c) deeper level epithermal precious metal - base metal showings (see Figure 455-

6). Two additional categories of mineral occurrences are also outlined: (d) high level porphyry systems with some epithermal characteristics; and (e) deeper level porphyry systems with no epithermal association, (e.g. no associated precious metals or nearby As, Sb or Hg showings).

An examination of Figure 455-6 shows a number of significant trends or clusters of similar showing types. Type B showings are clustered primarily in the southeast and northwest corners respectively of the project area. This is undoubtedly due in part to better exposure and of historically more intense exploration (for other commodities) and better road access.

Linear trends of the like-showings can also be discerned. The Mad, Stirrup Creek, Blackdome and Gaspard Lake occurrences are oriented in a northwesterly direction and trend towards the eastern edge of a large, circular structural feature.

In the northwest corner of the project area, (where there are more known showings), the northwest-southeast trend is demonstrated as well as a subsidiary ENE-WSW trend in showings of similar character. This ENE-WSW trend is also demonstrated in the ceatral part of the region by topographic lineers as well as the axis of the Anaheim Volcanic Belt (see Figure 455-7). It is highly significant that these two alignments are the two strongest or most prominent structural directions determined from

a lineament analysis carried out (using Landsat Thematic Mapper images) as part of the initial project research (see summary report by K.V. Campbell, P.Eng.).

Within the project area there is only one epithermal precious metal property which is currently in production, however there are several others which are at an advanced stage of exploration. On the Blackdome property, a swarm of quartz veins contain typical high level (Type B) gold-silver mineralization. This property has been in production since 1986 and currently has reserves in the order of 200,000 tonnes grading approximately 27 gm/T gold and 125 gm/T silver.

While a number of other known epithermal showings appear to be vein-like and therefore of probable small tonnage potential, some of the properties appear to have excellent potential for bulk tonnage deposits. Two examples of this type of prospect are the Capoose Property and the Wolf Property.

The Capoose Property is here categorized as a Type C epithermal occurrence. It consists of disseminated, gold and silver bearing, galena and sphalerite in rhyolite sills which are intrusive into Lower and Middle Jurassic, Hazelton Group volcanic and sedimentary rocks. Extensive exploration and drilling has outlined a geological resource of approximately 31.2 million tons

grading 1.05 oz/ton silver and 0.01 oz/ton gold with additional lead and zinc values.

The Wolf property contains three large epithermal systems and is transitional between epithermal occurrences of Types A and B. The mineralization is in most cases typical of the deeper parts of a Type A occurrence with the so-called bonanza zone being breached at only one location. The property is a classic example of a volcanic hosted epithermal system (see Figure 455-2). Three large areas are more or less pervasively flooded with chalcedonic silica typical of the so-called barren silica cap. Gold-silver values are very low which is typical of this part of such a system. (Fluid inclusion data indicate that the present surface is less than 100 metres below the original paleo-hot spring surface).

At one of these large silica-flooded areas, a portion of the underlying "bonanza zone" is exposed. Here heavily silicified, multi-stage breccias contain values of up to 8.5 gm/tonne gold and 42 gm/tonne silver over 7.5 metres. A separate but nearby, parallel zone gives values of up to 2.7 gm/tonne gold and 14 gm/tonne silver over 26.5 metres.

This property contains many of the features of similar volcanic hosted, gold-silver deposits in Nevada (see Table 1) such as Round Mountain (195 million tons grading 0.043 oz/ton

gold), Paradise Peak (12 million tons grading 0.10 oz/ton gold and 3.0 oz/ton silver), and Rawhide (24.1 million tons grading 0.045 oz/ton gold and 0.47 oz/ton silver).

In summary, the Nechako Basin has excellent potential for the discovery of epithermal precious metal deposits of both the low grade, bulk tonnage type or the higher grade, low tonnage "bonanza" type.

PROPOSED PROSPECTING PROGRAMME

The proposed programme will utilize seasoned explorationists, who have extensive experience in the recognition and evaluation of epithermal systems to carry out detailed ground examination of target areas prioritized by research and satellite imagery analysis. Prospecting will focus on the recognition and evaluation of alteration zones, favourable structure and extensions of known mineralized trends. There is an excellent system of roads in the project area (see Figure 455-8) so that 80% of the area can be accessed by a combination of four wheel drive and all terrain vehicles.

An initial phase of research, data acquisition, and preprogramme planning will enlarge upon current information and further refine exploration priorities. This phase will extend from mid April to mid May. Work during this period will consist of acquisition of further data on previous exploration, integration of government geochemical data with private geochemical data from other sources, examination of existing aeromagnetic data, upgrading knowledge of known access routes by acquisition of detailed logging plans and finalizing the logistics of the field programme.

The field programme will last from approximately June 1 through October 31. It will be carried out by two exploration

teams of two men each, supplemented from time to time by other experienced personnel. These teams will systematically examine preselected areas by detailed prospecting and soil and rock sampling. Due to extensive logging activity in recent years, there are numerous skid trails and clear cut areas which expose new ground never before displayed in such detail. Because of some enticipated competitor activity, it is possible that some high-priority target areas will be protected by staking before the actual field programme begins. Field operations will be conducted from mobile base camps (small trailers) so that excess road trevel is eliminated. Some helicopter support may be required in the west central part of the project area. Obviously certain areas will have higher exploration priorities than others, however it is hoped to make a first pass through the entire area by October 31. New prospects or areas considered to be of merit will be staked immediately and left for later follow-up.

Exploration priorities will undeubtedly change as more information is acquired on the project area. Research to date has resulted in the staking of one property (see Appendix C) and the delineation of three higher priority areas (see Figure 455-7).

Priority 1 area is located in the southern part of the basin between Taseko River and Big Creek. It is centered about a

circular structural feature outlined on landsat photos. This feature is roughly 45 km in diameter and is bisected by the east-northeast trending Konni Lineament (see Figure 455-7). A number of other lineaments or structural trends appear to be tangential to this circular feature. For instance, the northwesterly extension of the Mad-Stirrup Creek-Blackdome-Gaspard Lake trend coincides with its northeast edge. Four bodies of intrusive feldspar porphyry coeval with Eocene subaerial volcanics are located around the periphery of this structure. Five mineral properties, including the Fish Lake copper-gold porphyry deposit, are spatially related to the rim of the circular structure.

This feature may represent a caldera and as such, the extensive structural, ground preparation associated with its collapse may be loci for epithermal mineralization. The coincident mineralization, alteration, Eocene intrusive activity and extensive fracturing make it a prime exploration target.

