SILVER BELL MINING COMPANY, INCORPORATED

CONCEPTUAL REPORT
on the

SILVER BELL MINE

AMERICAN FORK MINING DISTRICT
WASATCH RANGE
UTAH COUNTY, UTAH

by

P.R. Donovan Ph.D.

NEW YORK February 1996

SUMMARY

The Silver Bell mine of the Silver Bell Mining Company, Inc. (SBMC) is located in the American Fork Mining District in the Wasatch Range, Utah County, Utah, approximately 20 miles southeast of Salt Lake City. Mining of gold, lead, silver, copper and zinc from Tintic-type ores began in the district in 1870 and continued sporadically on a small scale until about 1959, since when there has been virtually no production. SBMC owns 23 patented lode claims and 3 patented millsites covering some 370 acres in this district, where it is the only active company. The geology of the district consists of a sequence of Pre-Cambrian and Paleozoic sediments invaded by a Tertiary batholith, the source of the mineralization. The district lies on a regional magnetic high, between Bingham Canyon to the the west and Park City to the east, coinciding with the Uinta-Gold Hill Arch.

The Silver Bell claim block consists of 7 patented lode claims and a millsite covering approximately 130 acres and underlain by a sequence of Paleozoic sediments - Cambrian Tintic Quartzite, Ophir Formation and Maxfield Limestone - which are the major hosts of polymetallic replacement mineralization in the district, and the Upper Paleozoic Fitchville Formation and Gardison Limestone. The ore presently developed in the Silver Bell mine is hosted in a N55-70E striking, 54-67deg N dipping, normally faulted fissure-vein between footwall Maxfield Limestone and hanging wall dolomites of the Fitchville Formation. This structure is inferred to extend for at least 3000' and possibly up to 5000'. There is additional resource potential, perhaps considerable, if bedded replacement deposits, such as those at Tintic, Park City, and in the nearby Miller mine, can be located at lower levels in the Silver Bell mine in the stratigraphically favorable horizons known to exist there.

The mineralization developed to date is mostly oxide. This averages 21.8 opt Ag, 1.3% Cu, 1.9% Pb, 1.5% Zn and 0.02 opt Au. Primary sulfide ore (galena, sphalerite, tetrahedrite, and pyrite in a quartz gangue) was first encountered in the mine in late 1983. Although a few hundred tons of the sulfide have been mined and stockpiled, none has ever been submitted for ore-dressing tests, milled, or sent to a smelter. Available assays of the sulfide ore give an average of 41.8 opt Ag, 4.4% Cu, 6.7% Pb, 10.4% Zn, and 0.01 opt Au.

The present mine workings consist of 2 adits, 5 levels or horizontal drifts and three declined drifts. The vein has been opened up along a strike length of 350' and over a vertical extent on the vein of 330'. There are approximately 1000' of developed drifts, most of which have strong mineralization in their roof. To date only 5,300 or so tons of ore have been mined, predominantly from oxide ores.

The Silver Bell mine currently contains a measured and indicated (demonstrated) resource of 94,800 tons of 27.65 opt Ag, 4.09% Zn, 2.23% Cu, 3.29% Pb and 0.017 opt Au, consisting of 71% oxide and 29% sulfide ore. However, the inferred resource, exceeding 1.1 million tons, is estimated to comprise 86% sulfide and to contain 39 opt Ag, 9.1% Zn, 6.0% Pb, 4.0% Cu and 0.011 opt Au. Silver represents 73% of the value of the oxide ore, and 53% of the sulfide ore.

An underground and surface drilling campaign is planned this summer to delineate an additional 70,000 tons of demonstrated resource and to better define the inferred resource.

No problems are anticipated in permitting for this patented ground, which is in progress. It is planned to acquire a used 300 tpd mill and install it on a millsite some 2000' topographically below the mine. Start-up is planned for July 1996, with mining commencing at 200 tpd and increasing to 400 tpd in 1997. Milling will start at 100 tpd and increase to 300 tpd or 72,000 tpy in 1998. Careful planning is required to ensure sufficient production and mine development during the shortened season to feed the mill continuously for 12 months.

Approximately $425,000 has been spent on the property since the 1980's. The next stage, pre-feasibility, will cost approximately $296,000 through June, when a further $1,189,000 will be required for investment, with another $1,098,000 in July to bring the mine into production and provide working capital, amounting to a total capital requirement of $2,584,000.

For DCF analysis, the overall resource is conservatively taken as 420,000 tons. After the tune-up period during 1996, the ore, consisting of 80% sulfide and 20% oxide, is estimated to generate a NSR less freight of $215 per ton. Operating costs will settle at $52 per ton, leaving a net operating profit of $163 per ton. This indicates a profit of $47,000,000 over 7 years, a payback period for the total investment of 12.5 months from start-up, and an IRR of 227%. However, the chances of proving up a resource twice as large are considered excellent, and make this project extremely attractive.

It is concluded that Silver Bell has the potential of becoming a very profitable mine with considerable up-side potential for investors. It is recommended that $300,000 be raised to carry out the pre-feasibility work as soon as possible, so that, if positive, the remaining investment of $2,284,000 can be raised to put the mine into operation in June 1996.

LIST OF CONTENTS

TABLES

LIST OF ILLUSTRATIONS

ANNEXES

PREFACE

This report and review is intended as a scoping or conceptual study and makes recommendations for a pre-feasibility study.

INTRODUCTION

The Silver Bell silver, zinc, copper, lead and gold mine is located in the Wasatch Range, 20.5 miles (33km) SE of the State Capitol Building in Salt Lake City, Utah.

Mining of gold, lead, silver, copper and zinc from polymetallic ores of the Tintic type began in the district in 1870 and continued sporadically on a small scale until about 1959, since when there has been virtually no production.

The short operating season (May to October) at over 10,000', the small divided claim holdings rather than consolidated blocks, and the absence of a local mill and smelter are considered to have been the main reasons for lack of serious development in the past.

The property is held by the Silver Bell Mining Company, Inc. (SBMC), which was incorporated on April 26th, 1993 in Utah. Since 1980 approximately $425,000 has been spent on developing the mine, which currently has demonstrated reserves of 94,800 tons of silver-zinc-lead-copper-gold ore developed underground, and an inferred resource of some 1.1 million tons.

PROPERTY DESCRIPTION AND LOCATION

The properties of SBMC are located on the Salt Lake City 1:100,000 Topographic Sheet (1980)(Fig.1) and the Dromedary Peak 1:24,000 Topographic and Geologic sheets (1955/1975 and 1965, respectively) (Figs. 2,3). These properties consist of 3 claim blocks - Silver Bell, Globe and Blue Rock, and 2 separate millsites in the American Fork Mining District, Utah County, Utah. They comprise of a total of 23 Patented Lode Claims and 3 Patented Millsites aggregating approximately 375 acres (Fig. 2, Annexes I & II). The Silver Bell claim block, which embraces the Silver Bell Mine, consists of 7 claims and a millsite covering approximately 130 acres with some overlap, is located in T3S, R3E. The coordinates of the mine are 40deg 32'55"N, 111deg 38'5"W.

Excellent USDA colored airphoto coverage at 1:15,840 dating from August 1992 with an enlargement at 1:3,168 covering the Silver Bell Claim block has been obtained.

GENERAL

ACCESS

The area is accessed by following Highway 80 eastwards along American Fork Canyon and taking the north fork dirt road along American Fork Canyon, 1 mile before Mutual Dell, to the trail up Mary Ellen Gulch, which may be followed to the main portal of the mine. A 4xWheel drive is necessary for the last stretch. The journey takes approximately 2 hours (Fig.1). The mine is approximately 19 miles from the company's office in Pleasant Grove, or 20 miles NE of the city of American Fork (population 20,000).

TOPOGRAPHY

Relief in the American Fork Mining District is 4,683 feet, ranging from 6,800' ASL in American

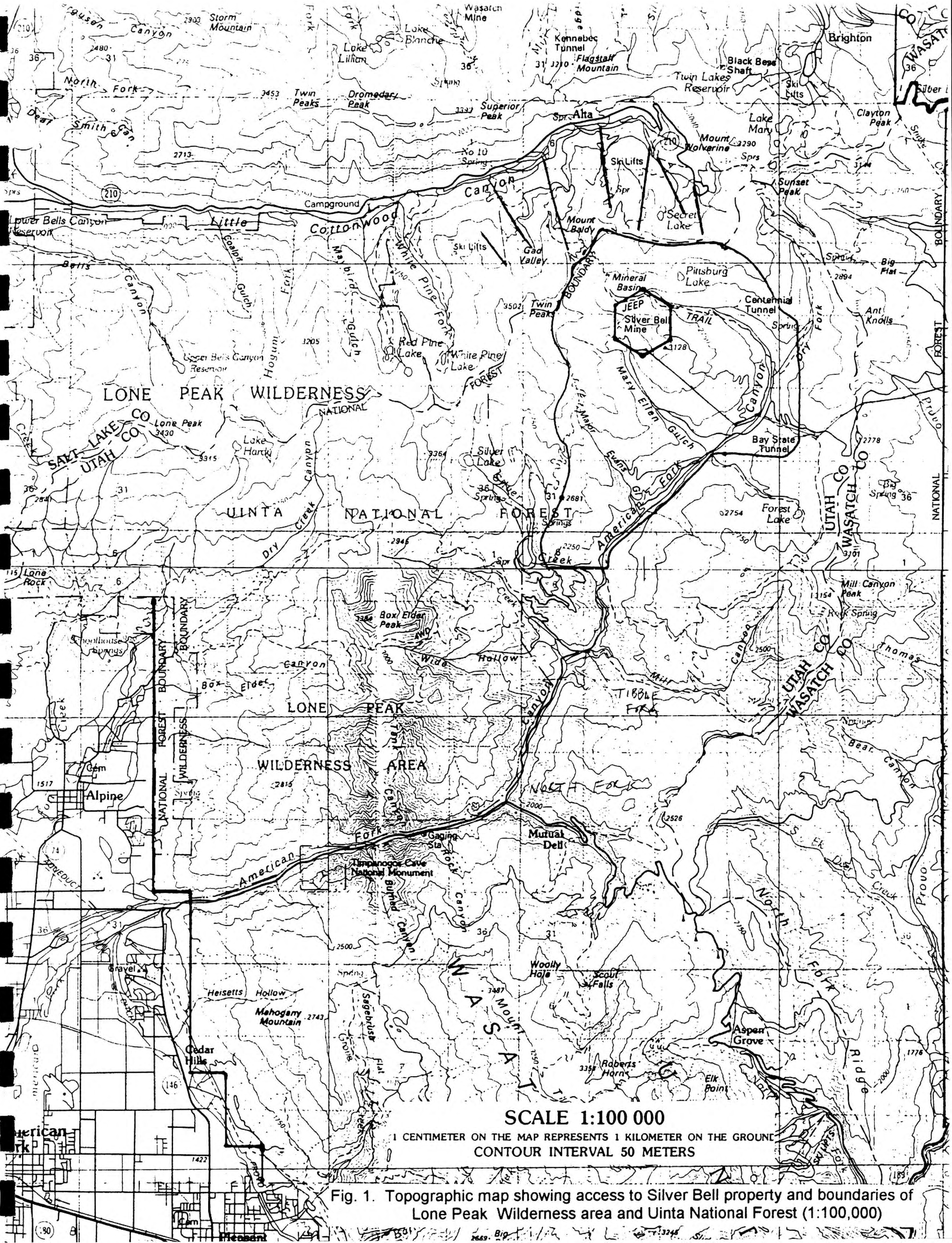


Fig. 1. Topographic map showing access to Silver Bell property and boundaries of Lone Peak Wilderness area and Uinta National Forest (1:100,000)

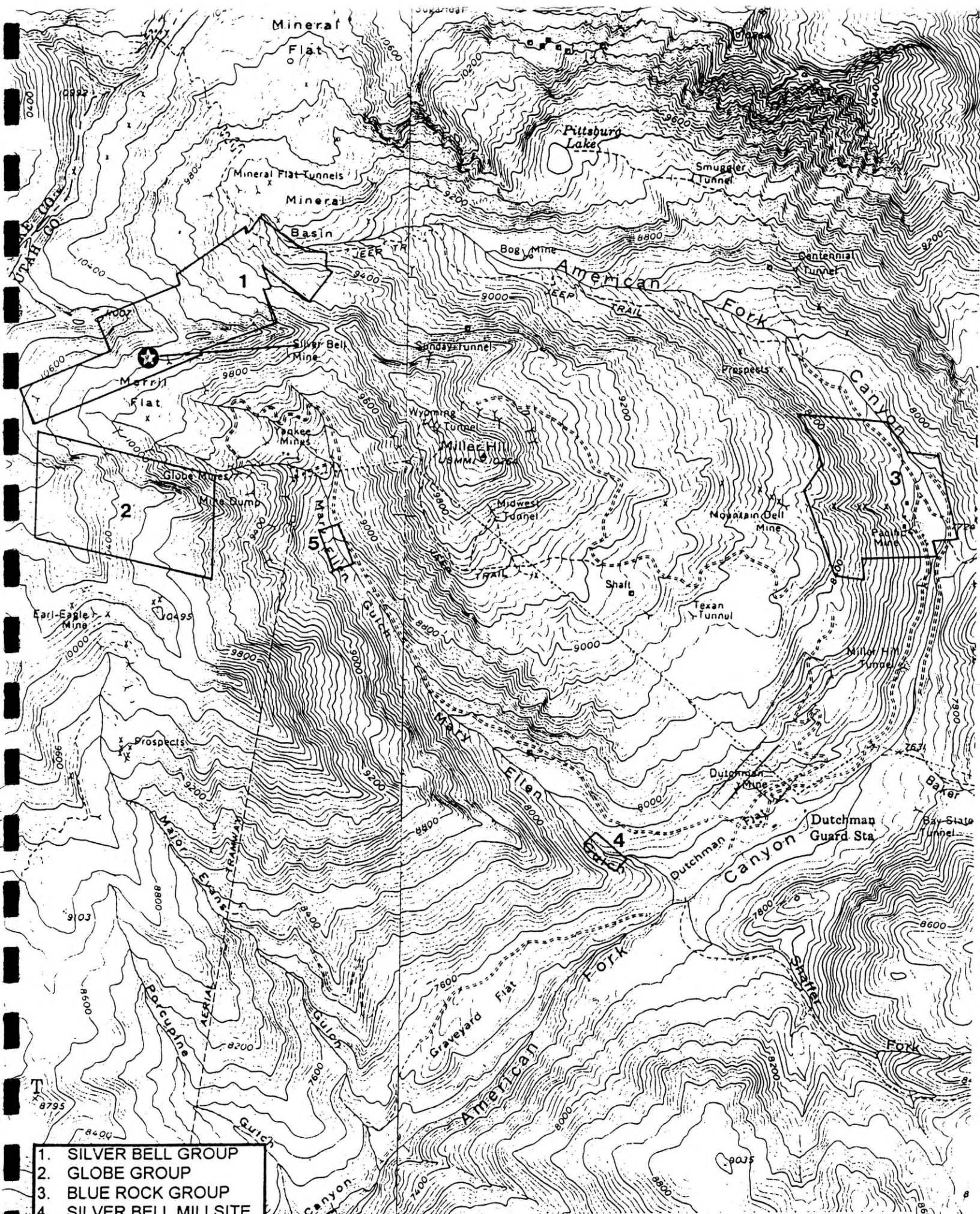


Fig. 2. Topographic map of American Fork Mining District (1:24,000).

Fork Canyon on the southernmost boundary to 11,483' at the top of the eastern Twin Peak on the western boundary of the district (Fig. 2). The portal of the lower 1980 adit of the Silver Bell mine is located at 10,194' and the portal of the upper 1880 adit is located at 10,310'. The steep slope above the adits to the ridge at 10,600' is prone to minor avalanche activity.

DRAINAGE

The Silver Bell mine and the claim block drain into Mary Ellen Gulch, a southeasterly flowing tributary of American Fork Creek, which drains westwards into Utah Lake at American Fork (Figs.1,2).

CLIMATE

The climate is subarctic with a mean annual temperature of 35 deg. F. The maximum precipitation occurs as snow from December to April, with an average annual snowfall in the order of 350 inches (890cm) (Fig.1). American Fork Creek is never dry. Surface fieldwork is possible only from June through mid-October, although it is expected that the mine can be operated from May through the first half of December.

SOILS AND GLACIAL DEPOSITS

Within the claim block soils consist of thin alpine lithosols with widespread talus. The headwater tributaries of Mary Ellen Gulch are filled with valley moraine, as is much of the course of American Fork Canyon. Below Twin Peaks there is a well developed cirque, which may make surface exploration difficult to the west .

VEGETATION

The claim block itself is above the timberline. The upper slopes below timberline consist of spruce-fir forest. The following species have been recognized:

Engelmann's spruce	Picea engelmanni
White fir	Abies concolor
Whitebark pine	Pinus albicaulis
Limber pine	Pinus flexilis
Ponderosa pine ?	Pinus ponderosa
Douglas fir	Pseudotsuga taxifolia

Willow (Salix spp.), mountain alder (Alnus tenuifolio), and red birch (Betula fontinalis) are abundant along creeks and in swampy areas. Stands of quaking aspen (cottonwood)(Populus tremuloides) are common along American Fork Canyon.

The claims lie within the Uinta National Forest, 3 km east of the eastern boundary of the Lone Peak Wilderness Area (Fig.1).

LOCAL RESOURCES

Although the American Fork district is currently uninhabited, labour is obtainable from Salt Lake City and other communities to the west, and experienced miners are available from Park City. A power line formerly passed within 3000 feet south of the Silver Bell Mine (Fig.1).

HISTORY AND PREVIOUS WORK

AMERICAN FORK MINING DISTRICT

The American Fork district was discovered around 1869 and small scale mining took place at several mines until 1959 or so. Table 1 lists the known mines, companies and prospects of the district. There have been about 10 producing mines in the district, the largest of which were the Miller, the Yankee, the Centennial, and the Dutchman.

The Sultana Smelter was established in the American Fork Canyon at Forest City opposite the confluence with Mary Ellen Gulch between 1871 and 1872 and operated until 1878 during the heyday of the district.

Table 2 shows estimates of past production for the district, which amounted to only 157,000t through 1940, with an in situ value of some $50,000,000 at today's metal prices. At least another 120,000t were produced from the Yankee and Dutchman mines alone since then. It is noted that for the district as a whole the value of the metals produced was in the order Au>Pb>Ag>Cu>Zn, whereas for the Silver Bell mine the value of the metals is in the order Ag>Pb>Zn>Cu>Au for oxide ore and Ag>Zn>Pb>Cu>Au for sulfide ore.

The earliest geologic map of the area is that of Butler & Loughlin (1916)(Annex XIII). This was followed by a revision in 1943 by Calkins & Butler, which recognized the overthrusting (Annex XIV). The 1:24,000 quadrangle mapping was published in 1965 (Crittenden) and 1966 (Baker et al.)(Fig. 3). Geological maps at 1:100,000 and 1:125,000 were produced by Bryant in 1990 and 1992, respectively, when the Upper Paleozoic stratigraphy was extensively revised (Annex XV, Fig. 4).

SILVER BELL MINE

The Silver Bell mine was first discovered in 1869 and the claims patented in 1881. Little is known about the early owners and operators. It is the highest mine topographically in the district together with the Pittsburg. Its inhospitable location and short working season certainly contributed to its neglect in favor of mines located topographically lower in the area.

Dan Proctor first became involved with the Silver Bell property in 1978 as a lessee from East Utah Mining Company (EUMC), who had owned the claims for nearly 50 years. In 1979 he joint-ventured with Yankee Gold and Silver Mining Company (YGSMC), a small publicly traded company in Salt Lake City. During the first season of the joint-venture, the mine was developed by running a horizonal adit at 10,194' northwards for 400' to intersect the old workings approximately 100 feet below the 1880 portal. Several hundred tons of oxide ore averaging 21 ounces of silver per ton was produced and direct shipped to the ASARCO smelter in East Helena, Montana (see Annex IV). However, due to friction between EUMC and YGSMC the lease on the Silver Bell was terminated in 1981.

An agreement was then made between EUMC and North Lily Mining Company (NLMC). Shortly afterwards EUMC was taken over by InterAmerican Oil and Minerals Co. (IAOMC), mainly for its oil interests. In 1983/4 IAMOC divested itself of the EUMC mining properties (which included a royalty on the Goldstrike property of American Barrick) to Franco-Nevada Mining Corporation Limited, who subsequently transferred the American Fork properties to its sister company, Euro-Nevada Mining Corporation Limited (E-NMC) of Toronto.

Mine	Company	Altitude	Type of Deposit	Extent of Workings	Dikes	Host
Silver Bell	East Utah Mining Company Yankee Gold and Silver Company Lee Mining Company	10200'	FV	1500'		Maxfield/ Fitchville
Red Cloud						Tintic
Globe Mines	1925-1947	9400'				
Mineral Basin		9220'				
Mineral Flat Tunnels		9500'				
Old Glory		7000'				
Flora	Artisanal	9640'	Bedded			Ophir
First Chance		9457'				Tintic
Waterfall Mine		9500'	FV	350'		Tintic
(Live) Yankee (Mary Ellen)	Asarco 1902-1959	9400'	FV		Porphyry	Cambrian Lst
Bay State	1942	7750'				
Bog (Boggs) Mine		8800'	FV		Diorite	
Centennial		8500'	FV	2 adits		Maxfield
(Wild) Dutchman Mine	Omaha Smelting & Refining Co.	8700'	FV		Porphyry	U. Paleozoic
Midwest Tunnel		9700'				
Miller Hill Tunnel		7700'				
Miller Hill (Wyoming) Mine	Miller Mining & Smelting Co./Tyng Bros	9800'	Bedded	10,000'		Tintic-Maxfield
Mountain Dell Mine		8600'				
Pacific-Blue Rock Mine	Pacific Gold Mining & Milling Co.	7800'	FV	450'		Tintic
Pittsburg Mine	1871-1919	10200'	Bedded	1185'	Porphyry	Ophir/Tintic
Silver Dipper Mine	Artisanal	9180'	FV			PC Mutual qzte
Smuggler		9500'				
Sunday		9900'		300'		
Queen of the West				1000'		
Treasurer				475'		
Whirlwind				1000'		
Noncompromise				400'		
Hudson						
	Excelsior Silver Mining Co. Utah Consolidated Mining Co.					

Table 1. List of known mines and prospects in the American Fork Mining District.

Tons	Au, oz	Grade oz/ton	Value $400.00 per oz	Ag, oz	Grade oz/ton	Value $5.60 per oz	Cu, lb	Grade	Value $1.15 per lb	Zn, lb	Grade	Value $0.50 per lb	Pb, lb	Grade	Value $0.45 per lb	Source
156,883	44,794	0.286	$17,917,628	2,293,007	14.62	$12,840,839	2,399,402	0.76%	$2,759,312	1,772,335	0.56%	$886,168	34,206,048	10.90%	$15,392,722	USGS Prof.P. 201, 1943
1867-1972	45,043		$18,017,200	2,390,736		$13,388,122	2,448,000		$2,815,200	5,542,000		$2,771,000	36,396,000		$16,378,200	USGS Bull 1491, 1981
Estimated Grade of Silver Bell reserve (see Table 4)		0.017			37.65			2.23%			4.09%			3.29%		

DISTRICT

		% of value			% of value	
Total value	$49,796,669	35.98%	Au	$53,369,722	33.76%	Au
(based on Prof P. 201)		30.91%	Pb	(based on Bull.1491)	30.69%	Pb
		25.79%	Ag		25.09%	Ag
		5.54%	Cu		5.27%	Cu
		1.78%	Zn		5.19%	Zn
		100.00%			100.00%	

Table 2. Reported past production from American Fork Mining District

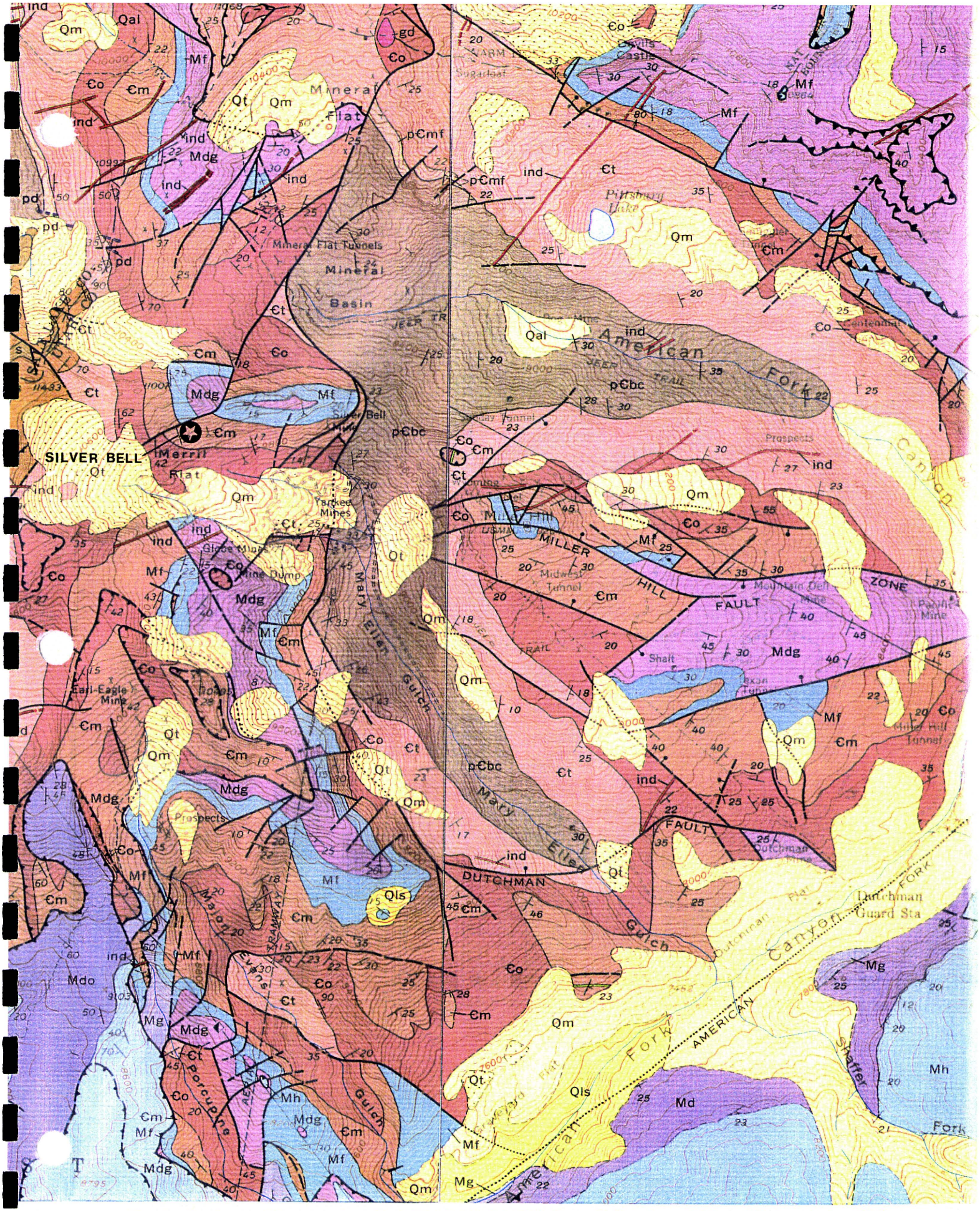


Fig. 3. Geology of the American Fork District (1:24,000) (from Crittenden, 1965 and Baker et al., 1966).

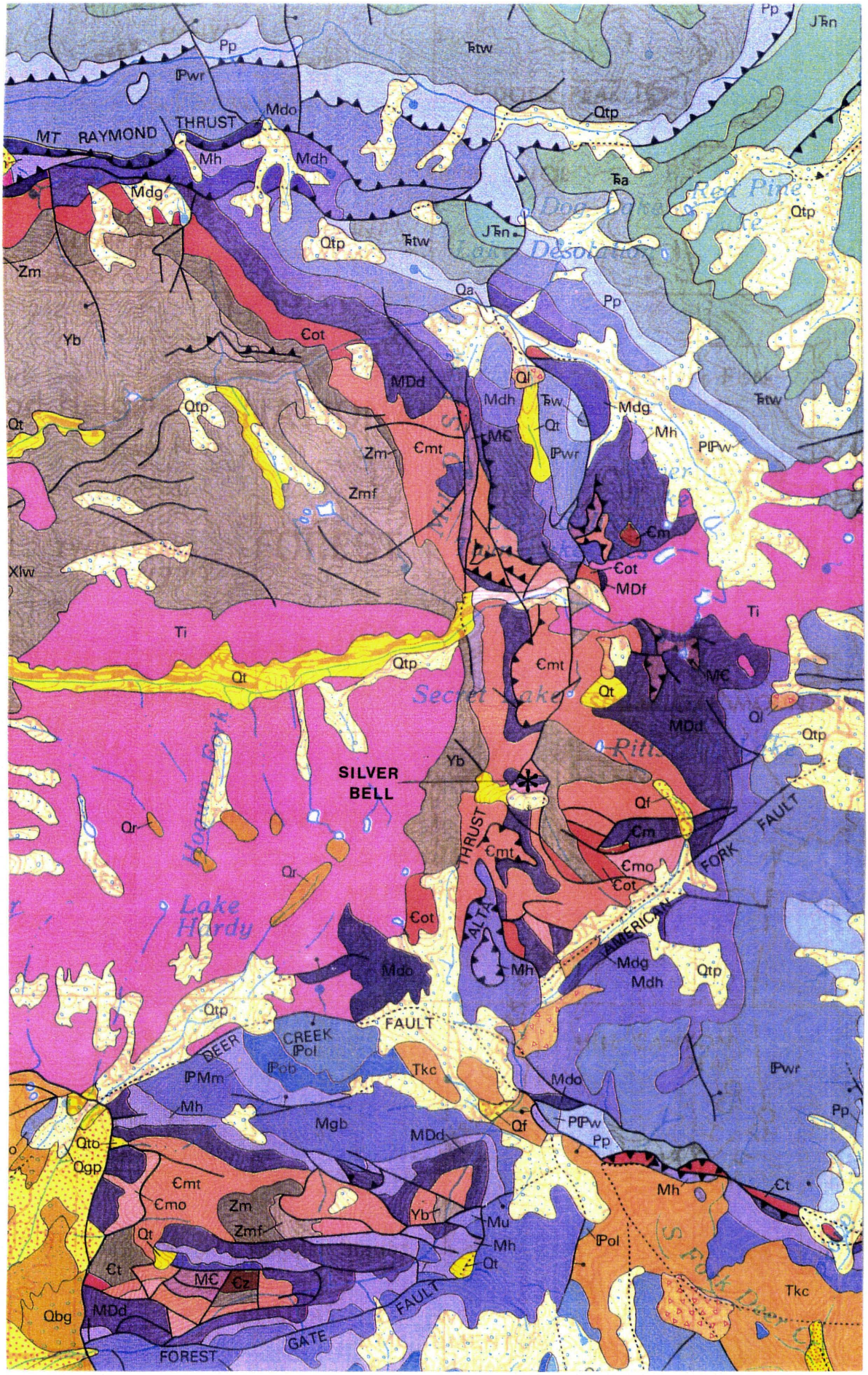


Fig. 4. Geologic and structure map of the American Fork Mining District (1:125,000) (from Bryant, 1992)

In 1983 Proctor introduced Lee Mining Company (LMC) to further develop the mine, and was employed as Mine Manager. Some 1200 tons of ore was produced that year during mine development. Due to the high dilution of this type of work, this ore averaged only 20 opt Ag. (It was never shipped because it was planned to purchase a mill to concentrate the ore). During this period the mine was upgraded by enlarging the old workings to accommodate modern mining equipment, driving three declines, and establishing four stopes. NLMC terminated its agreement with LMC in 1985. NLMC then controlled the Silver Bell property under lease from Euro-Nevada Mining Company (E-NMC), of Toronto, Ontario. This lease was later cancelled for non-payment of advance royalties. Proctor was consulting for E-NMC at the time and was offered a lease on the property in 1987. He leased the property until 1991, during which time no work was carried out due to low metal prices and the difficulty of raising funds. Proctor acquired the property and other patented claims in the district in 1992 from E-NMC in lieu of a bonus, subject to a 5% NSR royalty.

These claims were 50% ceded to S. Grantham in 1992, when the two formed a partnership. Both parties then gave up their rights in this property to Silver Bell Mining Company, Inc. in return for shares in the company in June 1993 by means of Quit Claim deeds.

GEOLOGY AND STRUCTURE

The geology of this part of the Wasatch Range basically consists of a sequence of Pre-Cambrian and Paleozoic sediments invaded by a composite Tertiary batholith, which has been mapped as a series of eight Oligocene intrusives, from west to east as follows (Fig. 5):

Little Cottonwood batholith (Oligocene (26 Ma) quartz monzonite
Alta stock (Oligocene-33 Ma) granodiorite
Clayton Peak stock
Flagstaff Mountain stock
Valeo stock
Pine Creek stock
Mayflower stock
Park Premier stock (Oligocene-35.5 Ma) porphyritic latite

The American Fork district lies between the Little Cottonwood batholith to the west and the Alta stock to the east, but to the south of these. Regional magnetics suggest that the district may be a roof pendant.

Structually the district occurs at the intersection of the N-S Wasatch trend and the axis of the E-W Uinta anticline or Uinta-Gold Hill Arch (Roberts, 1960), on whose easterly extension is located the Park City district 6 miles away (Fig. 5), and on whose westerly extension lies Bingham Canyon at a distance of 30 miles (Fig. 6).

Stratigraphically the core of the district consists of the Middle Proterozoic Big Cottonwood formation of clastic sediments. These are well exposed in the upper reaches of American Fork Canyon and Mary Ellen Gulch (Figs. 3,4).

Virtually all the known mineralization in the district is hosted in Lower and Middle Cambrian sediments (Table 1).

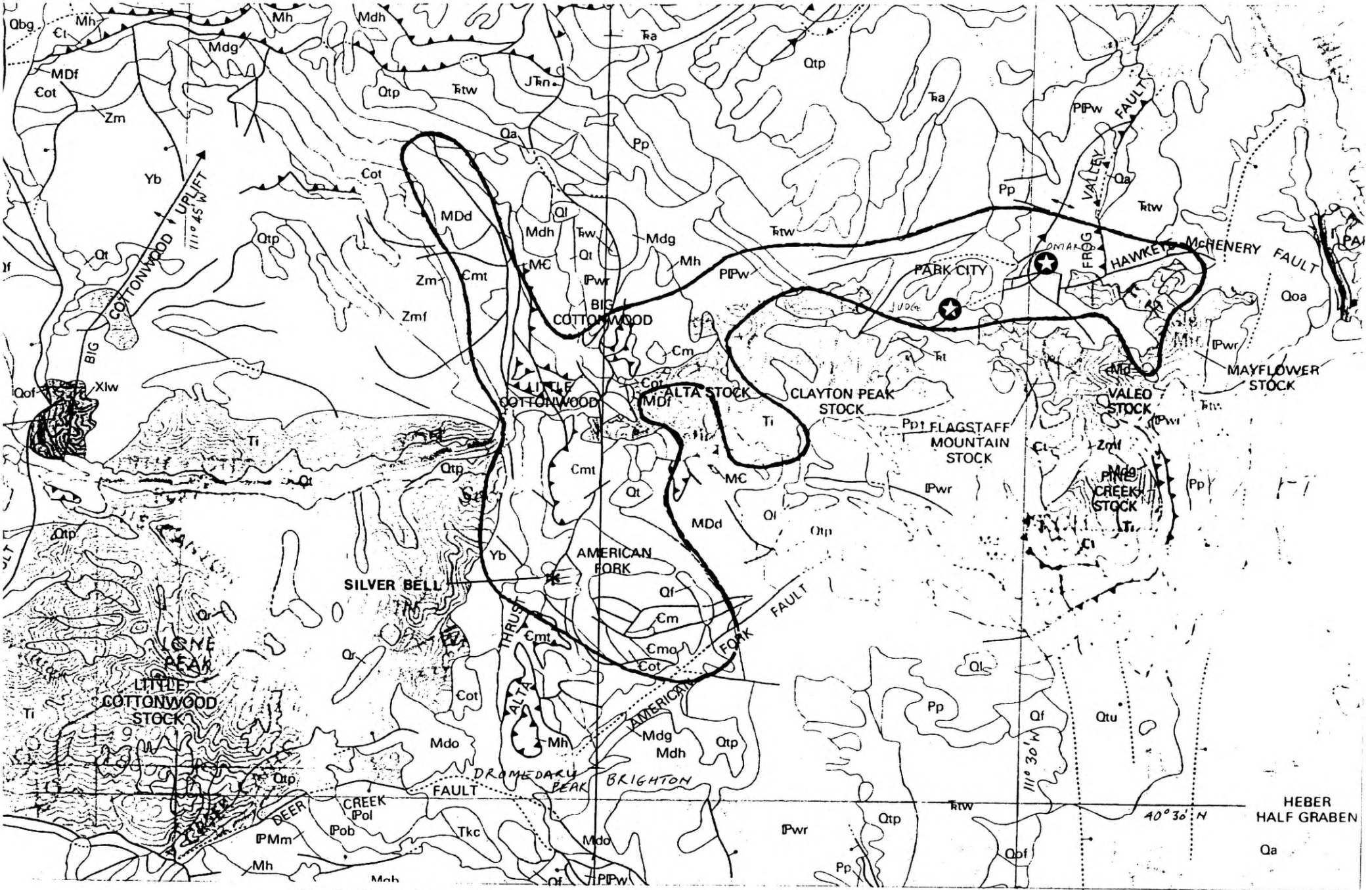


Fig. 5. Geologic and structure map of the "Wasatch Mineral Belt" (1:125,000) (from Bryant, 1992) showing outline of principal area of productive mines in American Fork, Little Cottonwood, Big Cottonwood, and Park City districts.