Priority 2 area is an east-northeasterly trending zone which parallels the axis of the Anaheim Volcanic Belt end the Blackwater Lineament (see Figure 455-7). It is a trend which includes 5 significant, epithermal mineral occurrences (Wolf, Gran, Capoose, Mount Davidson and April). Areas to the west of Wolf and east of April have no current claim holdings and appear to be poorly explored. Recent logging activity has provided additional roads and clear cut areas for access and prospecting.

Priority 3 area represents a similar east-northeast-trending zone which encompasses 12 known epithermal occurrences, 6 of which are classified as Type B - i.e. high level showings with significant gold-silver values. This area has been fairly extensively explored to the west, however the central and eastern areas contain relatively few claim holdings. The most easterly of tha mineral showings is the Trout prospect (see Figure 455-7), a significant new deposit which has been extensively explored by Kerr Addison Mines and Welcome North Mines over the past few years.

The final phase of the programme will consist of collation of data, preparation of base maps showing all interpreted results and the compilation of a summary report with recommendations as to further work. This final stage of the programme should be completed by year end.

APPENDIX "A"

PROPOSED BUDGET

BUDGET

Phase I

Preprogramme Planning; acquisition of all available geochemical and geophysical data as well as forestry maps, etc.

(A) Labour

J. M. Dawson, P.Eng. 5 days @ $400/day	$2,000.00	
G. D. Belik 10 days @ $400/day	4,000.00	
L. P. Duquette 20 days @ $200/day	4,000.00	
		$10,000.00

(B) Expenses and Disbursements

1) Topographic maps, geological reports, government geochemical data, Aeromagnetic maps, logging & forestry maps, etc.	$3,000.00	
2) Secretarial, Xerox, telephone, fax, blueprints, etc.	500.00	
		3,500.00
	Contingency	1,500.00

(C) Costs of initial research and ground acquisition to date		$35,000.00
	Total Phase I	$50,000.00

Phase II Field Programme

(a)	Project Management and Travel		$10,000.00
(b)	Field Personnel		
	J. M. Dawson 20 days @ $400/day	$ 8,000.00	
	G. D. Belik 80 days @ $400/day	32,000.00	
	L. P. Duquette 100 days @ $200/day	20,000.00	
	Two field assistants 100 days ea @ $130/day (includes burden on wages)	26,000.00	
			$ 86,000.00
(c)	Board and Lodging 400 man-days @ $50/man-day		20,000.00
(d)	Truck Rental (includes gas, repairs & mileage) 200 truck-days @ $80/truck-day		16,000.00
(e)	Assays and analyses		15,000.00
(f)	Telephone and Radiophone rental		2,000.00
(g)	Field equipment, supplies, expendibles		4,000.00
(h)	Freight		1,000.00
(i)	Allowance for contract helicopter support 20 hours @ $700/hour		14,000.00
(j)	Allowance for contract claim staking		10,000.00
(i)	Contingency		22,000.00
		Total Phase II	$200,000.00

Phase III

Tabulation and interpretation of data, preparation of maps and writing of Summary Report	$15,000.00

APPENDIX "B"

SUMMARY REPORT ON LINEAMENT ANALYSIS

SUMMARY REPORT

LINEAMENT ANALYSIS
Nechako Basin Project

This brief summary describes the method and results of the first stage of a Landsat satellite regional structural analysis.

Five Landsat 5 Thematic Mapper (TM) images covering the Nechako Trough were obtained from the Canada Centre for Remote Sensing in Prince Albert, Saskatchewan. The scenes were acquired on four different dates; July 24, 1984, and May 5, June 18 and July 27 of 1985. These dates were chosen because of their cloud-free coverage and minimum amount of snow cover. Scenes taken in 1984 or 1985 are preferred because they show a minimum emount of logging. Each scene covers an area of about 90 km square. The spectral sampling area (picture element or pixel) is 30 x 30 m.

The images used in the lineament analysis were color composites of TM bands 3,4 and 5 in the order of blue, green and red. This composite includes one band from each of the visible (red), near infrared, and shortwave infrared parts of the spectrum. Healthy green vegetation appears green in this composite. This combination of bands is used because is is highly sensitive to soil moisture content and vegetation vigor which are often increased over fracture zones.

The images were photo-enlarged to a scale of 1:250,000. The lineament analysis was performed on clear acetate overlays directly on the images. This information was then transferred to vellum overlays on 1:250,000 scale topographic maps. The 1:500,000 scale compilation was made from photo-reductions of the 1:250,000 scale vellums.

Shuttle Imaging Radar data was available for a 100 km wide strip running from Quesnel to Taseko Lakes. Several lineaments were seen on this imagery that are not apparent on the Landsat scenes. These have been compiled on the 1:250,000 and 1:500,000 lineament maps.

Three general classes of lineaments are mapped, in decreasing scale; regional trends of broad valleys and landform boundaries such as the Alexis and Konni lineaments, major drainage lineaments such as the Blackwater lineament, and the numerous shorter topographic and tonal lineaments. The latter are separated into well defined, moderately defined and subtle lineaments but this has no bearing on the relative significance or veracity.

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All of these features are considered to mark fractures, which may or may not be faults. Two major sets of lineaments are recognized:

1) Northwest; parallel to the eastern boundary of the Nechako Trough, which is possibly marked by the extension of the Fraser Fault, and the western boundary marked by the Yalakom Fault. Regional northwest structures in the center of the Trough are the Ootsa, Chilcotin and Alexis lineaments. The Alexis lineament may project southeast to faults mapped along Chilcotin River and Gaspard Creek. The northwest set of lineaments is most likely to mark right lateral shear fractures.

2) East-northeast; examples are the Blackwater and Konni lineaments and major fracture zones interpreted to lie along major valleys such as Tatla Lake and Chilko River. Both high and low angle shears can be expected in this orientation, given the distribution of regional forces. The possibility of extensional fractures (low angle Reidel shears or thrust faults) should be tested. It could be significant that the Anaheim Volcanic Belt (Souther and Clague, CJES, v.24, p.2477-85, 1987) eubparallels this trend.

Less common lineament sets trend northeast and northerly.

The radar imagery revealed well defined arcuate features north and northeast of Taseko Lakes. There are interpreted to mark fracture zones, but their significance is not yet known.

The analysis was successful in identifing many more structures than previously mapped. It remains to be determined what the relationship is of the regional structures to mineralization.