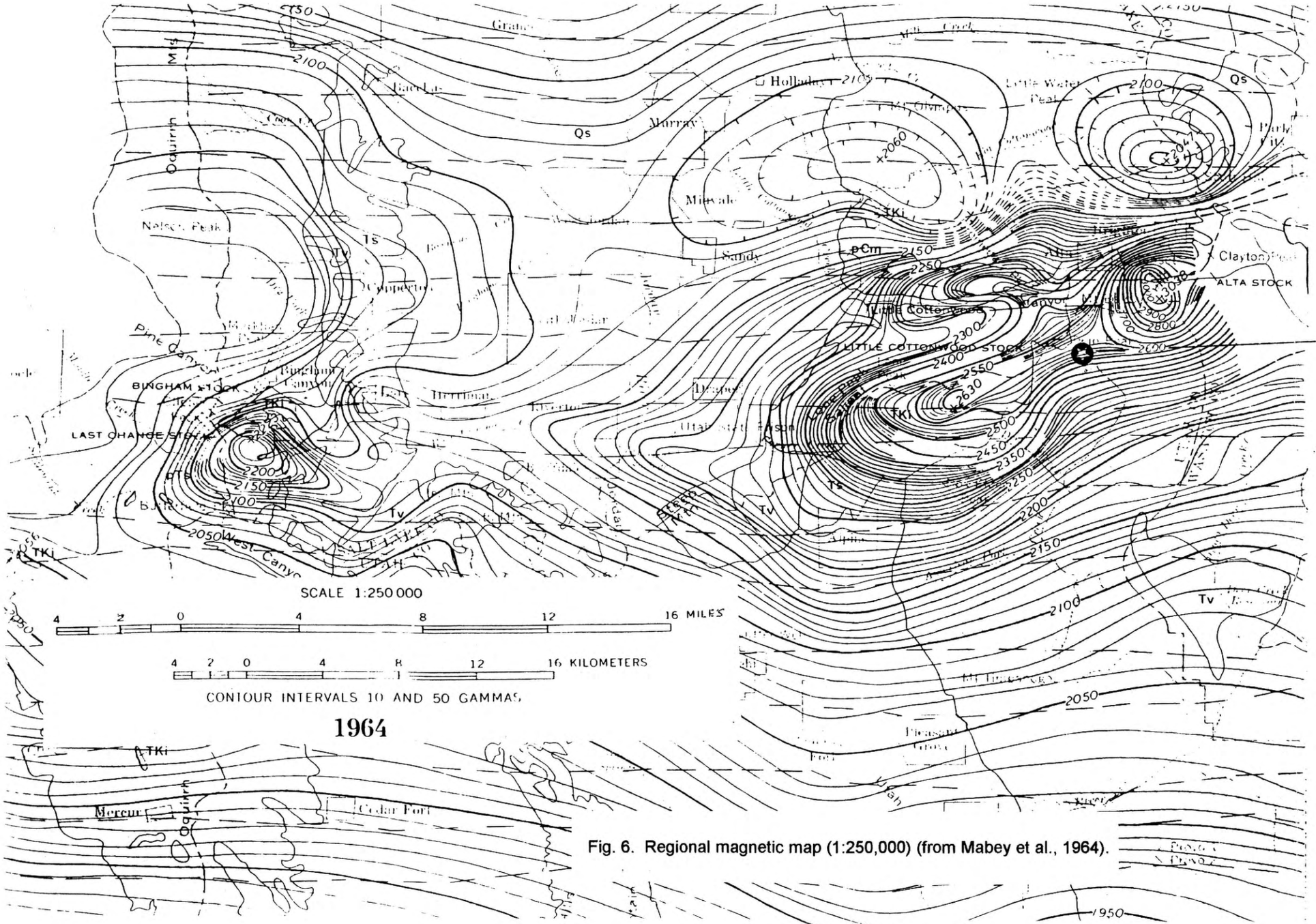


Fig. 6. Regional magnetic map (1:250,000) (from Mabey et al., 1964).

The three most important formations are, from top to bottom:

Maxfield Limestone (300')	/{Upper member: dk-gy medium-bedded oolitic dolomite -{Middle member: mottled magnesian limestone and nodular shale \{Lower member: massive dk-gy mottled dolomite and limestone
Ophir Formation (450')	/{Upper member: brown weathering calcareous shaly sandstone -{Middle member: lt-gy lst with wavy tan-weathering siliceous laminae \{Lower member: olive-green micaceous worm-tracked shale
Tintic Quartzite (900')	Cross-bedded white to light yellowish-gray quartzite

Unconformably above the Maxfield Limestone are the thin dolomites (150') of the Fitchville Formation of Upper Devonian to Lower Mississippian age, and above these the Gardison Limestone (L. Miss.)(500').

The only evidence of economic mineral potential in the Precambrian rocks of the district is in the Silver Dipper Mine.

At the Silver Bell mine (Fig. 7) the sequence from the Tintic Quartzite to the Gardison Limestone is folded into a E-W syncline, truncated at its eastern end by the Silver Fork fault.

Within the American Fork District there are several nappes, but no mines are known to occur in the upper plates. N-S normal faults include the Silver Fork Fault, traceable for 8 miles with a throw of more than 2000'. Both the Silver Bell and Yankee mineralization may be related to this fault. E-W faults include the Miller Hill and Dutchman Faults. The NE-SW American Fork Fault essentially forms the boundary of the district on the south-east (Figs. 3,4).

Although no hypabyssal igneous rocks have been reported within the Silver Bell Mine or claim block, their presence may be expected. Dikes have been found in the Yankee, Boggs and Dutchman mines, emphasizing the relationship between igneous activity, zones of weakness and metallization.

MINERALIZATION

The mineralization of the American Fork district belongs to the polymetallic replacement model of Cox & Singer (1986), together with other districts associated with the same batholithic complex, such as Big Cottonwood-Little Cottonwood to the north and Park City to the east. Elsewhere in Utah, Tintic and East Tintic as well as Ophir, Rush Valley and Star belong to the same model. The average tonnage and grade of 52 deposits of this model from around the world was 1.8 million tonnes of 5.2% Pb, 3.9% Zn, 0.87% Cu, 150g/t Ag, and 4.4g/t Au.

Most of the production of metals in the Park City District to the east has come from replacements in Mississippian, Permian and Triassic carbonates, while the Cottonwood District to the north has also produced from Mississippian carbonates. Table 1 summarizes the known mines in the American Fork district.

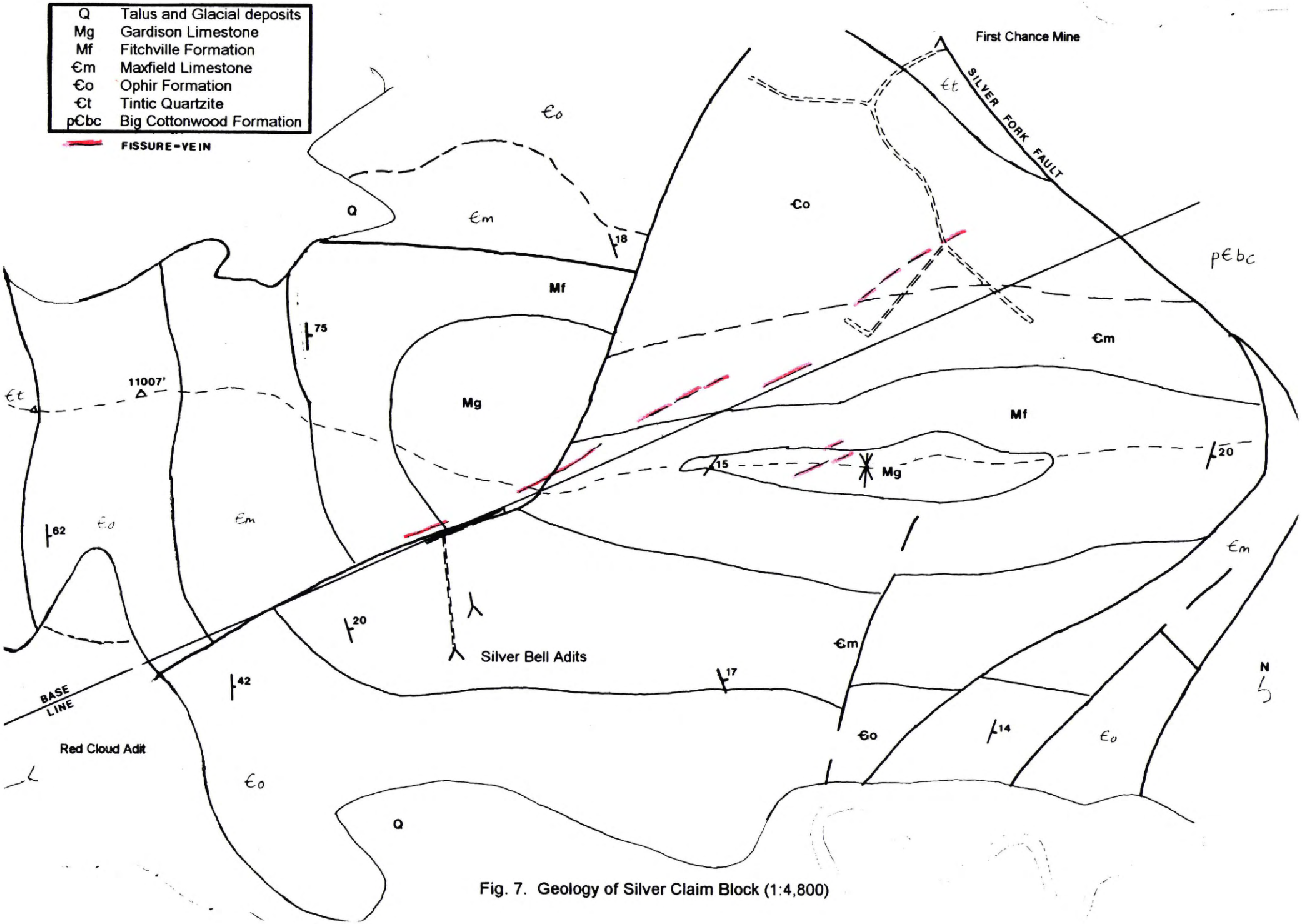


Fig. 7. Geology of Silver Claim Block (1:4,800)

The mineralization developed to date in the Silver Bell mine is hosted in a faulted fissure vein between the footwall Middle Cambrian Maxfield Limestone and the hanging wall dolomites of the Upper Permian Fitchville Formation. It strikes N55E to N70E and dips 54-67deg N, cuttting across the synclinal axis, which runs E-W, at 35deg. More geologic mapping is required to distinguish the members of these formations and establish the displacement of the fault to guide the drilling program. There is also some evidence of minor cross-faulting.

The overall horizontal extent of the Silver Bell mineralization is not known with certainty at this time.

To the west the Red Cloud adit is located some 1500' west of the No.2 portal, at an elevation of 10,390' (Fig. 7). It appears to have been an attempt to drive westwards along the vein, but there is no information at present. Crosland and Thompson (1994) report another 58' adit 900' WSW of Red Cloud, Twin Peaks, at a height of 10,840, which could be on the same mineralized structure. There are also reports that the mineralization is traceable across the N-S ridge, another 1000' feet to the west of the Twin Peaks adit. This would give a total westerly extension of 3500' from the Silver Bell mine.

To the east it is thought that the westernmost working of the First Chance mine were following the Silver Bell fissure-vein to the east. These are located 1500' east of the No. 2 portal of Silver Bell. No reports have been found on this mine. It is planned to dewater the adit at 9457' and investigate further this summer. There could still be a mineable resource at levels below the existing workings, thus adding even more strike to the mineralized structure, which could exceed 1 mile in length.

The mineralogy of the Silver Bell ores has not been investigated to date, nor has the zonation of metals. In addition there are both sulfide and oxide ores, which will have to be treated separately, and inevitably a mixed zone. The distribution of these remain to be mapped.

To date the following minerals have been identified: (suspected presences in italics)

Sulfide zone: Galena, sphalerite, tetrahedrite, enargite, pyrite, *acanthite, argentite, chalcopyrite, bornite, bournonite, digenite covellite, jamesonite.*

Oxide zone: Cerussite, smithsonite, malachite, azurite, *anglesite, hemimorphite, cerargyrite, chalcocite, bindheimite, mimetite, massicot.*

Gangue: Quartz, *calcite, dolomite, barite, rhodochrosite, jasperoid.*

MINE WORKINGS

EXISTING

Figs. 8 and 9 show a plan view and longitudinal section, respectively, of the Silver Bell mine. The vein has been opened up along 350' of strike and over a vertical extent on the vein of 330'. The mine consists of 2 adits at the following levels:

No.1	1880	10,310'	Level 2
No.2	1980	10,194'	Level 4

There is a third shorter adit from 1870 above Level 1.

There are 5 horizontal drifts and three declined drifts. There are approximately 1000' of developed drifts, most of which are in strong mineralization in their roof. The mine is dry, with excellent drainage.

The levels are as follows:

Level 1	10,343'	Original old stope
Level 2	10,298'	Adit No.1
Level 3	10,243'	
Level 4	10,200'	Adit No.2. Decline extended to east in 1983
Level 5	10,071'	

To date some 5,300 tons of oxide ore have been produced averaging 21 opt Ag and 1.2% Cu. It is reported that 130 tons of oxide ore running 100 opt Ag were mined in 1878 near surface.

In 1980 several hundred tons of oxide ore averaging 21 opt Ag were produced by the Yankee Gold and Silver Company, roughly concentrated at Orem and sent to the Asarco smelter in East Helena, Montana. A sample smelter return from this period is given in Annex V.

Lee Mining Company mined 1,200 tons averaging 20 opt Ag (Proctor) during mine development work in 1983. During this work primary sulfides were encountered for the first time on Level 4 (Fig. 9), separated from the oxides by a fault. Of this 800 tons is stockpiled at the portal and 400 tons is stored at the work premises of S. Grantham in Alpine.

PROPOSED

Figure 10 shows the proposed mining plan for 1996 and 1997. In 1996 it is proposed to rehabilitate the workings and mine 23,000 tons of ore, consisting of 50% oxides and 50% sulfides. In 1997 it is planned to mine 62,700 tons of ore consisting of 80% sulfides and 20% oxides, building up to a peak production of 72,000 tpy in 1998.

Figs. 8 & 9 show the proposed development phases (Grantham, 1996).

It is planned to use a modified shrink stope mining by contract, at $28 per ton, including freight to the mill.

ORE RESERVES

Table 3 shows the grade estimates for the oxide and sulfide mineralization.

The oxide average is based on over 100 assays for silver and about 50 assays for the other metals. It shows 21.8 opt Ag, 1.32% Cu, 1.89% Pb, 1.51% Zn and 0.02 opt Au.

The average grade of sulfide ore is based on some 20 assays and is significantly richer than the oxide ore in all metals except gold. It shows 41.8 opt Ag, 4.44% Cu, 6.7% Pb, 10.35% Zn, and 0.01 opt Au. Since the sulfide zone has only been scratched at this stage, is not clear whether this difference is due to higher grades to the east or to the effects of leaching in the oxides to the west.

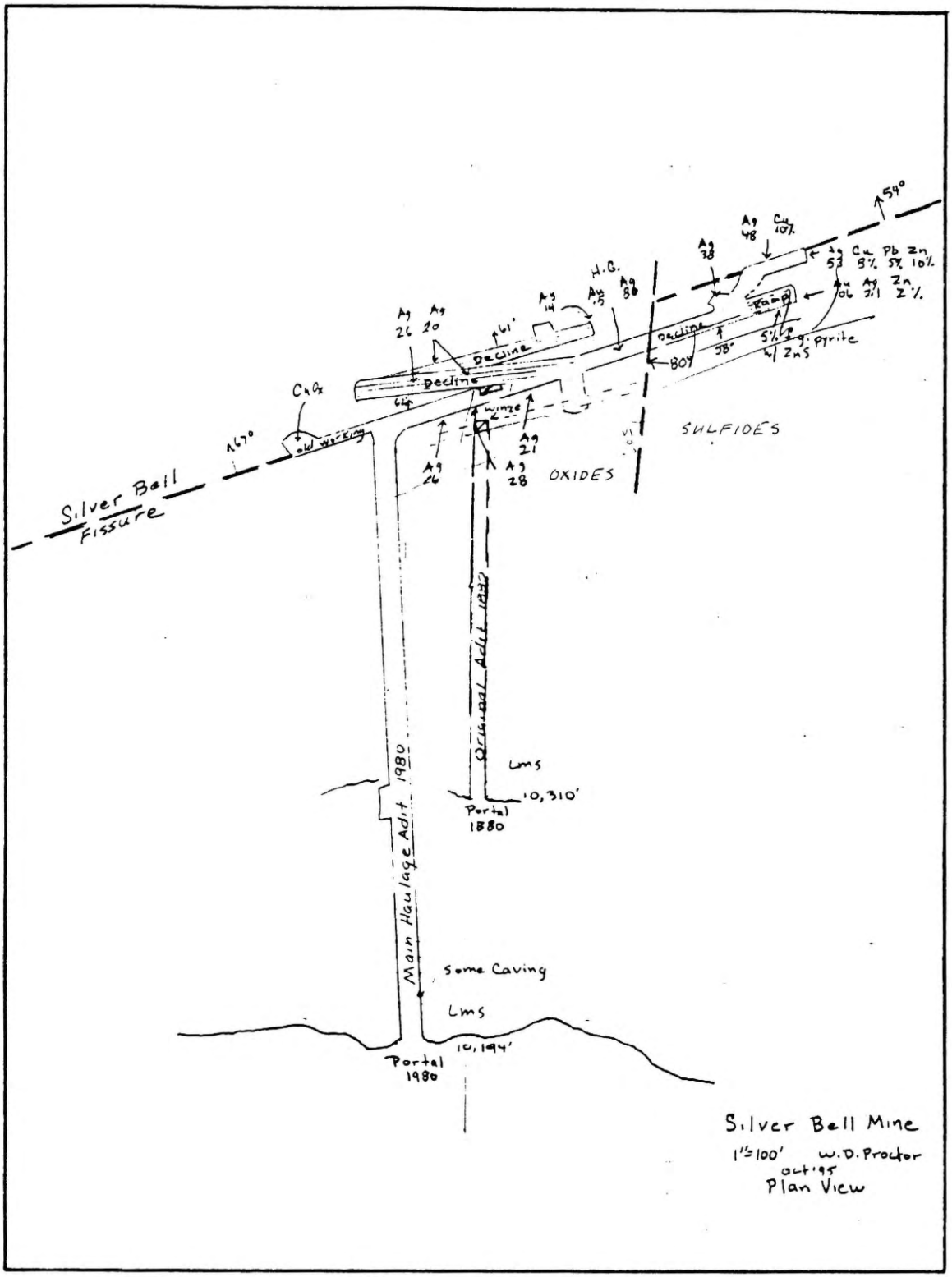


Fig. 8. Plan of Silver Bell mine workings (1:1,200)

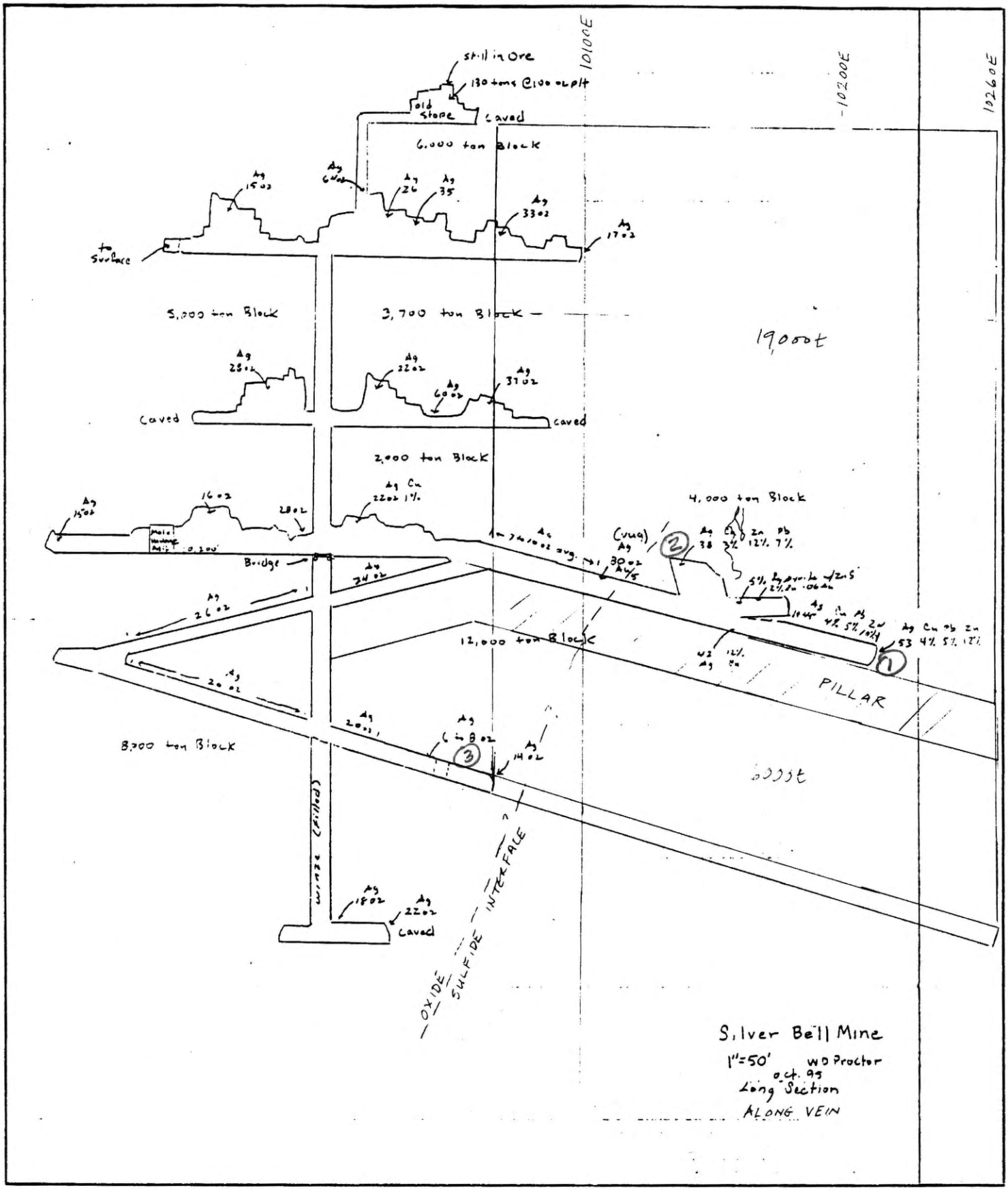


Fig. 9. Longitudinal section of Silver Bell workings (1:600)

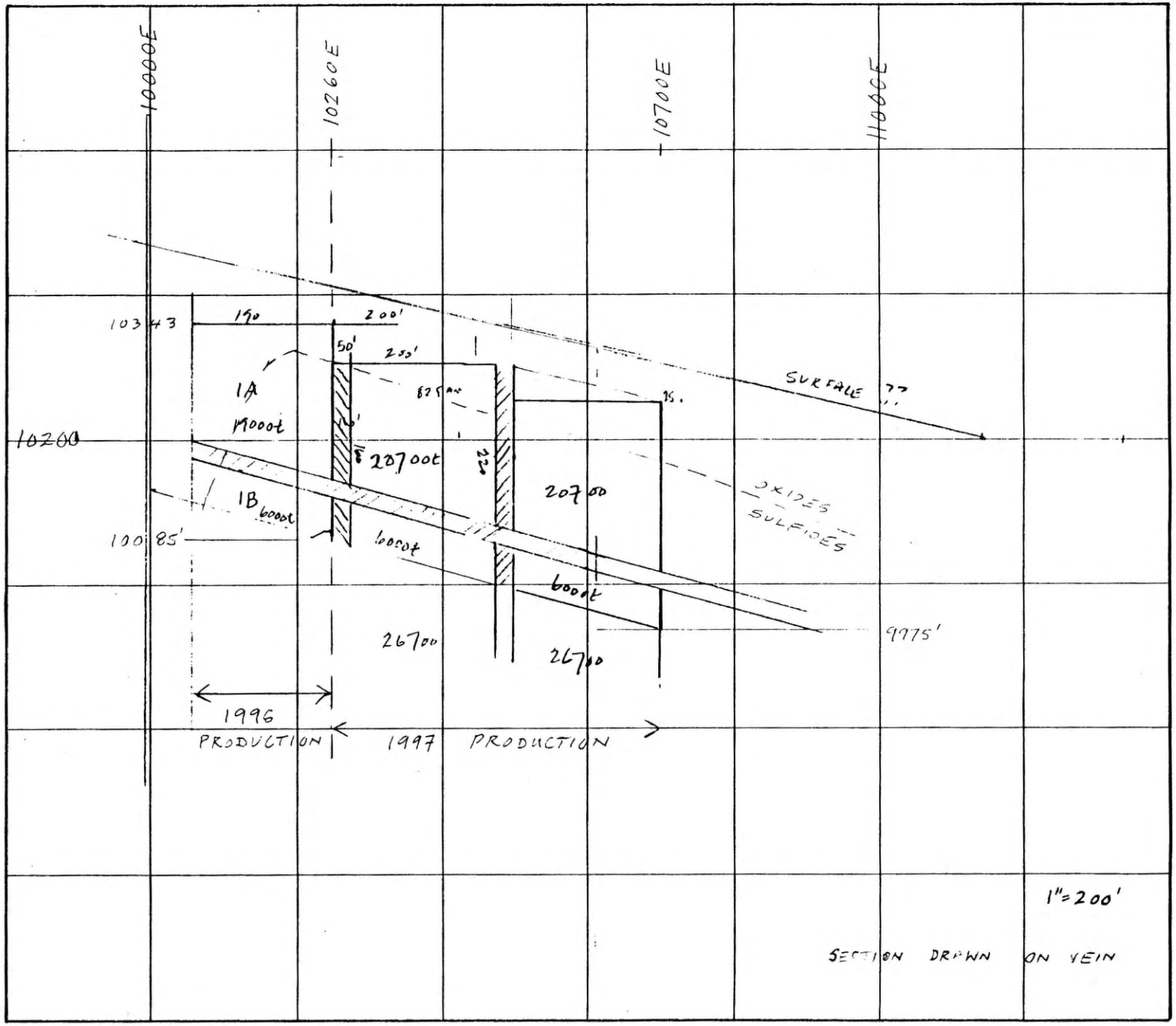


Fig. 10. Proposed mine development 1996-1997.

OXIDES

	Date	Sample No. & Description	Ag, opt	Au, opt	Cu, %	Pb, %	Zn, %	Type & Width, in	Company	Location	Notes	SiO2%	Fe%	S%
1	1980	Average of 11	21.84						Noranda					
2	13/4/81	Average of 36	19.37			3.02			Yank/Noranda					
3		Average of 10	21.82	0.011					Lee Mining	Truck loads	Development dilution			
4	11/83?	Average of 7	25.69	0.030	1.49	1.74	1.42		Lee Mining					
5		Average of 45	21.20	.0151	1.10	0.80	0.60		Lee Mining		45 samples average			
6	28/10/87		19.05	.0601	0.80	2.00	2.50		Asarco	Alpine ore pile	Of no interest to Asarco	39.5	1.8	1.1
7	1988		23.60	.0021	1.90				Barrick		700 t pile composite			
	Average 1-7		21.80	.0241	1.32	1.89	1.51							

SULFIDES

	Date	Sample No. & Description	Ag, opt	Au, opt	Cu, %	Pb, %	Zn, %	Type & Width, in	Company	Location	Notes	SiO2%	Fe%	S%
	11/83		45.60		4.10	7.10	10.00	CS	Lee Mining	4E decline face	tet,gal			
	11/83		43.20		5.60	11.00	16.00		Lee Mining	4E decline face	tet,sph,gal			
	11/83		38.60		4.60	8.30	11.20		Lee Mining	4E stope				
1	11/83	Average of 3	42.47		4.77	8.80	12.40		Lee Mining					
2	198?	Average of 10	41.20	.01	4.30	4.60	8.30		Lee Mining			Lee has; all channel		
3	10/83?	1799	38.11	.01	6.30	5.60	10.60	Grab		4E Decline				
4	84/85	SOR1#7	30.50	.01	2.80	13.50	16.60			4	Composite 1799 stope			
5	2/11/88	Silver Bell Face	49.21	.01	3.38	15.40	15.00	Longitudinal	Grantham					
6			53.00	.01	5.10	5.70	11.10	77	Grantham	NE incline face end				
	Average 1-6		42.41	.01	4.44	8.93	12.33							
	Average 1-2		41.83		4.53	6.70	10.35							
	Taken as:		41.83	.01	4.44	6.70	10.35							

Table 3. GRADE ESTIMATES FOR OXIDE AND SULFIDE MINERALIZATION, SILVER BELL MINE.

Table 4 shows a resource estimate, based on the volume given by Proctor (1995a), but using a Specific Gravity of 3.0 (10.68 cu.ft/ton). Since sulfide ore comprises only 13.7% of the measured resource, 33.7% of the indicated resource, and 29.2% of the combined demonstrated resource, but 86% of the inferred resource, the grades are seen to increase as the degree of confidence decreases.

The demonstrated resource is estimated at 94,824 tons of 27.65 opt Ag, 2.23% Cu, 3.29% Pb, 4.09% Zn, and 0.017 opt Au. Fig. 11 shows the configuration of the blocks used in this estimate, while Fig. 12 shows its location relative to the inferred resource

It should be noted that the amount of non-recoverable ore, which Grantham (1996) estimates at only 5%, has not been taken into account at this stage.

The inferred resource is estimated as 1,109,000 tons of 39.0 opt Ag, 4.0% Cu, 6.0% Pb, 9.1% Zn and 0.011 opt Au. This tonnage estimate is based on continuity of the fissure vein from the Red Cloud adit on the west to the western limit of the First Chance working on the east, where the mineralization exists at a height of 9457' ASL (Fig. 12). The overall strike length is 3000' and the vertical extent 1000', or 1150' on the vein.

The width of the fissure vein has been taken as between 5 and 8 feet, except in the possible resource to the SW where it has been taken as 3 feet.

Taking a conservative mineable strike length of 1,350', a vertical extent of 750', and an average width of 5', a resource of 426,615 tons may be calculated, or 420,000 tons if the amount estimated to have been extracted is subtracted (see Fig. 12). This conservative figure has been used in Tables 8 and 9 in the model for a 6.5 year mine life.

The existing surface outcrops require mapping and surveying followed by extensive systematic channel sampling to supplement the proposed drilling program in order to obtain a more realistic resource estimate.

ECONOMICS OF PRODUCTION

Tables 5 and 6 give estimated recoveries and net smelter returns for average oxide and sulfide ores. The net smelter return, after deducting freight costs of $9.00 per ton, for oxide ore is $89 per ton, as opposed to the figure of $246 per ton for sulfide ore. It is clear that to maximize profits the sulfide ore must be developed and produced as quickly as possible. The mine plan is aiming at 50% sulfide + 50% oxide in 1996 for an average NSR of $168 per ton, and therafter to produce 80% sulfide and 20% oxide for a NSR of $215 per ton.

Table 7 gives the estimated cost of production using a contract miner. The G & A cost per ton milled drops from $25.54 in 1996 to $7.60 per ton in 1998, due to increased throughput.

Table 8 gives a projected production schedule and net smelter return for the Silver Bell Mine over 7 years based on a July, 1996 mine and mill start up. In the peak years 72,000 tons of ore would be mined and milled to produce a net smelter return after deducting freight costs of almost $16,000,000 per annum.

BLOCK	Code	STRIKE feet	HEIGHT feet	AREA sq ft.	WIDTH feet	VOLUME cu.ft.	10.68 cu.ft/ton tons S.G. = 3.0	SULFIDE %	Ag opt	Au opt	Cu %	Pb %	Zn %
MEASURED RESOURCE													
Upper	UO1 }	45.00	27.00	1,215	7.00	8,505	796						
Oxide	UO1 }	20.00	20.00	400	8.00	3,200	300						
	UO1 }	20.00	30.00	600	6.00	3,600	337						
	UO1 }	80.00	5.00	400	7.00	2,800	262						
	UO2 }	60.00	5.00	300	7.00	2,100	197						
	UO2 }	135.00	40.00	5,400	7.00	37,800	3,539						
	UO2 }	15.00	25.00	375	8.00	3,000	281						
	UO2 }	15.00	25.00	375	7.00	2,625	246						
	UO2 }	15.00	25.00	375	7.00	2,625	246						
	UO3 }	135.00	30.00	4,050	8.00	32,400	3,034						
	UO3 }	100.00	10.00	1,000	6.00	6,000	562						
						104,655	9,799		21.80	0.020	1.32%	1.89%	1.51%
Lower	LO1	40.00	160.00	6,400	6.00	38,400	3,596						
Oxide	LO2	45.00	80.00	3,600	6.00	21,600	2,022						
	LO3	80.00	35.00	2,800	6.00	16,800	1,117						
	LO4	40.00	80.00	3,200	5.00	16,000	1,498						
	LO5	42.00	15.00	630	5.00	3,150	295						
						95,950	8,528		21.80	0.020	1.32%	1.89%	1.51%
Sulfide	S1	85.00	15.00	1,275	5.00	6,375	597						
	S2	45.00	15.00	675	7.00	4,725	442						
	S3	65.00	12.50	813	6.00	4,875	456						
	S4	150.00	20.00	3,000	5.00	15,000	1,404						
			Total area:	36,883		30,975	2,900		41.83	0.010	4.44%	6.70%	10.35%
TOTAL MEASURED RESOURCE						231,580	21,227	13.66%	24.54	0.019	1.75%	2.55%	2.72%
			Average width, feet:		6.43								

INDICATED RESOURCE

CALCULATION		STRIKE	HEIGHT	Area, sqft	Area left								
TOTAL AREA OF BLOCK:		420	430	180,600									
LESS AREA OF PROVEN RESERVE				(36,883)	143,718								
LESS AREA OF STOPES AND OPENINGS	30%			(11,065)	132,653								
LESS PILLARS	5%			(1,844)	130,809								
LESS AREA OF PROBABLE SULFIDE RESERVE				(43,323)	87,486								
LESS PILLARS	5%			(2,166)	85,319								
TOTAL INDICATED SULFIDE RESOURCE				41,157	6.43	264,706	24,785						
LESS PILLARS IN PROBABLE OXIDE RESERVE	5%			(4,266)	81,054								
TOTAL INDICATED OXIDE RESOURCE				81,054	6.43	521,307	48,812						
									Ag, opt	Au, opt	Cu	Pb	Zn
TOTAL INDICATED RESOURCE							73,597	33.68%	28.55	0.017	2.37%	3.51%	4.49%
TOTAL MEASURED & INDICATED (DEMONSTRATED) RESOURCE							94,824	29.20%	27.65	0.017	2.23%	3.29%	4.09%

INFERRED RESOURCE

NE Projection	Taken as		*	1.1547									
Above 9920', below 10200'	Mixed	880	280	323	6.00	1,478,400	138,427		27.65	0.017	2.23%	3.29%	4.09%
Between 9,920' and 1st Chance at 9480'	Sulfide	1,400	440	508	6.00	3,696,000	346,067		41.83	0.010	4.44%	6.70%	10.35%
Below 9200 and 9480'	Sulfide	1,400	280	323	6.00	2,352,000	220,225		41.83	0.010	4.44%	6.70%	10.35%
						7,526,400	704,719						
SW Projection													
Above 9920', below 10200'	Mixed	1,600	280	323	3.00	1,344,000	125,843		27.65	0.017	2.23%	3.29%	4.09%
Between 9,920' and 1st Chance at 9480'	Sulfide	1,600	440	508	3.00	2,112,000	197,753		41.83	0.010	4.44%	6.70%	10.35%
Below 9200 and 9480'	Sulfide	1,600	280	323	3.00	1,344,000	125,843		41.83	0.010	4.44%	6.70%	10.35%
						4,800,000	449,438	% sulfide	Ag, opt	Au, opt	Cu	Pb	Zn
CALCULATED INFERRED RESOURCE							1,154,157	83.79%	38.58	0.012	3.93%	5.92%	8.92%
Less tonnage between 10,071' and 10,200' included in demonstrated resource, estimated at							45,000	tons of mixed ore					
								% sulfide	Ag, opt	Au, opt	Cu	Pb	Zn
TOTAL INFERRED RESOURCE							1,109,157	86.00%	39.03	0.011	4.00%	6.03%	9.11%

TABLE 4. Resource estimate, Silver Bell Mine.