The reader is reminded that the imagery used in this work was a standard product, with no unique enhancement of the spectral data and incorporating only three of six possible spectral bands. A great deal of structural data remains to be extracted and I recommend the client proceed with Stage IB, previously proposed, a spectral analysis in the vicinity of selected known mineral occurrences using digital data. As outlined in the proposal the estimated cost of such digital analysis is about $8,000 to $9,000 per selected area.

K.V. Campbell
March 14, 1989

To accompany 1:500,000 scale compilation and 1:250,000 scale sheets 92N,92O,93B,93C,93F,93G

APPENDIX "C"

SUMMARY OF GRAN-LAID PROPERTY (88 CLAIM)

SUMMARY OF GRAN-LAID PROPERTY (88 CLAIM)

The 88 claim is located 115 km southwest of Vanderhoof and 10 km south of the Capoose Lake Deposit. This claim covers the core of the former Gran and Laid claims owned by BP-Selco from 1981 to 1987. The Gran and Laid claims were staked to cover an anomaly outlined by a regional lake bottom sediment survey and subsequent follow-up. The geochemical signature resembled that found at the Capoose property.

The property is underlain primarily by an assemblage of acid to intermediate volcanics of the Hazelton Group with some older more basic volcanics of the Takla Group. These rocks are intruded locally by diorite and granodiorite.

Work by BP-Selco outlined a zinc-arsenic anomaly which is roughly 7 km long (WNW-ESE) and up to 1.5 km wide. Within this there is a core area of coincident anomalous Pb-Zn-As about 3 km X 1 1/2 km (now covered by the 88 claim). Other local areas of anomalous Pb-As and Au lie outside of the current claim - immediately to the southeast.

BP-Selco performed geological mapping and limited trenching in 1982 and located "Three and possibly four mineralized, sub-parallel, rhyodacitic lapilli tuff units with average exposed widths of 1.5 metres containing anomalous lead-zinc-silver and gold values. These units have been intermittently exposed over a 200 metre strike length. Best values are 94.5 PPM silver and 880 PPB gold. These mineralized units are fault bounded, mineralization consists of minor to semi-massive pyrite and pyrrohotite with disseminated galena and sphalerite and occasional chalcopyrite. Lead values in mineralized rock chips varied from 1935 to 9639 PPM with an average of 5279 PPM. Zinc values ranged from 520 to 11,503 PPM with an average of 5905 PPM. Silver ranges from 4.9 to 94.5 PPM with an average of 46 PPM. Gold values range from 25 to 880 PPB with an average of 320 PPB."

Follow-up work in 1983 was very limited and on the basis of 3 widely spaced trenches and some local mapping B.P.-Selco wrote the project off. The gold anomaly (values up to 450 PPB in soils) was described as being of placer origin even though it occurs on the side of a hill.

The property was staked because it is a very attractive geologic setting; heavily pyritic units, intrusive rhyolite breccias and magnetic skarm units are noted but not investigated in any detail. A new logging road was constructed in 1986 immediately south of 88 claim (through parts of the existing anomaly). Parts of the area containing the lead-areenic and gold aoomalies outside the cnrrent claim block are slated for logging in the immediate future.

In summary, the 88 claim covers the core of a large Type C epithermal system which in the writer's opinion has not been very thoroughly prospected and never drilled.

APPENDIX "D"

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REFERENCES

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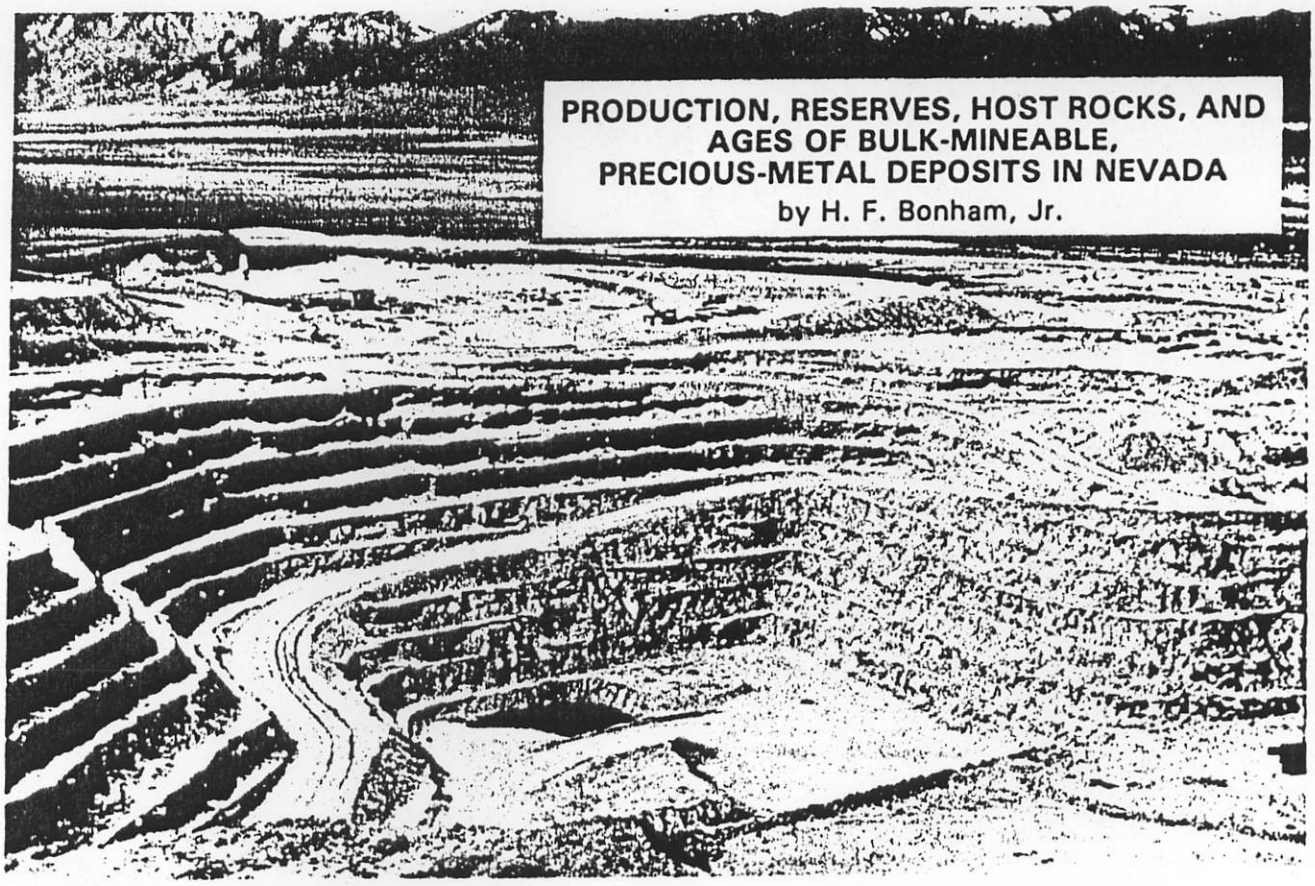
TABLE 1



PRODUCTION, RESERVES, HOST ROCKS, AND AGES OF BULK-MINEABLE, PRECIOUS-METAL DEPOSITS IN NEVADA

by H. F. Bonham, Jr.