SILVERBE\RESERVE5.xls

3/8/96

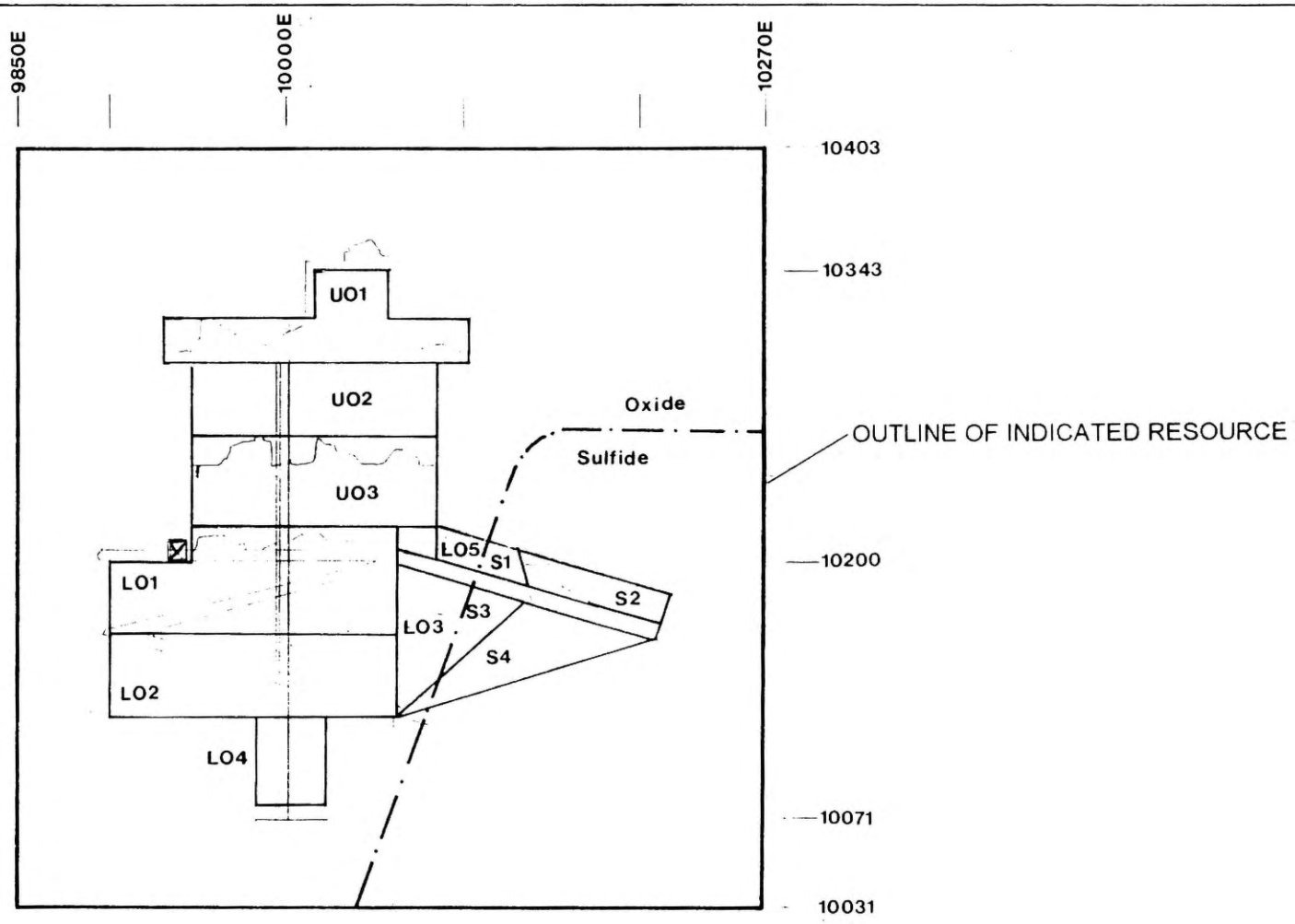


Fig. 11. Section of Silver Bell mine, showing blocks used in reserve calculation.

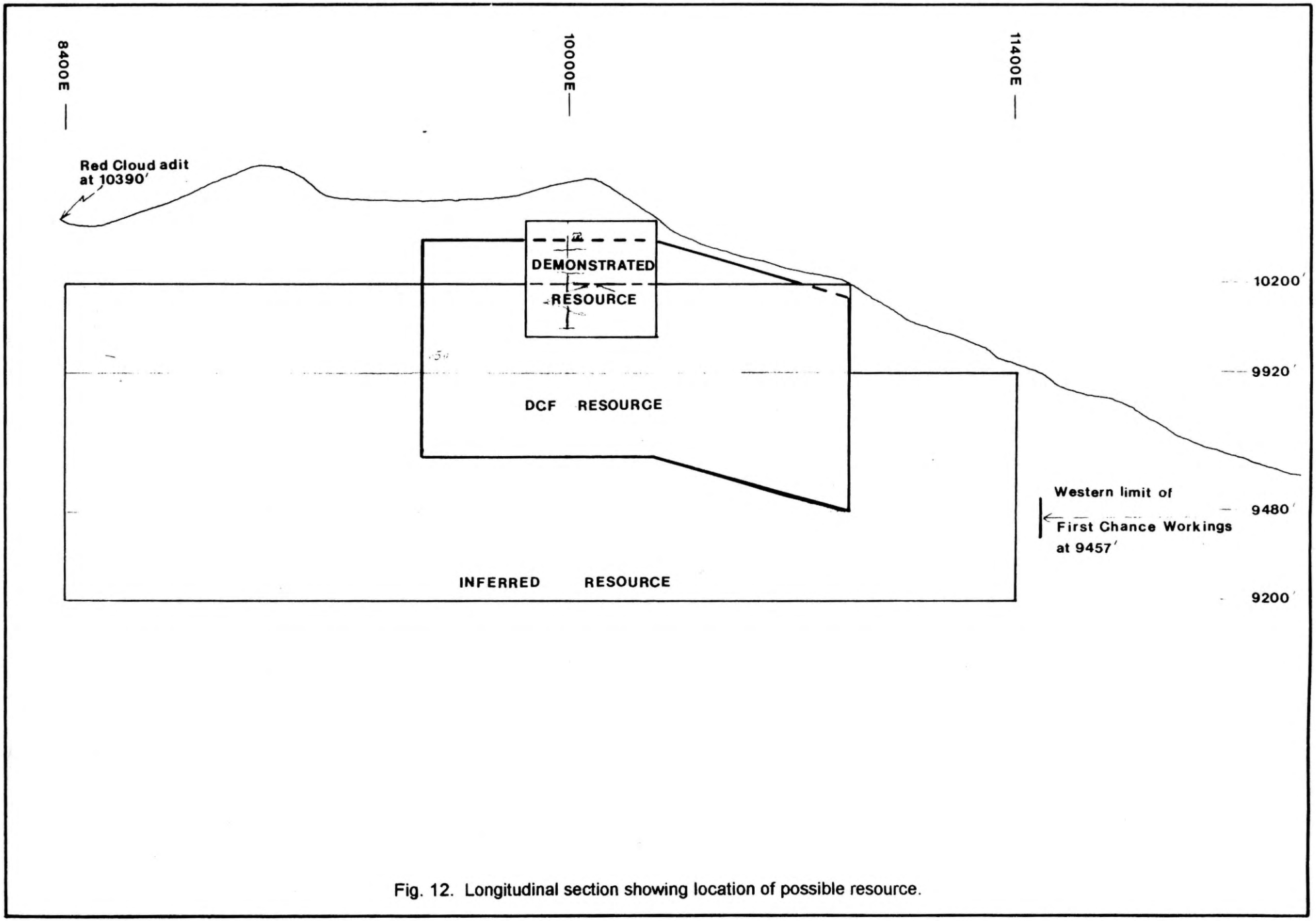


Fig. 12. Longitudinal section showing location of possible resource.

			Concentration factor =		10.4							
			SILVER									73.23%
HG opt	21.80											
Mine dilution	10%											
Recovery	83%											
Oz recovered	16.28		169.36	less	1.000	=	168.360	*	95%	=	159.9 oz	
$/oz	$5.60	paid at	$5.60	less	$0.25	=	$5.35	=	$855.69 / 10	=		$82.28
per ton	$91.19											
			GOLD									4.17%
HG opt	0.02											
Mine dilution	10%											
Recovery	80%											
Oz recovered	0.014		0.150	less	0.020	=	0.130	*	95%	=	0.123 oz	
$/oz	$400.00	paid at	$400.00	less	$5.00	=	$395.00	=	$48.69 / 10	=		$4.68
per ton	$5.76											
			COPPER									6.27%
HG %	1.32%											
lbs	26.4											
Mine dilution	10%											
Recovery	78%											
lbs recovered	18.53	units	9.64	less	1.500	=	8.137	*	60%	=	4.882 units	
$/lb	$1.15	paid at	$23.00	less	$8.00	=	$15.00	=	$73.23 / 10	=		$7.04
per ton	$21.31											
			ZINC									7.35%
HG %	1.51%											
lbs	30.2											
Mine dilution	10%					Check						
Recovery	85%											
lbs recovered	23.10	units	12.01	less	1.500	=	10.514	*	95%	=	9.99 units	
$/lb	$0.50	paid at	$10.00	less	$1.40	=	$8.60	=	$85.90 / 10	=		$8.26
per ton	$11.55											
			LEAD									8.99%
HG %	1.89%											
lbs	37.8											
Mine dilution	10%											
Recovery	88%											
lbs recovered	29.94	units	15.57	less	1.500	=	14.068	*	95%	=	13.36 units	
$/lb	$0.45	paid at	$9.00	less	$1.14	=	$7.86	=	$105.04 / 10	=		$10.10
per ton	$13.47											
TOTAL per ton	$143.29											$112.36

Moisture	12.4%		$1.20	=	$0.12 pt
Impurities As	2.0 units		$6.00	=	$0.58 pt
Sb	1.0 units		$1.50	=	$0.14 pt
	Total penalties:				$0.84

Deductions =	$30.93	=	21.58%	
Treatment charge =	$13.46	=	9.39%	$140.00 per dry ton conc.
Penalties =	$0.84	=	0.58%	
Total	$45.23		31.56%	

NSR	=	$98.06	
less		$8.65 freight	$90.00 per ton concentrate
		$89.41	

Table 5. ESTIMATED RECOVERIES AND NET SMELTER RETURN FOR AVERAGE OXIDE ORE

				Concentration factor =		10							
				SILVER									52.82%
HG opt	41.83												
Mining dilution	10%												
Recovery	75%												
Oz recovered	28.24		282.35	less	1.000	=	281.353	*	95%	=	267.28	oz	
$/oz	$5.60	paid at	$5.60	less	$0.25	=	$5.35	=	$1,429.97	/	10	=	$143.00
per ton	$158.12												
				GOLD									0.72%
HG opt	0.01												
Mining dilution	10%												
Recovery	80%												
Oz recovered	0.007		0.072	less	0.020	=	0.052	*	95%	=	0.049	oz	
$/oz	$400.00	paid at	$400.00	less	$5.00	=	$395.00	=	$19.51	/	10	=	$1.95
per ton	$2.88												
				COPPER									10.13%
HG %	4.44%												
lbs	88.8												
Mining dilution	10%												
Recovery	80%												
lbs recovered	63.94	units	31.97	less	1.500	=	30.468	*	60%	=	18.281	units	
$/lb	$1.15	paid at	$23.00	less	$8.00	=	$15.00	=	$274.21	/	10	=	$27.42
per ton	$73.53												
				ZINC									23.44%
HG %	10.35%												
lbs	207												
Mining dilution	10%												
Recovery	85%												
lbs recovered	158.36	units	79.18	less	1.500	=	77.678	*	95%	=	73.794	units	
$/lb	$0.50	paid at	$10.00	less	$1.40	=	$8.60	=	$634.63	/	10	=	$63.46
per ton	$79.18												
				LEAD									12.89%
HG %	6.70%												
lbs	134												
Mining dilution	10%												
Recovery	80%												
lbs recovered	96.48	units	48.24	less	1.500	=	46.740	*	95%	=	44.403	units	
$/lb	$0.45	paid at	$9.00	less	$1.14	=	$7.86	=	$349.01	/	10	=	$34.90
per ton	$43.42												
TOTAL per ton	$357.12												$270.73

	Penalties			
Moisture	12.4%		$1.20	$0.12 pt
Impurities As	2.0	units	$6.00	$0.60 pt
Sb	1.0	units	$1.50	$0.15 pt
	Total penalties:			$0.87 pt

Deductions =	$86.38	=	24.19%		
Treatment charge =	$14.00	=	3.92%	$140.00	per dry ton conc.
Penalties =	$0.87	=	0.24%		
Total	$101.25	=	28.35%		

NSR	=	$255.86	
less		$9.00	freight
		$246.86	

Table 6. ESTIMATED RECOVERIES AND NET SMELTER RETURN FOR AVERAGE SULFIDE ORE, SILVER BELL MINE

ITEM		Cost per ton milled 1996	Cost per ton milled 1997	Cost per ton milled 1998 on
Contract mining, including:				
	haulage to mill & development	$28.00	$28.00	$28.00
Milling		$16.00	$16.00	$16.00
G & A		$25.54	$11.22	$7.60 *
	SUB-TOTALS	$69.54	$55.22	$51.60
Shipping to smelter	per ton ore	$9.00	$9.00	$9.00
	TOTALS	$78.54	$64.22	$60.60

* See Annex XI

Table 7. Estimates of costs of production, Silver Bell Mine.

		MINING			MILLING (MINE PRODUCTION)			GROSS	NET RETURN	
	Month	Production	Cumulative	Cumulative		Total	Stockpile	$168.135	From smelter	
	dpm	24	mined	ore	20	Treated		per ton	(incl. freight	
	tpd	200	ore		100				cost)	
Stockpile	June	1200		1,200			-			50% oxide
1996	July	2000	2,000	3,200	1,200	1,200	2,000	$201,762		$89.41
1996	August	4800	6,800	8,000	2,000	3,200	4,800	$336,270		50% sulfide
1996	September	5400	12,200	13,400	2,000	5,200	8,200	$336,270	$201,762	$246.86
1996	October	5400	17,600	18,800	2,000	7,200	11,600	$336,270	$336,270	$168.14 per ton
1996	November	5400	23,000	24,200	2,000	9,200	15,000	$336,270	$336,270	
1996	December		23,000	24,200	2,000	11,200	13,000	$336,270	$336,270	
		23,000			11,200			$1,883,112	$1,210,572	
	Month	Production	Cumulative	Cumulative		Total	Stockpile	$215.37	From smelter	
	dpm	25	mined	ore	20	Treated		per ton	(incl. freight	
	tpd	300/400	ore		200				cost)	
1997	January		23,000	24,200	2,000	13,200	11,000	$430,740	$336,270	20% oxide
1997	February		23,000	24,200	3,000	16,200	8,000	$646,110	$336,270	$89.41
1997	March		23,000	24,200	3,000	19,200	5,000	$646,110	$430,740	80% sulfide
1997	April		23,000	24,200	4,000	23,200	1,000	$861,480	$646,110	$246.86
1997	May	4000	27,000	28,200	4,000	27,200	1,000	$861,480	$646,110	$215.37 per ton
1997	June	7200	34,200	35,400	4,000	31,200	4,200	$861,480	$861,480	
1997	July	8000	42,200	43,400	5,000	36,200	7,200	$1,076,850	$861,480	
1997	August	9000	51,200	52,400	5,000	41,200	11,200	$1,076,850	$861,480	
1997	September	9500	60,700	61,900	5,000	46,200	15,700	$1,076,850	$1,076,850	
1997	October	10000	70,700	71,900	5,000	51,200	20,700	$1,076,850	$1,076,850	
1997	November	10000	80,700	81,900	5,000	56,200	25,700	$1,076,850	$1,076,850	
1997	December	5000	85,700	86,900	5,000	61,200	25,700	$1,076,850	$1,076,850	
		62,700			50,000			$10,768,500	$9,287,340	
		25			20					
		400			300					
1998	January		85,700	86,900	6,000	67,200	19,700	$1,292,220	$1,076,850	
1998	February		85,700	86,900	6,000	73,200	13,700	$1,292,220	$1,076,850	
1998	March		85,700	86,900	6,000	79,200	7,700	$1,292,220	$1,292,220	
1998	April		85,700	86,900	6,000	85,200	1,700	$1,292,220	$1,292,220	
1998	May	6000	91,700	92,900	6,000	91,200	1,700	$1,292,220	$1,292,220	
1998	June	10000	101,700	102,900	6,000	97,200	5,700	$1,292,220	$1,292,220	
1998	July	10000	111,700	112,900	6,000	103,200	9,700	$1,292,220	$1,292,220	
1998	August	10000	121,700	122,900	6,000	109,200	13,700	$1,292,220	$1,292,220	
1998	September	10000	131,700	132,900	6,000	115,200	17,700	$1,292,220	$1,292,220	
1998	October	10000	141,700	142,900	6,000	121,200	21,700	$1,292,220	$1,292,220	
1998	November	10000	151,700	152,900	6,000	127,200	25,700	$1,292,220	$1,292,220	
1998	December	6000	157,700	158,900	6,000	133,200	25,700	$1,292,220	$1,292,220	
		72,000			72,000			$15,506,640	$15,075,900	
1999	January		157,700	158,900	6,000	139,200	19,700	$1,292,220	$1,292,220	
			-----SAME AS 1998-----							
1999	December	6000	229,700	230,900	6,000	205,200	25,700	$1,292,220	$1,292,220	
		72,000			72,000			$15,506,640	$15,506,640	
2000	January		229,700	230,900	6,000	211,200	19,700	$1,292,220	$1,292,220	
					-----SAME AS 1999-----					
2000	December	6000	301,700	302,900	6,000	277,200	25,700	$1,292,220	$1,292,220	
		72,000			72,000			$15,506,640	$15,506,640	
2001	January		301,700	302,900	6,000	283,200	19,700	$1,292,220	$1,292,220	
					-----SAME AS 1999-----					
2001	December	6000	373,700	374,900	6,000	349,200	25,700	$1,292,220	$1,292,220	
		72,000			72,000			$15,506,640	$15,506,640	
2002	January		373,700	374,900	6,000	355,200	19,700	$1,292,220	$1,292,220	
2002	February		373,700	374,900	6,000	361,200	13,700	$1,292,220	$1,292,220	
2002	March		373,700	374,900	6,000	367,200	7,700	$1,292,220	$1,292,220	
2002	April		373,700	374,900	6,000	373,200	1,700	$1,292,220	$1,292,220	
2002	May	6300	380,000	381,200	6,000	379,200	2,000	$1,292,220	$1,292,220	
2002	June	10000	390,000	391,200	6,000	385,200	6,000	$1,292,220	$1,292,220	
2002	July	10000	400,000	401,200	6,000	391,200	10,000	$1,292,220	$1,292,220	
2002	August	10000	410,000	411,200	6,000	397,200	14,000	$1,292,220	$1,292,220	
2002	September	10000	420,000	421,200	6,000	403,200	18,000	$1,292,220	$1,292,220	
2002	October		420,000	421,200	6,000	409,200	12,000	$1,292,220	$1,292,220	
2002	November		420,000	421,200	6,000	415,200	6,000	$1,292,220	$1,292,220	
2002	December		420,000	421,200	6,000	421,200	-	$1,292,220	$1,292,220	
		46,300			72,000			$15,506,640	$15,506,640	
2003	January		420,000	421,200		421,200	-	$0	$1,292,220	
2003	February		420,000	421,200		421,200	-	$0	$1,292,220	
		-			-			$0	$2,584,440	
	Totals:	420,000			421,200			$90,184,812	$90,184,812	

Table 8. PROJECTED PRODUCTION SCHEDULE AND NET SMELTER RETURN, SILVER BELL MINE

Note: No allowance made for unrecoverable ore or dilution at this stage

Table 9 is a best guess scenario DCF analysis based on the 6.5 mine life and 420,000 tons of reserves used in Table 8. It shows a net operating income of $67,000,000, an after-tax profit $47,000,000, a payback period for the total investment of 12.5 months from mine start-up and an IRR of 227%. 4% Utah State and 34% Federal income tax rates were used in this.

Custom smelters in North America capable of handling the Silver Bell ores and concentrates are few and distant. They include ASARCO in East Helena, Montana (Pb-Ag) and Hayden in Arizona (Cu-Ag), and Korea Zinc Co. Ltd. in Sauget, Illinois. These need to be researched more extensively. There may be also be private mills and smelters that would be prepared to accept ore and concentrates from Silver Bell

It has been assumed that payment will be made in full for all metals, but there is a possibility that one or other of the metals, most likely copper, may be paid at only 50%.

PERMITTING

As long as surface disruption does not exceed 5 acres for both mine and mill, the permitting will be straightforward for this patented mine. Since the mine is underground and it is planned to pump tailings into old workings, for example at the Blue Rock mine owned by SBMC, no problems are foreseen.

Annex VII shows a copy of a letter from the Utah Department of Natural Resources, Division of Oil, Gas and Mining dated January 13, 1995 stating that a submitted application is complete; giving copies of regulations; stating that a site inspection will be necessary before topsoil is removed; and informing that the State Department of Environmental Quality has been advised and should be contacted to see whether additional permits and/or approvals are required. A site inspection will be necessary before permission is granted to install drillpads, presumably as soon as the snow clears.

Since the mine is in a National Forest, it is likely that the Forest Service and the BLM will also be involved in the permitting process. A memorandum of understanding needs to be drafted to designate which entity will be the lead agency, which is expected to be the Forest Service, with whom a good relationship has been established. Their permission will be required to use and maintain roads for heavy vehicles between patented ground.

The millsite to be selected will need to be at least 5 acres in area to accommodate stockpiles. SBMC currently owns 3 5-acre patented millsites, but others are also under consideration at this stage.

GEOPHYSICS

An aeromagnetic map at a scale of 1:250,000 was published in 1964 (Mabey et al.), based on a 1955 survey from 12,000' on E-W lines 2 miles apart (Fig. 6). As part of the Lone Peak Wilderness study (Bromfield et al., 1981) a more detailed aeromagnetic map was published at 1:48,000, based on a 1974 survey from 12,000' on N-S lines 1 mile apart.

			1996	1997	1998	1999	2000	2001	2002	2003	TOTALS
Property Acquisition			$50,000								$50,000
Royalty Buy-out			$100,000								$100,000
Environmental Bond			$40,000								$40,000
Permitting			$10,000								
Pre-Feasibility Study			$199,025								$199,025
Mill & Millsite Preparation			$500,000								$500,000
Mine and Access Rehabilitation			$200,000								
Exploration Drilling			$280,000								$280,000
Vehicles			$50,000								
Contingency (15%)			$306,401								$306,401
Fund Raising (10%)			$234,908								$234,908
Working Capital			$613,650						($213,650)	($400,000)	$0
Total			$2,583,984	$0	$0	$0	$0	$0	($213,650)	($400,000)	$1,970,334
Cumulative Investment			$2,583,984	$2,583,984	$2,583,984	$2,583,984	$2,583,984	$2,583,984	$2,370,334	$1,970,334	
Tons mined			23,000	62,700	72,000	72,000	72,000	72,000	46,300	0	420,000
Cumulative tons mined			23,000	85,700	157,700	229,700	301,700	373,700	420,000	420,000	
Tons milled			11,200	50,000	72,000	72,000	72,000	72,000	72,000	0	421,200
Tons smelted (equiv. mined tons)			7,200	44,000	70,000	72,000	72,000	72,000	72,000	12,000	421,200
% sulfide			50%	80%	80%	80%	80%	80%	80%	80%	
NSR per ton incl. freight cost			$168.14	$168.14/215.37	$215.37	$215.37	$215.37	$215.37	$215.37	$215.37	
NSR Revenue		(From Table 8)	$1,210,572	$9,287,340	$15,075,900	$15,506,640	$15,506,640	$15,506,640	$15,506,640	$2,584,440	$90,184,812
NSR Royalty			$0	$0	$0	$0	$0	$0	$0	$0	$0
Gross Income			$1,210,572	$9,287,340	$15,075,900	$15,506,640	$15,506,640	$15,506,640	$15,506,640	$2,584,440	$90,184,812
Operating costs:	Mining pt		$28.00	$28.00	$28.00	$28.00	$28.00	$28.00	$28.00		
Total	Mining		$644,000	$1,755,600	$2,016,000	$2,016,000	$2,016,000	$2,016,000	$1,296,400		$11,760,000
	Milling pt		$16.00	$16.00	$16.00	$16.00	$16.00	$16.00	$16.00		
Total	Milling		$179,200	$800,000	$1,152,000	$1,152,000	$1,152,000	$1,152,000	$1,152,000		$6,739,200
	G&A	(Annexes IX,XI,XIA)	$286,000	$617,320	$617,320	$617,320	$617,320	$617,320	$617,320	$200,000	$4,189,920
Drilling & Reclamation				$250,000	$200,000	$200,000	$200,000	$200,000		$250,000	$1,300,000
Total Operating Cost			$1,109,200	$3,422,920	$3,985,320	$3,985,320	$3,985,320	$3,985,320	$2,852,070	$50,000	$23,375,470
Net Operating Income			$101,372	$5,864,420	$11,090,580	$11,521,320	$11,521,320	$11,521,320	$12,654,570	$2,534,440	$66,809,342
Depreciation & Amortization	12.5%	$1,917,367	$101,372	$377,970	$239,671	$239,671	$239,671	$239,671	$239,671	$239,671	$1,917,367
Net Income after D&A			$0	$5,486,450	$10,850,909	$11,281,649	$11,281,649	$11,281,649	$12,414,899	$2,294,769	$64,891,975
Utah State Income Tax	4%		$0	$219,458	$434,036	$451,266	$451,266	$451,266	$496,596	$91,791	$2,595,679
Net Income after Utah tax			$0	$5,266,992	$10,416,873	$10,830,383	$10,830,383	$10,830,383	$11,918,303	$2,202,978	$62,296,296
Depletion Allowance			$0	$2,081,196	$2,602,568	$2,676,927	$2,676,927	$2,676,927	$2,676,927	$446,154	$15,837,626
Net Federal Taxable Income			$0	$3,185,796	$7,814,305	$8,153,456	$8,153,456	$8,153,456	$9,241,376	$1,756,824	$46,458,670
Federal Income Tax	34%		$0	$1,083,171	$2,656,864	$2,772,175	$2,772,175	$2,772,175	$3,142,068	$597,320	$15,795,948
Net Profit after Taxes			$0	$2,102,625	$5,157,441	$5,381,281	$5,381,281	$5,381,281	$6,099,308	$1,159,504	$30,662,722
Deprec. +Amort. + Depletion			$101,372	$2,459,166	$2,842,239	$2,916,598	$2,916,598	$2,916,598	$2,916,598	$685,825	$17,754,993
Operating Cash Flow			$101,372	$4,561,791	$7,999,680	$8,297,879	$8,297,879	$8,297,879	$9,015,906	$1,845,329	$48,417,715
Salvage										$250,000	$250,000
AFTER-TAX CASH FLOW			($2,482,612)	$4,561,791	$7,999,680	$8,297,879	$8,297,879	$8,297,879	$9,229,556	$2,495,329	$46,697,381
IRR 20%	NPV=	$18,999,997	IRR=	83.75%	193.53%	218.09%	224.55%	226.40%	227.02%	227.07%	PAYBACK,
IRR 15%	NPV=	$23,293,209									months
CUMULATIVE CASH FLOW			($2,482,612)	$2,079,179	$10,078,859	$18,376,738	$26,674,617	$34,972,496	$44,202,052	$46,697,381	12.5

Table 9. Silver Bell Mine: DCF Analysis - 6.5 year Mine Life.

Table 10. SUMMARY OF ASSUMPTIONS USED IN DCF ANALYSIS.

I. With respect to full production, beginning in 1998: 300 tpd mill, seasonal contract mining 72,000 tpa.

1. Mining and haulage to mill @ $28.00 pt
2. Milling @ $16.00 pt
3. Shipping @ $90.00 per ton concentrate
4. General and Administrative @ $7.60 pt
5. Development : $200,000 capitalized, thence included in mining cost.
6. Reclamation : a non-recoverable bond of $40,000 plus the amount of equipment salvage less $250,000.
7. Mining dilution @ 10%
8. Mining loss @ 10%

   Note: These two items cancel each other out.
9. Recoveries:

   Sulfide ore: 75% silver, 80% copper, 85% zinc, 80% lead, and 80% gold

   Oxide ore: 83% silver, 78% copper, 85% zinc, 88% lead, and 80% gold
10. Operating mill: 200 days per annum for 72,000 tpy.
11. Mining: (seasonal) - 400 tpd for 25 dpm at peak

II. Smelter Charges

		Oxide ore	Sulfide ore
1.	Concentration ratio:	10.4:1	10:1
2.	Deductions per ton ore:	$30.93	$86.38
3.	Penalties per ton ore:	$0.84	$0.87
4.	Treatment charge:	$140 per dry ton concentrate	

III. Depletion and Taxes:

1. Depletion Credits of 15% for Ag, Cu, Au, and 22% for Pb, Zn.
2. Unit depletion first year, thence statutory.
3. Straight line depreciation.
4. Utah State Tax: 4% before depletion.
5. Federal Income Tax: average 34% after deduction of Utah taxes

There has been no ground geophysical exploration in the area. The main use would be to use electrical methods across the fissure-vein structure in an attempt to locate sectors where bedded sulfide replacement might occur. This might be difficult due to the expected depth and the strong topographic relief.

Initially research will be carried out on previous application of ground geophysics in the search for Tintic-type mineralization.

DRILLING

The Silver Bell fissure vein has never been drill-tested. A drilling campaign is being planned from June to August 1996 and will require two core drills, surface and underground. The program will have two objectives:

(i) Delineating mineral reserves of 70,000 additional tons to assure production through 1998. 20,900 tons will be required to meet the schedule for 1997 alone (Table 8). It is estimated that this will require a minimum of 5000' and cost $165,000.

(ii) Step-out holes to west and east to increase confidence in the size and tenor of the possible resource, and to investigate zonation. A total of 6 holes or 2500' are recommended costing $90,000.

Access roads and drill pads will probably be necessary on the northern slope (Mineral Basin) for 45 degree holes to the south, and permitting approval will probably be necessary. A core shack will need to be built, probably at the millsite. A further $25,000 should be budgetted for these items, for a total of $280,000.

TIMETABLE AND BUDGET

Annex VII gives a timetable of activities necessary to bring the mine into production in June 1996. Through June these activities will cost $296,000 (Annex VIII) and are aimed at producing a pre-feasibility report which will be the basis for raising the major capital of $1,190,000, followed by a further $1,098,000 for start-up, drilling, and working capital (Annex IX) for a total capital requirement of $2,584,000.

DISCUSSION AND PROPOSED FUTURE WORK PROGRAM

It should be stressed that the resource estimation has been based only on the model of a polymetallic fissure vein of fairly consistent width. The more likely picture that will emerge with drilling and further development is that of a vein which pinches and swells according to the chemistry of the adjacent sediments, but with the real possibility of bedded replacement deposits of much larger tonnage potential, particularly in the Cambrian carbonates. In fact, this type of mineralization has already been located at surface on the ridge in the Mono claim (see map, Annex II), where a character sample returned an assay of 77.5 opt Ag. There could be a considerable additional tonnage potential in the mine if bedded replacement deposits, similar to those in the nearby Miller mine and in the Tintic and Park City districts can be established at lower levels in the mine, and along the extensions of the fissure-vein.

At Park City 70 percent of the ore came from bedded replacements and only 30 percent from

fissure-veins. The Ontario - Daly West fault zone, located only 6 miles east of Silver Bell and with a similar ENE strike (see Annex XV), hosted 4 major mines over a strike length of 2 miles which between them produced 7.64 million tons of ore with a head grade of 16 opt Ag, 6.44% Pb, 4.62% Zn, 0.019 opt Au, and 0.25% Cu, with an in situ value exceeding US$1.5 billion.

Although gold has been reported at only relatively low grades in the Silver Bell assays to date, the fact remains that the American Fork District produced more value in gold than the other metals. In fact, there is a history of gold-quartz mineralization of different paragenesis occurring in the same general structural setting as the polymetallic mineralization, and being encountered only after mining had been in progress for some time. Such was the case in the nearby Miller mine, where the ore ran almost 1 opt Au.

However, since silver will be the main metal produced, and a substantial reduction in the price of silver on the world commodity markets may impede the Company's ability to economically mine. However, the immediate future of this metal seems positive. The shortfall of newly refined silver supplies (527 million oz in 1995, of which 356 mm oz consisted of mine production) relative to fabrication demand (photography, electronics, jewellry and silverware) was 187 mm oz in 1994, 162 mm oz in 1995 and is projected at 179 mm oz in 1996. Worldwide mine production is predicted to increase by 3.6% in 1996 to 369 mm oz. 1995 was the sixth consecutive year in which deficits have occurred and approximately half of the world's silver stocks accumulated to the end of 1989 have been drawn down, leaving less than 700 million oz. If the present trend continues, this inventory will be totally depleted by the end of 1999, and could lead to a major price escalation.

The total U.S. mine output for silver in 1995 was 54,700,000oz. Approximately 80% of this was derived as a by-product of other primary metal production. If this output stayed steady for the next 3 years, and the projected production from Silver Bell mine were added, SBMC's share of this total production would increase from 0.45% (249,000oz) in 1996, to 2.31% (1,290,000oz) in 1997, and to 3.29% (1,860,000oz) from 1998 on, when it would be the ninth largest silver producer in the U.S.A.

The CPM Group, the well regarded precious metal analysts who publish an annual Silver Survey, have predicted an average silver price of $5.86 for 1996.

Once the Silver Bell mine is in production, the two other claim blocks belonging to the company will be explored and evaluated. The Company, as the only operator in the American Fork district and with an operating mill, will have the opportunity of acquiring other mines and prospects in the area. Research and site inspections will be an on-going activity.

In the short term, however, there are a number of things to be done to prepare the pre-feasibility report and clear the way for financing. These activities fall under the following headings (asterisked items to be done as soon as possible):

I. Reserves:

1. Map the sulphide ore, mixed ore and oxidized ore on the sections
2.* Establish Specific Gravity of various ore types and recalculate the respective tonnages.

II. Mining:

3.* Obtain quotes for pre-production and production mining.
4. Map stratigraphic units in mine workings and establish displacement along fissure vein.

5.* Refine and obtain quotes for the surface and underground drilling program.

6. Open up Red Cloud and First Chance workings, survey, map and sample.

III. Ore Dressing:

7.* Ore dressing tests of the sulfide ore and further testing on the oxide ore and other variations that may exist.

8.* Send a suite of sulphide and oxidized ore types for spectrographic scans. This will highlight any deleterious penalty elements at the smelter.

9.* Research ore dressing techniques used for similar ore types in the Tintic and Park City districts.

10.* Identify and discuss financing with potential custom smelters and investigate the possibility of using a nearby mine smelter.

IV. Millsite:

11.* Consider the alternatives for a millsite.

12. * Investigate underground workings of other old mines topographically lower than proposed millsite as sites for tailings disposal.

13. Consider the alternative of a flying fox for transport of men, materials and ore. (Fig. 1 shows the location of an earlier aerial tramway used for the Yankee/Globe mines.) This may be more important if the mine life is extended to 10 years or more. An inclined tramway was previously used at the Silver Bell mine.

V. Geology:

14. Carry out a topographic survey of the claim block, and establish a grid.

15. Map surface extent of fissure vein, measure widths, collect channel samples, test extensions by geochemical soil sampling.

16.* Study other mines in district and their claim status for future acquisition.

17.* Prepare cross-sections initially using available topographic information.

18.* Research possible theses on the American Fork District at universities.

VI. Economics:

19.* Research the tax regime, alternative depreciation schedules, and depletion allowances.

CONCLUSIONS

Analysis of the information available indicates that Silver Bell has the potential of being a very profitable mine with little down-side risk for investors, but with excellent up-side potential if (i) the fissure vein is economically exploitable over only an additional fraction of its surface extent, and (ii) if bedded replacement deposits of far greater tonnage potential exist at lower depths in the mine area. Additional information is required to prepare a pre-feasibility study. Suggestions along these lines have been made in the report above.

RECOMMENDATIONS

Funds amounting to $296,000 need to be raised in the short term to carry out the pre-feasibility studies described above, which should take place this winter as much as possible to confirm the economics of putting the mine into production and allow the major financing of up to an additional $2,288,000 to take place smoothly in June/July 1996.

REFERENCES

Baker, A.A., Calkins, F.C., Crittenden, M.D. Jr., and Bromfield, C.S., 1966, Geologic Map of the Brighton Quadrangle, Utah: U.S. Geol. Survey Geol. Quad. Map GQ-534 (1:24,000).

Bromfield, C.S., 1989, Gold deposits in the Park City Mining District, Utah: *in* USGS Bull.1857, Chapter C, p. C14-C26.

Bromfield, C.S. and Patten, L.L., 1981, Mineral Resources of the Lone Peak Wilderness Study Area, Utah and Salt Lake counties, Utah: USGS Bull.1491, 113p.

Bryant, B., 1992, Geologic and Structure Maps of the Salt Lake City 1 x 2deg Quadrangle, Utah and Wyoming: U.S. Geol. Survey Misc. Inv. Series Map I-1997 (1:125,000).

Bryant, B., 1990, Geologic Map of the Salt Lake City 30' x 60' Quadrangle, North-Central Utah, and Uinta County, Wyoming: U.S. Geol. Survey Misc. Inv. Series Map I-1944 (1:100,000).

Butler, B.S., and Loughlin, G.F.,1916, A reconnaissance of the Cottonwood-American Fork mining region, Utah: U.S. Geol. Survey Bull. 620-I, p. 165-226.

Butler, B.S., and Loughlin, G.F., Heikes, V.C. et al., 1920, The ore deposits of Utah: U.S. Geol. Survey Prof. Paper 111, 672p.