Southwest pit of the Round Mountain gold mine (Smoky Valley Mining Company). *H. F. Bonham, Jr. photo.*

NOTE: see NBMG Map 91 for locations.

Deposit name	Announcement date	Reserves (estimated or announced)	Production period	Production	Host rock	Mineralization age
Alligator Ridge	Jan 83	5 million tons 0.09 oz Au/ton	1981–83	2 million tons 0.11 oz Au/ton to 1 Jan 83; 60,000 oz Au, 14,000 oz Ag/year	Pilot Shale	early Oligocene?
	1986	1.79 million ton 0.064 oz Au/ton				
Ashdown	1987	1.16 million tons 0.125 oz Au/ton		exploration	Mesozoic granitic rocks	Mesozoic
Atlanta	1980	1.1 million tons 0.08 oz Au, 1.6 oz Ag/ton	1980–84	88,000 oz Au, 1,710,000 oz Ag to Oct 80	Pogonip Group, Ely Springs and Laketown Dolomites, Oligocene silicic tuff, dacite dikes	early Miocene?
Austin Gold Venture	1986	1.75 million tons 0.16 oz Au/ton		55,000 oz Au/year	Antelope Valley Limestone	Cretaceous or Tertiary
Aurora	1983	1.5 million tons 0.129 oz Au, 0.3 oz Ag/ton	1930's 1983	500,000 tons 0.2 oz Au/ton 85,000 tons 10,000 oz Au	andesite, rhyolite	10 m.y.
Bell Mtn.	1982	1 million tons 0.055 oz Au, 1.4 oz Ag/ton (possible additional 1 million tons 0.022 oz Au, 1.0 oz Ag/ton *Sphinx zone:* 50,000 tons 0.14 oz Au, 3.3 oz Ag/ton)		no production	rhyolitic tuff	Miocene
Big Springs (Sammy Creek)	1987	3.3 million tons 0.18 oz Au/ton		60,000 oz Au/year proposed	Mississippian to Permian overlap assemblage	Cretaceous or Tertiary

continued

PRODUCTION, RESERVES, HOST ROCKS, AND AGES OF BULK-MINEABLE, PRECIOUS-METAL DEPOSITS IN NEVADA (continued)

Deposit name	Announcement date	Reserves (estimated or announced)	Production period	Production	Host rock	Mineralization age
Borealis	1981 1984	2.1 million tons 0.08 oz Au, 0.5 oz Ag/ton 2.5 million tons 0.07 oz Au/ton	1981–84 1986	2.1 million tons 170,000 oz Au 40,000 oz Au/year	rhyolite flow dome, andesite flows, breccias, volcaniclastic rocks	5 m.y.
Blue Star	Mar 87	1.95 million tons 0.066 oz Au/ton	1974–84	intermittent	lower Paleozoic sandy siltstone and carbonate rocks, granodiorite	37.5 m.y.
Bootstrap		300,000 tons 0.15 oz Au/ton; 900,000 tons 0.028 oz Au/ton	1974–84 1987	heap leaching low-grade ore exploration	dacitic dikes, Paleozoic siltstone and laminated limestone and chert	~37 m.y.
Buckhorn	1984 1986	*Cominco:* 5 million tons 0.044 oz Au, 0.585 oz Ag/ton *Northern Dynasty:* 2 million tons 0.056 oz Au, 0.224 oz Ag/ton 3.215 million tons 0.048 oz Au, 0.58 oz Ag/ton		30,000 oz Au, 270,000 oz Ag/year (projected by Cominco)	basaltic andesite, sinter, and silicified sediments	14.6 m.y.
Buffalo Valley	1986	333,000 tons 0.09 oz Au/ton		10,000 oz Au/year	Havallah Formation	Eocene
Burns Basin	1986	3.2 million tons 0.177 oz Au/tons 804,000 tons 0.038 oz Au/ton		pre-production	Roberts Mountains and Hanson Creek Formations	Cretaceous or Tertiary
Candelaria	1982	18.5 million tons 1.09 oz Ag, 0.009 oz Au/ton		1.7 million oz Ag, 9,000 oz Au/year	Candelaria Formation serpentinite, granitic dikes	Cretaceous
Carlin	1984 1987	4.5 million tons 0.16 oz Au/ton 1.5 million tons 0.127 oz Au/ton	1965–84	14 million tons 4,300,000 oz Au	Roberts Mountains Formation	~37 m.y.
Carlin Trend	Prospects with significant mineralization: Bobcat, near Genesis, 25 ore-grade holes, 1986; Capstone, north of Post, 60 ore-grade holes, 1986; Gold Quarry (Deep West), 15 deep ore-grade holes, 1986; Gnome, near Rain, 3 million tons ore-grade, 1986; Lantern, between Carlin and Blue Star, four ore-grade holes, 1986; North Star, north of Genesis, feasibility studies to determine total ore reserves, 1986; Tusc, eight ore-grade holes, 1986.					
Chimney Creek	1987	20.5 million tons 0.065 oz Au/ton		~150,000 oz Au/year	Etchart Limestone	Cretaceous or Tertiary
Cortez		mined out	1968–82	3,562,100 tons 0.279 oz Au/ton	Roberts Mountains Formation	34 m.y.
Crofoot	1987	15 million tons 0.032 oz Au/ton		pre-production	Camel conglomerate, rhyolite dikes	1–2 m.y.
Dee	1982 1985	2.5 million tons 0.12 oz Au/ton; 1.1 million tons 0.028 oz Au/ton heap-leach 2.14 million tons 0.133 oz Au/ton mill-grade 1.5 million tons 0.027 oz Au/ton heap-leach		30,000 oz Au/year	Vinini Formation, Devonian carbonates, dacitic dikes	Cretaceous or Tertiary
Dexter	1987	2 million tons 0.04 oz Au, 1.9 oz Ag/ton	1896–1902	29,940 oz Au 28,543 oz Ag	Eocene rhyolitic ignimbrite and andesite	38 m.y.
Fire Creek	1982	350,000 tons 0.06 oz Au/ton	1983–84	767 oz Au	basaltic andesite	Miocene
Florida Canyon	1987	24 million tons 0.024 oz Au/ton	1987	60,000 oz Au/year	Grass Valley Formation	Cretaceous or Tertiary
Flowery	1986	500,000 tons 36,000 oz Au, 428,000 oz Ag		production scheduled for mid-1987	Alta Formation	12 m.y.
Fondaway Canyon	1986	4.4 million tons 0.134 oz Au/tons	1987	exploration	Triassic slate and phyllite	Cretaceous