Calkins, F.C. and Butler, B.S., 1943, Geology and ore deposits of the Cottonwood-American Fork area, Utah with sections on history and production, by V.C. Heikes: U.S. Geol. Survey Prof. Paper 201, 152p.

Cox, D.P. and Singer, D.A., 1986, Mineral deposit models: U.S. Geol. Survey Bull. 1693, 379p.

Crittenden, M.D., Jr., 1965, Geology of the Dromedary Peak quadrangle, Utah: U.S. Geol. Survey Geol. Quad. Map GQ-378.

Crosland, R.I. and Thompson, C., 1994, Heritage Resource Inventory of American Fork area mine closures, Utah County, Utah: NEPA, 87p.

Doelling, H.H. and Tooker, E.W., 1983, Utah Mining District areas and Principal Metal Occurrences: Map 70, Utah Geological and Mineral Survey.

Grantham, L.S., 1996, Mine plan and projected mining costs, 32p.

Keetch, F., 1978, Mining developments in the American Fork Mining District: Unpublished manuscript on file at the Uinta National Forest Supervisor's Office, Provo, Utah.

Mabey, D.R., Crittenden, M.D., Jr., Morris, H.T., Roberts, R.J., and Tooker, E.W., 1964, Aeromagnetic and generalized geologic map of part of North-central Utah: U.S. Geol. Survey Geophysical Investigations Map GP-422

Morris, H.T., 1990, Gold in the Tintic Mining District, Utah: *in* USGS Bull.1857, Chapter F, p. F1-F18.

Proctor, W.D., 1995, Silver Bell Mining Company: Internal report, 5p., 2 figs.

Proctor, W.D., 1995a, Addendum to Reserves. 3p.

Quigley, W.D., 1995, Evaluation Report on Silver Bell Mine, American Fork Mining District: internal report to Silver Bell Mining Company, 28p.

Quigley, W.D., 1996, Supplemental Report on Silver Bell Mine, American Fork Mining District: internal report to Silver Bell Mining Company, 4p.

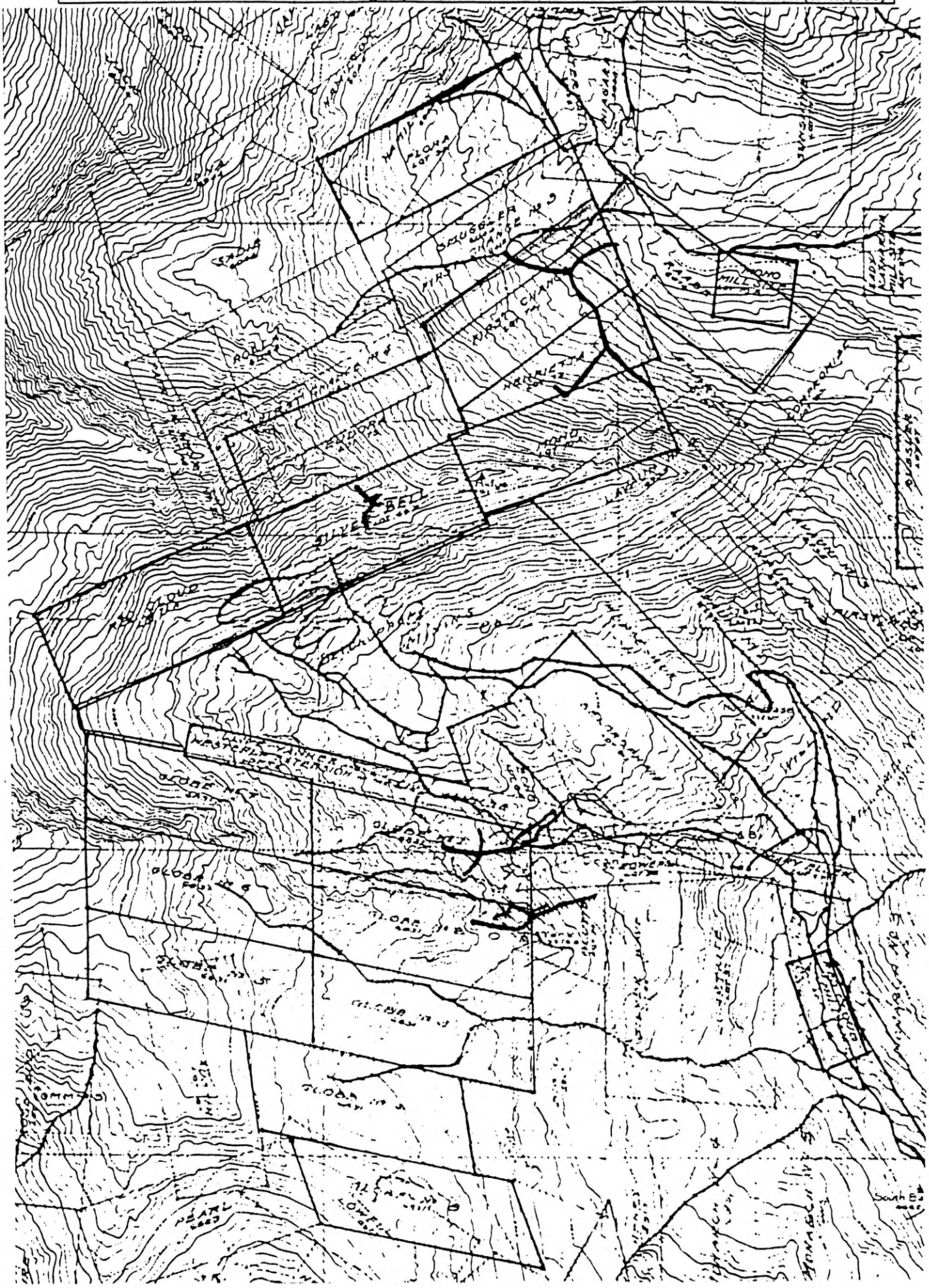
Richmond, G.M., 1964, Glaciation of Little Cottonwood and Bell Canyons, Wasatch Mountains, Utah: U.S. Geol. Survey Prof. Paper 454-D, 41p.

Roberts, R.J., 1960, Paleozoic structure in the Great Basin: [abs.] Geol. Soc. America Bull., v.71, p.1955.

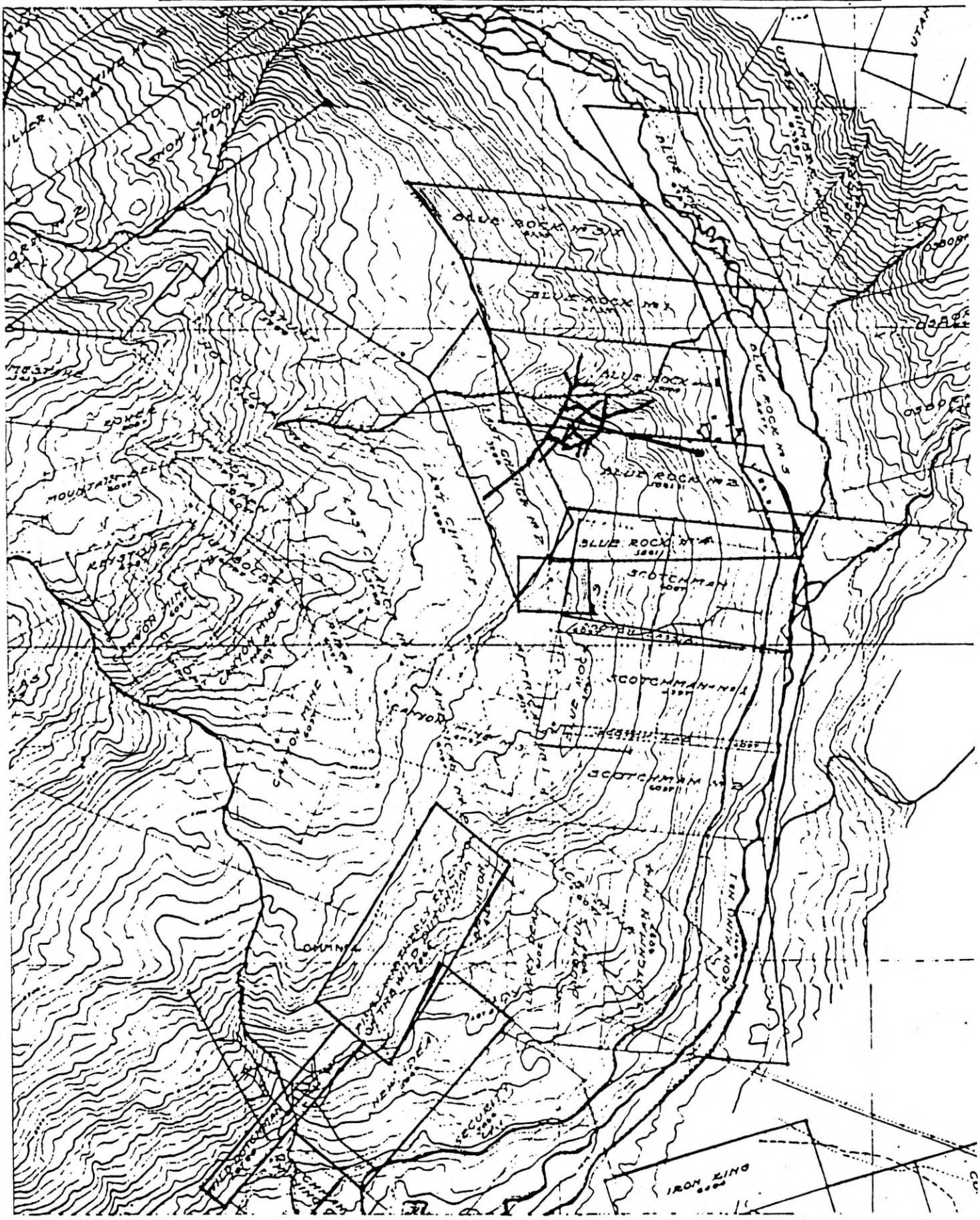
GROUP	CLAIM	LOT No.	Mineral Survey No.	Area, acres	
SILVER BELL	Silver Bell Lode	69-A		20.193	
	Red Cloud Lode	71-A		20.660	
	Mono Lode	70-A		20.096	
	Mono Millsite	70-B		4.821	
	Eudora Lode	73		20.610	
	Henrietta Lode	72	6615	10.880	
	First Chance Lode	74		20.010	
	Rabbe Lode		6414	15.860	
7	Patented Claims	Some overlap			
1	Millsite				133.130 acres
GLOBE	Globe No. 1		6831		
	Globe No. 2		6831		
	Globe No. 3		6831		
	Globe No. 4		6831		
	Globe No. 5		6831		
	Globe No. 6		6831		
	Globe No. 7		6831		
	Globe No. 8		6831		
8	Patented Claims	No overlap			125.925 acres
BLUE ROCK	Blue Rock Amd.		5049	19.231	
	Blue Rock No. 1}		6139		
	Blue Rock No. 6}		6139	29.402	
	Blue Rock No. 2]		5861		
	Blue Rock No. 3]		5861	42.404	
	Blue Rock No. 4]		5861		
	Blue Rock No. 9 Fraction		6472	1.026	
	Last Chance No. 2		5268	16.536	
8	Patented Claims	Some overlap			108.599 acres
MILLSITES	Silver Bell Millsite	69-B		5.000	
2	Red Cloud Millsite	71-B		4.959	
					9.959 acres
TOTAL					
3	Patented Millsites				
23	Patented Claims			Total	377.613 acres

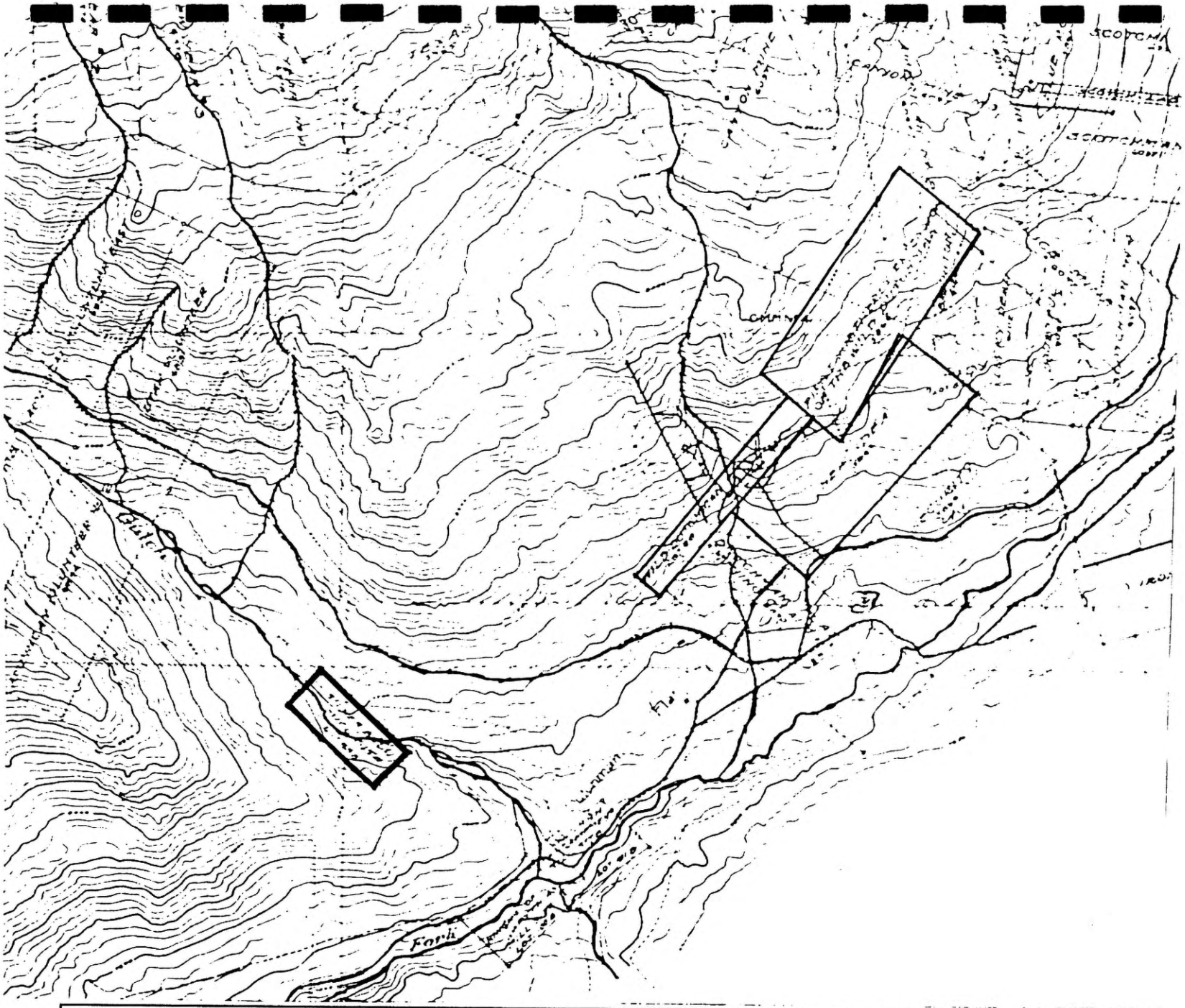
Annex I. List of Patented Claims and Millsites held by SBMC in the American Fork Mining District.

Annex II. The Silver Bell and Globe claim groups and Red Cloud Millsite in the American Fork District (c. 1:9,600)



Annex IIa. The Blue Rock claim group in the American Fork District (c. 1:9,600) showing the location of the Wild Dutchman group of claims





Annex IIb. The Silver Bell Millsite on Mary Ellen Gulch in the American Fork District (c. 1:9,600) showing the location of the Wild Dutchman group of claims

Annex III. Underground and Surface Assays, Silver Bell Mine and Claim Group.

Date	Sample No.	Ag, opt	Ag	Au, opt	Cu, %	Pb, %	Pb	Zn, %	Width, in	Company	Sampler	Location	Ox/Sulf	Notes	SiO2%	Fe%	S%
1980	A	26.30	26.30							Noranda		2E	Oxide				
	B	7.40	7.40							Noranda		4E	Oxide	FG white qz w. ZnS & ZnO			
	C	25.90	25.90							Noranda		4E	Oxide				
	D	0.46								Noranda		2E	Oxide	HW			
	E	19.40	19.40							Noranda		4W	Oxide				
	F	20.80	20.80							Noranda		2E	Oxide				
	G	3.59								Noranda		3E	Oxide	horst			
	H	28.90	28.90							Noranda		3W	Oxide				
	I	6.00								Noranda		3E	Oxide	muck pile at face			
	J	28.50	28.50							Noranda		3E	Oxide				
	K	16.50	16.50							Noranda		4E	Oxide				
	L	9.80	9.80							Noranda		OSMW	Oxide	Bottom of winze			
	M	16.80	16.80							Noranda		3E	Oxide				
	N	5.87								Noranda		4E	Oxide	Small muck pile			
	O	39.90	39.90							Noranda		4E	Oxide				
			21.84	Average of		11	samples										
	P	15.70							Grab	Noranda		Surface in saddle	Oxide				
	-	60.00							Grab	Noranda		Surface N Slope	Oxide				
1980		12.00				1.50				Yankee			Oxide	Ave of 78 samples			
13/4/81	1	10.76	10.76	nd		1.03	1.03		51	Yankee	Procter	4W	Oxide				
	2	15.58	15.58	nd		1.48	1.48		52	Yankee	Procter	4W	Oxide				
	3	9.34		nd		1.17				Yankee	Procter		Oxide	FW			
	4	10.44	10.44	nd		2.42	2.42		49	Yankee	Procter	4W	Oxide				
	5	12.78	12.78	nd		0.74	0.74		56	Yankee	Procter	4W	Oxide				
	6	3.22		nd		0.64				Yankee	Procter	4W	Oxide	FW			
	7	12.50		nd		2.34				Yankee	Procter	4W	Oxide	Floor			
	8	8.04	8.04	nd		1.38	1.38		23	Yankee	Procter	4W	Oxide				
	9	8.56	8.56	nd		1.43	1.43		38	Yankee	Procter	4W	Oxide				
	10	37.38	37.38	nd		2.34	2.34		55	Yankee	Procter	4W	Oxide				
	11	32.66	32.66	nd		2.10	2.10		61	Yankee	Procter	4E	Oxide				
	12	13.12	13.12	nd		2.29	2.29		62	Yankee	Procter	4E	Oxide				
	13	20.06	20.06	nd		3.06	3.06		66	Yankee	Procter	4E	Oxide				
	13a	39.62		nd		6.92				Yankee	Procter	4E	Oxide	Clay in back			
	14	16.92	16.92	nd		4.71	4.71		63	Yankee	Procter	4E	Oxide				
	15	15.06	15.06	nd		2.01	2.01		65	Yankee	Procter	4E	Oxide				
	16	39.70	39.70	nd		5.59	5.59		72	Yankee	Procter	4E	Oxide				
	17	36.52	36.52	nd		5.79	5.79		72	Yankee	Procter	4E	Oxide				
	18	6.64		nd		1.07				Yankee	Procter	OSMW	Oxide	FW			
	19	8.00		nd		1.52				Yankee	Procter	OSMW	Oxide	HW			
	20	12.50		nd		1.83				Yankee	Procter	4E	Oxide				
	22	5.70		nd		0.68				Yankee	Procter	OSMW	Oxide	HW gouge			
	23	9.58		nd		2.55				Yankee	Procter	2W	Oxide	Floor			
	24	18.20	18.20	nd		1.82	1.82		60	Yankee	Procter	2E	Oxide				
	25	13.38	13.38	nd		3.17	3.17		71	Yankee	Procter	2E	Oxide				
	26	16.06	16.06	nd		3.12	3.12		72	Yankee	Procter	2E	Oxide				
	27	14.08	14.08	nd		2.66	2.66		70	Yankee	Procter	2E	Oxide				
	28	19.70	19.70	nd		3.52	3.52		62	Yankee	Procter	2E	Oxide				
	28a	8.78		nd		1.08				Yankee	Procter	2E	Oxide	Clay Selvedge			
	29	13.84	13.84	nd		4.14	4.14		48	Yankee	Procter	2E	Oxide				
	30	2.20		nd		0.27			38	Yankee	Procter	2E	Oxide	FW			
	31	2.16		nd		0.12			20	Yankee	Procter	2E	Oxide	HW			

Annex III. Underground and Surface Assays, Silver Bell Mine and Claim Group.