PRODUCTION, RESERVES, HOST ROCKS, AND AGES OF BULK-MINEABLE, PRECIOUS-METAL DEPOSITS IN NEVADA (continued)

Deposit name	Announcement date	Reserves (estimated or announced)	Production period	Production	Host rock	Mineralization age
Fortitude (Copper Canyon) (Battle Mtn.)	1984	16 million tons 0.15 oz Au, 0.57 oz Ag/ton	1978–84	*Tomboy-Minnie deposits:* 3.9 million tons 0.09 oz Au 0.28 oz Ag/ton	Battle Formation, Antler Peak Limestone, Pumpernickel Formation	37 m.y.
	1986	7 million tons 0.23 oz Au, 0.57 oz Ag/ton	1986	259,000 oz Au/year 902,000 oz Ag/year		
Genesis	1987	14 million tons 0.097 oz Au/ton	1986	production commenced in 1986	Silurian-Devonian carbonate rocks	~36–37 m.y.
Getchell	1983	3.25 million tons 0.18 oz Au/ton (possible 10 million tons 0.16 oz Au/ton)	1938–50, 62–67	788,875 oz Au 2,113,030 tons 0.37 oz Au/ton	Comus Formation, Preble Formation, granodiorite dikes, granodiorite	90 m.y.
	1987	8 million tons 0.175 oz Au/ton				
Gold Acres and Little Gold Acres	1987	4.8 million tons 0.105 oz Au/ton	1942–84	2.4 million tons 0.13 oz Au/ton; 2 million tons 0.041 oz Au/ton leached *Little Gold Acres:* 800,000 tons 0.124 oz Au/ton	Roberts Mountains Formation, Wenban Limestone, Valmy Formation, quartz porphyry dikes	92.8–94 m.y. and 36 m.y.
Gold Bar	1984	2.8 million tons 0.09 oz Au/ton	1987	45,000 oz Au/year	Nevada Formation	Eocene
	1987	2.8 million tons 0.109 oz Au/ton				
Goldfield	1983	1.75 million tons 0.087 oz Au/ton	1903–45	4.19 million oz Au 1.45 million oz Ag	andesite, rhyodacite, rhyolite	21 m.y.
Gold Quarry	1984	183 million tons 0.043 oz Au/ton (of this, 45 million tons 0.078 oz Au/ton)	1985	170,000 oz Au/year	Ordovician to Devonian chert, shale, siltstone, and impure carbonates, in part, Vinini Formation	~36–37 m.y.
	1987	198 million tons 0.042 oz Au/ton				
Gold Strike (Bazza, Post)	1983	250,000 tons 0.1 oz Au/ton; 3 million tons 0.04 oz Au/ton	1980–86 1986	221,000 oz Au 48,000 oz Au/year	Vinini Formation, granodiorite, latite, skarn	~36–37 m.y.
	1987	12 million tons 0.05 oz Au/ton				
Hasbrouck	1982	5 million tons 0.06 oz Au, 1.5 oz Ag/ton		no production	Siebert Formation tuff and volcaniclastic rocks	16 m.y.
	1986	12.9 million tons 0.0291 oz Au, 0.59 oz Ag/ton				
Hilltop	1984	10.3 million tons 0.073 oz Au/ton (of which 800,000 tons 0.055 oz Au/ton is oxide and 5.7 million tons, 0.079 oz Au/ton is mineable by open-pit methods)		no production	Valmy Formation	Oligocene?
Hog Ranch	1984	2.5 million tons 0.085 oz Au/ton	1986	50,000 oz Au/year	rhyolite, explosion breccia, sinter	15–16 m.y.
	1986	5 million tons 0.08 oz Au/ton				
Horse Canyon	1984	3.94 million tons 0.055 oz Au/ton	1984	40,000 oz Au/year	Vinini Formation, Wenban Limestone	34 m.y.?
Ivanhoe	1986	8 million tons 0.045 oz Au/ton		exploration	rhyolitic tuff, flows, volcaniclastic rocks	Miocene
Jerritt Canyon	1981	12.5 million tons 0.231 oz Au/ton	1981–84	962,500 tons/year	Hanson Creek and Roberts Mountains Formations	Cretaceous or Tertiary
	1985	4.5 million tons 0.14 oz Au/ton (additional reserves)	1986	~270,000 oz Au/year		
	1986	16 million tons 0.174 oz Au/ton				

continued

PRODUCTION, RESERVES, HOST ROCKS, AND AGES OF BULK-MINEABLE, PRECIOUS-METAL DEPOSITS IN NEVADA (continued)

Deposit name	Announcement date	Reserves (estimated or announced)	Production period	Production	Host rock	Mineralization age
Lewis	1984	10 million tons 0.04 oz Au/ton	1984	3,500 tons/day	Camel conglomerate rhyolite dikes	1-2 m.y.
	1987	6 million tons 0.032 oz Au/ton				
Little Bald Mtn.	1986	1 million tons 0.10 oz Au/ton	1985-86	140,000 tons 0.08 oz Au/ton	Antelope Valley Formation	Eocene
Maggie Creek	1984	3.6 million tons 0.079 oz Au/ton	1984	1,250,000 tons/year	Ordovician to Devonian siltstone, chert, sandstone, impure limestone	Cretaceous or Tertiary
	1986	6.7 million tons 0.045 oz Au/ton	1986	intermittent production		
Manhattan	1983	5 million tons 0.036 oz Au/ton	1905-59 1983	500,000 oz Au 26-27,000 oz Au/year	Gold Hill Formation	16 m.y.
	1986	1 million tons 0.036 oz Au/ton, *east pit* 2.5 million tons 0.08 oz Au/ton, *west pit*	1986	3,000 tons/day		
Marigold	1987	5 million tons 0.078 oz Au/ton	1986	exploration	Battle Formation	37 m.y.?
McCoy	1981	2.5 million tons 0.08 oz Au, 1 oz Ag/ton			Augusta Mountain Formation, granodiorite	36 m.y.
	1986	6 million tons 0.055 oz Au/ton	1986	50,000 oz Au/year		
Northumberland	1981	17 million tons 0.045 oz Au/ton	1939-42 1981-84	220,284 tons 327,000 oz Au 950,000 tons/year	Roberts Mountains and Hanson Creek Formations, granodiorite, tonalite, quartz porphyry dikes	85 m.y.
	1986	773,000 tons 0.07 oz Au/ton	1986	leaching existing heaps only		
Paradise Peak (Goose)	1984	10 million tons 0.1 oz Au, 3 oz Ag/ton			rhyolite flows, ash-flow and air-fall tuffs, and andesite flows	Miocene
	1986	12 million tons 0.097 oz Au, 3.52 oz Ag/ton	1986	143,000 oz Au 1,088,000 oz Ag		
Pete	1987	572,000 tons 0.198 oz Au/ton		exploration	Roberts Mountains Formation	36-37 m.y.
Pinson	1980	3.245 million tons 0.119 oz Au/ton		1,500 tons/day 56,000 oz Au/year	Comus Formation	90 m.y.
	1984	*CX zone:* 490,000 tons 0.106 oz Au/ton; 500,000 tons leach ore				
	1985	1.049 million tons 0.09 oz Au/ton	1986	67,000 oz Au/year		
	1986	4.835 million tons 0.086 oz Au/ton mill-grade 1.064 million tons 0.027 oz Au/ton heap-leach				
Post	1987	Newmont Gold Co. holdings only 21.9 million tons 0.052 oz Au/ton	1987	pre-production	Vinini Formation	36-37 m.y.
Preble	1985	1.8 million tons 0.062 oz Au/ton	1985	360,000 tons/year 17,000 oz Au/year	Preble Formation	90 m.y.?
	1986	3.16 million tons 0.093 oz Au/ton heap-leach 80,000 tons 0.242 oz Au/ton mill-grade				
Rain	1984	8.3 million tons 0.083 oz Au/ton		no production	Webb Formation	36-37 m.y.
	1986	10 million tons 0.08 oz Au/ton		production scheduled for 1987-88		
Ratto Canyon	1984	~200,000 oz Au		exploration phase	Dunderberg Shale, Hamburg Dolomite	Oligocene
Rawhide	1986	24.1 million tons 0.045 oz Au, 0.47 oz Ag/ton (additional 15 million tons 0.014 oz Au/ton possible)		pre-production	rhyolite plugs, flows, tuffs, breccias	16 m.y.

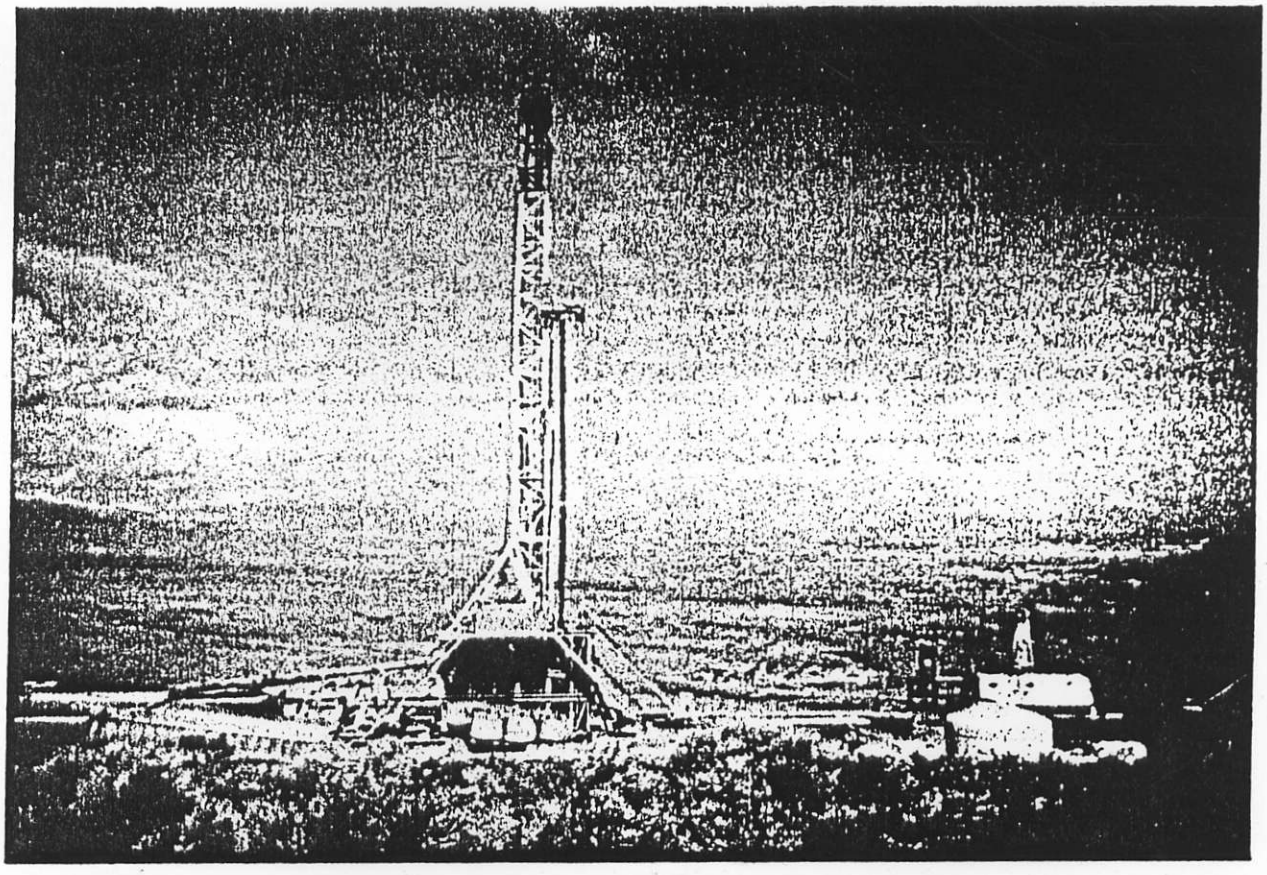
PRODUCTION, RESERVES, HOST ROCKS, AND AGES OF BULK-MINEABLE, PRECIOUS-METAL DEPOSITS IN NEVADA (continued)

Deposit name	Announcement date	Reserves (estimated or announced)	Production period	Production	Host rock	Mineralization age
Relief Canyon	1983	9 million tons 0.032 oz Au/ton	1984	24,500 oz Au/year 1 million tons/year	Natchez Pass Limestone, Grass Valley Formation	Cretaceous
	1986	5.3 million tons 0.03 oz Au/ton	1986	30,000 oz Au/year		
Rochester	1981	75 million tons 1.5 oz Ag/ton			Koipato Group, Weaver Rhyolite	Late Cretaceous
	1987	103 million tons 0.011 oz Au, 1.5 oz Ag/ton	1986	4 million oz Ag/year 43,000 oz Au/year		
Round Mtn.	1977	12 million tons 0.061 oz Au, 0.07 oz Ag/ton	1977–84	313,480 oz Au 160,419 oz Ag	rhyolite ignimbrite	25 m.y.
	1984	195 million tons 0.043 oz Au, 0.08 oz Ag/ton	1984	70,000 oz Au/year		
	1987	194 million tons 0.035 oz Au/ton (geologic reserve 406 million tons 0.030 oz Au/ton)				
Saval Canyon	1986	2.5 million tons 0.121 oz Au/ton		evaluation	lower Paleozoic carbonate rocks	Cretaceous or Tertiary
Santa Fe	1984	8 million tons 0.032 oz Au, 0.26 oz Ag/ton		evaluation phase	Luning Formation	Miocene
Sleeper	1985	4.2 million tons 0.13 oz Au, 0.73 oz Ag/ton (of which 1.4 million tons contains 0.35 oz Au, 1.0 oz Ag/ton)				
	1987	2.47 million tons 0.24 oz Au, 0.5 oz Ag/ton 38.3 million tons 0.025 oz Au, 0.24 oz Ag/ton	1986	128,000 oz Au 94,000 oz Ag	Miocene "latite" flows and dikes Triassic slate and phyllite	Miocene
Standard		mined out	1932–51	884,000 tons 46,602 oz Au 102,721 oz Ag	Natchez Pass Limestone, Grass Valley Formation	73 m.y.
Star Pointer	1986	1.5 million tons 0.14 oz Au, 0.3 oz Ag/ton (approximately 1.3 million tons averaging 0.08 oz Au/ton are present in district)	1986	48,000 oz Au/year 96,000 oz Ag/year	Rib Hill Sandstone Riepe Spring Limestone	Cretaceous
Sterling	1983	200,000 tons 0.20 oz Au/ton (possible 300,000 tons additional reserves of similar grade)	1984	58,000 tons 9,000 oz Au/year	Wood Canyon and Bonanza King Formations	14 m.y.
Sullivan	1987	10.2 million tons 0.039 oz Au, 0.086 oz Ag/ton and 0.37% Cu		exploration	Mesozoic granodiorite	Mesozoic
Surprise	1987	225,000 oz Au	1987	15,000–18,000 oz Au/year	skarn	37 m.y.
Taylor	1980	10 million tons 3 oz Ag/ton	1980	1,200 tons/day	Guilmette and Joana Limestones, rhyolite dikes	Eocene or Oligocene
Tonkin Springs	1983	1.84 million tons 0.089 oz Au, 0.204 oz Ag/ton		exploration phase	Vinini Formation, dacitic dikes	Oligocene?
	1987	1.5 milion tons 0.05 oz Au/ton 2.5 million tons 0.09 oz Au/ton	1987	30,000 oz Au/year		
Top	1986	2.5 million tons 0.10 oz Au/ton, *proven* 2.65 million tons 0.087 oz Au/ton, *possible*	1986	50,000 oz Au/year	granite porphyry Cambrian shale and limestone	35–38 m.y.
Trinity	1987	10 million tons 3.0 oz Ag/ton		production 1988	rhyolite plugs	Miocene

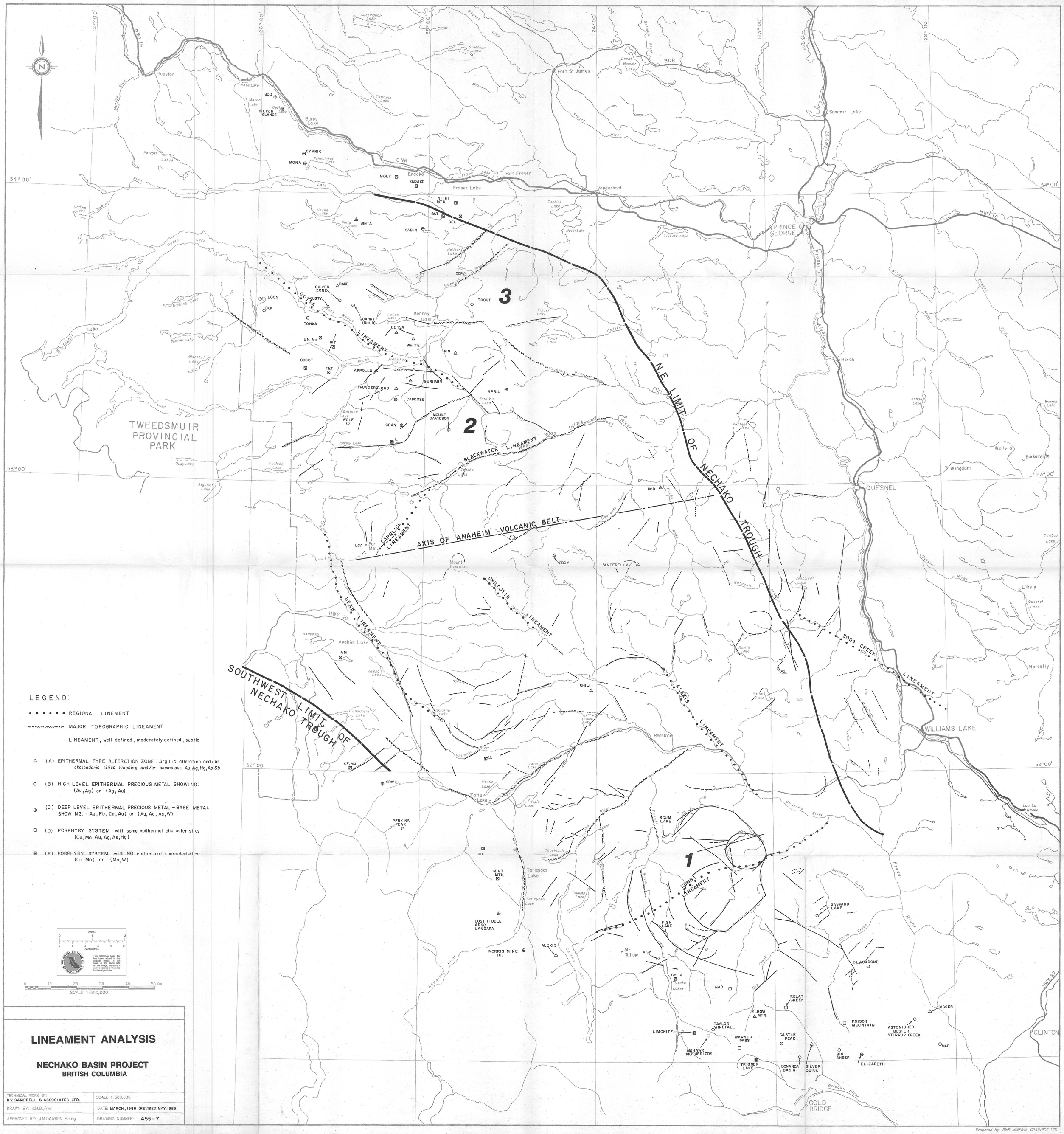
continued

PRODUCTION, RESERVES, HOST ROCKS, AND AGES OF BULK-MINEABLE, PRECIOUS-METAL DEPOSITS IN NEVADA (continued)

Deposit name	Announcement date	Reserves (estimated or announced)	Production period	Production	Host rock	Mineralization age
Weepah	1986	200,000 tons 0.1 oz Au, 0.4 oz Ag/ton	1986–87	2,500 oz Au/month	Wyman Formation	Cretaceous
Windfall		3 million tons 0.03 oz Au/ton	1908–16	65,000 tons 0.365 oz Au/ton	Hamburg Dolomite	Eocene or Oligocene
			1975–84	3 million tons 0.03 oz Au/ton		
Winters Creek	1986	1.4 million tons 0.146 oz Au/ton		evaluation, exploration	lower Paleozoic carbonate rocks	Cretaceous or Tertiary
Wright Window	1986	1.3 million tons 0.095 oz Au/ton		evaluation, exploration	lower Paleozoic carbonate rocks	Cretaceous or Tertiary



Western States Geothermal Company well No. 28-32 during drilling at Steamboat Springs in April, 1986. *Larry Garside photo.*


LEGEND:
REGIONAL LINEMENT
MAJOR TOPOGRAPHIC LINEAMENT
LINEAMENT; well defined, moderately defined, subtle
(A) EPITHERMAL TYPE ALTERATION ZONE: Argillic alteration and/or chalcedonic silica flooding and/or anomalous Au,Ag,Hg,As,Sb
(B) HIGH LEVEL EPITHERMAL PRECIOUS METAL SHOWING: (Au,Ag) or (Ag,Au)
(C) DEEP LEVEL EPITHERMAL PRECIOUS METAL - BASE METAL SHOWING: (Ag,Pb,Zn,Au) or (Au,Ag,As,W)
(D) PORPHYRY SYSTEM with some epithermal characteristics (Cu,Mo,Au,Ag,As,Hg)
(E) PORPHYRY SYSTEM with NO epithermal characteristics: (Cu,Mo) or (Mo,W)
SCALE 1:500,000
LINEAMENT ANALYSIS
NECHAKO BASIN PROJECT
BRITISH COLUMBIA
TECHNICAL WORK BY: K.V. CAMPBELL & ASSOCIATES LTD.
SCALE 1:500,000
DRAWN BY: J.M.D./rwr
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DRAWING NUMBER: 455-7
Prepared by: RWR MINERAL GRAPHICS LTD.
TWEEDSMUIR PROVINCIAL PARK
SOUTHWEST LIMIT OF NECHAKO TROUGH
N.E. LIMIT OF NECHAKO TROUGH
AXIS OF ANAHEIM VOLCANIC BELT
BLACKWATER LINEAMENT
CARNLICK LINEAMENT
DEAN LINEAMENT
CHILCOTIN LINEAMENT
ALEXIS LINEAMENT
SODA CREEK LINEAMENT
KONNI LINEAMENT
OOTSA LINEAMENT
Houston
Fort St James
Fort Fraser
Vanderhoof
PRINCE GEORGE
Summit Lake
QUESNEL
WILLIAMS LAKE
Hixon
Wingdam
Wells
Barkerville
Likely
Horsefly
Redstone
GOLD BRIDGE
CLINTON
Anahim Lake
Mount Downton
Lac La Hache
Fraser Lake
Kenney Dam
Burns Lake
Endako
SILVER GLANCE
BOO
CYMRIC
MONA
MOLY
ENDAKO
NITHI MTN.
BAT
GEL
BINTA
CABIN
COP
SILVER ZONE
BARB
GUSTY
LOON
DUK
TONKA
QUARRY (RHUB)
OOTSA
TROUT
UN. Mo
WT
WHITE
PIG
GODOT
TET
APPOLLO
ASPEN
AURUMIN
THUNDERCLOUD
APRIL
CAPOOSE
MOUNT DAVIDSON
WOLF
GRAN
L
BOB
ILGA
OBOY
SINTERELLA
MM
CHILI
ADA
KF, MJ
CA
ORWILL
PERKINS PEAK
BU
NIVT MTN.
LOST FIDDLE ARGO LANGARA
MORRIS MINE ICT
ALEXIS
SCUM LAKE
FISH LAKE
VICK
CHITA
NAD
LIMONITE
TAYLOR WINDFALL
MOHAWK MOTHERLODE
WARNER PASS
TRIGGER LAKE
ELBOW MTN.
RELAY CREEK
CASTLE PEAK
BONANZA BASIN
SILVER QUICK
BIG SHEEP
ELIZABETH
POISON MOUNTAIN
BLACKDOME
GASPARD LAKE
ASTONISHER BUSTER STIRRUP CREEK
BIGGER
MAD
1
2
3