Date	Sample No.	Ag, opt	Ag	Au, opt	Cu, %	Pb, %	Pb	Zn, %	Width, in	Company	Sampler	Location	Ox/Sulf	Notes	SiO2% Fe% S%
	32	2.72		nd		0.32			8	Yankee	Procter	2E	Oxide	HW	
	44	17.48	17.48	nd		2.29	2.29		46	Yankee	Procter	OSMW	Oxide		
	45	8.50		nd		2.86				Yankee	Procter		Oxide		
	46	14.60	14.60	nd		2.03	2.03		49	Yankee	Procter	OSMW	Oxide		
	47	2.94		nd		1.44				Yankee	Procter		Oxide		
	48	10.88		nd		4.15				Yankee	Procter		Oxide		
	49	8.54	8.54	nd		1.46	1.46		24	Yankee	Procter	4E	Oxide		
	50	14.32	14.32	nd		5.01	5.01		20	Yankee	Procter	4E	Oxide		
	51	6.06		nd		1.63				Yankee	Procter	4E	Oxide	Face	
	52	6.26	6.26	nd		1.02	1.02		51	Yankee	Procter	3E	Oxide		
	53	23.02	23.02	nd		4.07	4.07		60	Yankee	Procter	3E	Oxide		
	54	14.48	14.48	.051		8.10	8.10		50	Yankee	Procter	3E	Oxide		
	55	7.22	7.22	.021		4.74	4.74		38	Yankee	Procter	3E	Oxide		
	56	4.04	4.04	.031		1.47	1.47		36	Yankee	Procter	3E	Oxide		
	63	5.84		nd		0.68				Yankee	Procter		Oxide		
	64	19.50		nd		2.10				Yankee	Procter		Oxide		
	65	6.02		.011		1.76				Yankee	Procter		Oxide		
	66	8.36		nd		1.16				Yankee	Procter		Oxide		
	67	36.78	36.78	nd		2.91	2.91		56	Yankee	Procter	OSMW	Oxide		
	68	6.82		nd		1.22			51	Yankee	Procter	OSMW	Oxide	FW?	
	69	8.82		nd		1.38			46	Yankee	Procter	OSMW	Oxide	HW?	
	70	38.22	38.22	.011		2.64	2.64		47	Yankee	Procter	OSMW	Oxide		
	71	9.24		nd		1.99				Yankee	Procter		Oxide		
	72	17.96	17.96	nd		2.20	2.20		46	Yankee	Procter	3E	Oxide		
	73	58.12	58.12	nd		4.38	4.38		55	Yankee	Procter	3W	Oxide		
	74	25.14	25.14	nd		5.50	5.50		57	Yankee	Procter	3W	Oxide		
	75	4.78		nd		0.63				Yankee	Procter	OSMW	Oxide	FW	
	76	8.72		nd		1.10				Yankee	Procter	OSMW	Oxide	HW	
	77	25.58	25.58	nd		3.30	3.30			Yankee	Procter	3W	Oxide		
	NN	12.72	12.72	nd		2.67	2.67			Yankee	Procter		Oxide		
	Average of	36	19.37				3.02			Yankee	Procter				
16/7/81		77.50		.001		0.51			Grab	Yankee	Evans	Ridge on Mono claim	Oxide	Remnant bedding	
Sulfides discovered September 1983															
10/1983		21.40		.001						Lee Mining				15t truck load	Development dilution
		23.00		.001						Lee Mining				15t truck load	"
		26.00		.001						Lee Mining				15t truck load	"
		15.40		.001						Lee Mining			Oxide	17t truck load	"
		19.80								Lee Mining			Oxide	16t truck load	"
		21.80								Lee Mining				15t truck load	"
		23.60		.011						Lee Mining				16t truck load	"
		25.20		.021						Lee Mining				16t truck load	"
		19.00		.041						Lee Mining				15t truck load	"
		23.00		.011						Lee Mining				17t truck load	"
		28.40		.011	2.3	0.50		0.70		Lee Mining	?				
		28.50			1.37	4.10		4.00		Lee Mining		3E stope			
		16.80			0.72	2.00		0.90		Lee Mining		3E SW end			
		28.90			0.84	3.00		2.00		Lee Mining		100t stockpile			
		26.30			1.13	1.20		0.93		Lee Mining		4E main		Stope, oblique	
		11.30		.061	2.6	0.50		0.70		Lee Mining		4E main	Oxide	oblique	
		8.00		.011	2.5	0.80		1.00		Lee Mining		4W	Oxide		
		60.00		.031	1.3	0.60		0.40	60	Lee Mining		3E	Oxide		

Annex III. Underground and Surface Assays, Silver Bell Mine and Claim Group.

Date	Sample No.	Ag, opt	Ag	Au, opt	Cu, %	Pb, %	Pb	Zn, %	Width, in	Company	Sampler	Location	Ox/Sulf	Notes	SiO2%	Fe%	S%
		45.60			4.1	7.10		10.00	CS	Lee Mining		4E decline face	Sulfide	tet,gal			
		43.20			5.6	11.00		16.00		Lee Mining		4E decline face	Sulfide	tet,sph,gal			
		38.60			4.6	8.30		11.20		Lee Mining		4E stope	Sulfide				
		1.30			0.4	0.3		2.10		Lee Mining		4E bedded replacement	Sulfide				
		14.60			1.8					Lee Mining		Face lowest decline	Oxide				
		28.00			2.3					Lee Mining		Pillar lowest incline area	Oxide				
		21.00			1.6					Lee Mining		4 First stope E	Oxide				
		16.80			2.1					Lee Mining		4 First stope W	Oxide				
		21.20		.021	1.1	0.8		0.60		Lee Mining			Oxide	45 samples average			
198?		41.20		.011	4.3	4.6		8.30		Lee Mining			Sulfide	10 samples average	Lee has; all channel		
10/83?	1799	38.11		.011	6.3	5.60		10.60	Grab			4E Decline	Sulfide				
84/85	SOR1#1	84.65		.031	10.5	16.30		13.60	Grab			4		HG vug			
84/85	SOR1#7	30.50		.011	2.8	13.50		16.60				4	Sulfide	Composite 1799 stope			
28/10/87		19.05		.061	0.8	2.00		2.50		Asarco		Alpine ore pile	Oxide	Of no interest to Asarco	39.5	1.8	1.1
28/10/87		17.80		.011	0.9	3.90		4.20		Asarco		Alpine ore pile	40S/60O	due to low Au, Ag content	48.4	1.6	3.8
1988		20.10		.011	2.7					Barrick			60S/40O	400 t pile composite			
1988		23.60		.001	1.9					Barrick			Oxide	700 t pile composite			
10/11/88	Silver Bell	65.35							Grab	Grantham							
2/11/88	Silver Bell Face	49.21		.011	3.38	15.40		15.00	Longitudinal	Grantham			Sulfide				
		53.00		.021	5.1	5.7		11.10	77	Grantham		NE incline face end	Sulfide				
4/95	Oxide # 1	16.68		.031	0.48	2.72			Grab	SBMC	Quigley	Ore dump at portal					
4/95	Oxide # 2	3.56		.021	0.10	0.38			24/30	SBMC	Quigley	4E					
4/95	Oxide # 3	6.55		.021	0.18	0.62			Character	SBMC	Quigley	4E					
4/95	Oxide # 4	15.29		.021	0.25	0.95			36	SBMC	Quigley						
4/95	Oxide # 5	22.15		.041	0.46	2.82			24/48	SBMC	Quigley						
4/95	Average of 5	12.85		0.03	0.29	1.50											

Annex IV

DAWSON
METALLURGICAL
LABORATORIES, INC.

P. O. Box 7685
5217 Major Street
Murray, Utah 84107
Phone: 801-262-0922

October 2, 1980

Noranda Mining, Inc.
986 Atherton Drive
Suite 220
Salt Lake City, Utah 84107

Attn: Mr. George Mitchell
Mr. Gary Simonds

Subject: Results of Testing on Silver Bell Ore Samples, Our Project No. P-468.

Gentlemen:

A preliminary flotation test was conducted on the initial sample received (July 29, 1980) and the results reported to you. Subsequently four samples were received (August 28, 1980) which were assayed, then at your request a composite was made up of the sample, and a test conducted using the same procedure as on the first sample. The results of this test were also given to you. This report covers the results of the testing.

The analyses of the samples received are as follows:

Sample	Assay									
	oz/Ton		%							
	Au	Ag	Pb	Cu	Zn	Fe	Cd	Oxide		
								Pb	Cu	Zn
P-468		16.30	2.0	1.058	1.8	1.6	0.03	1.3	1.026	1.70
001811	.010	11.0	0.9	0.447	1.90					
001812	.010	19.8	2.7	0.907	1.30					
001813	Tr.	5.0	0.5	0.157	1.80					
001814	Tr.	19.6	2.6	0.737	1.90					

The procedure used in the first test and repeated in the second test, was to make a bulk sulfide float using A-208 (American Cyanamid) and amyl xanthate collector with a MIBC (methyl isobutyl carbinol) plus F65 (polypropylene glycol) frother mix. A rougher float was made followed by one stage of cleaning. The oxidized copper and lead mineralization was then floated after sulfidization using stage additions of sodium acid sulfide and amyl xanthate.

The results of the testing indicate that, although appreciable silver and copper values remain in the tailing, an economic recovery can be effected. The combined sulfide and oxide rougher concentrate on the tests are compared below.

Sample	% Wt	Assay				Recovery			
		oz/T.	%			%			
		Ag	Pb	Cu	Zn	Ag	Pb	Cu	Zn
P-468	10.87	138.6	14.5	7.5	2.8	82.4	71.7	70.7	14.8
P-468*	8.62	125.5	14.4	8.78		74.3	98.4	80.3	

* Composite Sample

I understand that you are planning to treat this ore in the Park City Concentrator. If there are any questions, please contact us.

Very truly yours,
DAWSON METALLURGICAL LABORATORIES, INC.

Harmel Dawson

Harmel Dawson,
President

HAD-cac

DAWSON
METALLURGICAL
LABORATORIES, INC.

P. O. Box 7685
5217 Major Street
Murray, Utah 84107
Phone: 801-262-0922

PROJECT NO. P-468
DATE 8/6/80
BY HAD

TEST NO. 1 NAME Noranda

Preliminary Batch Bulk Sulfide and Sulfidized Flotation Test

PRODUCT	Weight	PERCENT WEIGHT	ASSAY					UNITS				DISTRIBUTION			
			Au	Ag	Pb	Cu	Zn	Ag	Pb	Cu	Zn	Au	Pb	Cu	Zn
Sulfide Cl Conc	18.1	0.72	0.215	1092.4				7.865				43.1	--	--	
Sulfide Cl Tail	34.4	1.38		93.10	5.6	2.29	3.10	1.210	0.077	0.030	0.043	6.6	3.5	2.6	2.1
Oxide Ro Conc	219.0	8.77	0.040	68.00	17.1	8.95	2.95	5.964	1.500	0.785	0.259	32.7	68.2	68.1	12.7
Oxide Ro Tail	2226.0	89.13		2.60	0.7	0.378	1.95	3.209	0.624	0.337	1.738	17.6	28.3	29.3	85.2
Head (calc)	2497.5	100.00		18.25	2.20	1.152	2.0	18.248	2.201	1.152	2.040	100.0	100.0	100.0	100.0
Head (assay)				16.30	2.0	1.058	1.8								
oxide					1.3	1.026	1.7	% sulfide							
Comb Conc		10.87		138.6	14.5	7.5	2.8	15.039	1.577	0.815	0.302	82.4	71.7	70.7	14.8

OPERATION	BM	Cond	Sulf Ro	Ox Ro	Ox Ro	Ox Ro	Ox Ro	Ox Ro	Ox Ro	Sulf Cl			GRINDING PRODUCT	
TIME	30	12	6	1-2	1-2	1.5-2	2.5-2	2.5-3	2.0-2	4				
REAGENTS - LBS. PER TON														
Ore	2500											MESH	%	%
Water	2500											+10		
A-208	0.04											+14		
KAX		0.10		0.10	0.10	0.10	0.10	0.10	0.10	0.03		+20		
MIBC-F65(3-1)		0.10						0.05				+28		
NaSH				0.7	0.7	0.7	0.7	0.4	0.2			+35		
												+48		
												+65		
												+100		
												+150		
MACHINE		2000								500		+200		
R.P.M.		800								800		+325		
pH		8.1										-325		
% SOLIDS														
TEMPERATURE														

REMARKS: Ore highly oxidized - majority of copper azurite

DAWSON
METALLURGICAL
LABORATORIES, INC.

P. O. Box 7685
5217 Major Street
Murray, Utah 84107
Phone: 801-262-0922

PROJECT NO. P-468 - Comp
DATE 9/9/80
BY HAD

Comp 001811
001812
001813
001814

TEST NO. 1 NAME Noranda

Repeat Test No. 1 on Composite Sample

PRODUCT	Weight	PERCENT WEIGHT	ASSAY				UNITS			DISTRIBUTION			
				Ag	Pb	Cu	Ag	Pb	Cu	Ag	Pb	Cu	
Sulfide Cl Conc	20.0	0.99		670.1	12.0	1.234	6.634	0.12	.012	45.6	9.5	1.3	
Sulfide Cl Tail	23.3	1.16		65.0	3.9	1.058	.754	0.05	.012	5.2	4.0	1.3	
Oxide Ro Conc	130.1	6.47		53.0	16.5	11.33	3.429	1.07	.733	23.5	849	77.7	
Oxide Ro Tail	1837	91.38		4.1	Tr(.02)	0.204	3.747	0.02	.186	25.7	1.6	19.7	
Head (calc)	2010.4	100.00		14.56	1.26	0.943	14.564	1.25	.943	100.0	100.0	100.0	
Comb Ro Conc		8.62		125.5	14.4	8.782	10.817	1.24	0.757	74.3	98.4	80.3	

OPERATION	BM	Sulf Ro	Sulf Cl	Ox Ro	Ox Ro	Ox Ro	Ox Ro	MESH	GRINDING PRODUCT %
TIME	30	5-6	3	3-3	3-2	2-3	3-2		
REAGENTS - LBS. PER TON									
Ore	2000							MESH	%
Water	2000							+10	
A-208	0.08							+14	
KAX		0.10	0.05	0.20	0.10	0.05	0.20	+20	
MIBC-F65(3-1)		0.10						+28	
								+35	
NaSH				2.7	3.3	1.65	3	+48	none
								+65	0.5
								+100	2.3
								+150	4.2
MACHINE		2000	500	2000				+200	17.6
R.P.M.		800	800	800				+325	20.1
pH		8.2						-325	55.3
% SOLIDS									100.0
TEMPERATURE									

REMARKS:

ASARCO INCORPORATED
EAST HELENA, MONTANA 59635

MINE LOT	CAR NO.	WET WEIGHT	MOIST %	DRY WEIGHT
1	TRUCK	9,900	12.400	8,672

SILVER BELL ORE MILLED IN OREM

SHIPPER: [illegible] MINING COMPANY
MINE: [illegible]
CLASS: CONCENTRATE
SHIPPING POINT: PLEASANT GROVE UTAH
DATE OF ARRIVAL: 9 17 81

SMELTER LOT NO. 876
SHIPPER NO. 05008
TOTAL WEIGHT 9,900 lbs 8,672 lbs

ASSAYS	GOLD OZ./TON	SILVER OZ./TON	LEAD PERCENT	COPPER PERCENT	ZINC PERCENT	ARSENIC PERCENT	ANTIMONY PERCENT	BISMUTH PERCENT	OTH-3 PERCENT
ASARCO	.0600	37.9000	11.5000	1.8000	4.0000	2.0000	1.0000		
SHIPPER									
UMPIRE									
[illegible]									
SETTLEMENT	.0600	37.9000	11.5000	1.8000	4.0000	2.0000	1.0000		
ASSAY DEDUCTIONS	.0200	1.0000	3.0000	1.5000					
PERCENT PAY	95.0000	95.0000	100.0000	60.0000					
QUOTATION	$413.36900	$8.54684	$.33875	$.79845					
QUOTATION DEDUCTION	$5.00000	$.25000	$.05700	$.40000					

****

BASE CHARGES

	COST	CONTRACT	DIFF.			
LABOR	15.0000	12.[illegible]	2.8550	$ [illegible] EA .01	23.1920
FUEL	4.6610	4.0000	.6610	$ 8.0 EA .01	5.2880
POWER	13.4000	12.0000	1.4000	.16 EA MIL	.2240

AS. 6.00
SB. 1.50
H2O 1.30
37.40

	PAY CONTENT		PAY QUOTATION	PAYMENT
GOLD	.16	OZS	$408.36900	$ 65.34
SILVER	152.00	OZS	$8.29684	1,261.12
LEAD	737.12	LBS	.28175	207.68
COPPER	15.6[illegible]	LBS	.39845	6.22
OTHER	.00	LBS		

GROSS TO SHIPPER $ 1,540.36

MISCELLANEOUS DEDUCTIONS
[illegible] $
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
MISC. 1
MISC. 2
MISC. 3
[illegible] $

LESS:				
BASE CHARGE	4.3360 TONS @ $ 37.40		$	162.17
SAMPLING 35.00 Y MIN. C/16. BASE $1000.00				1,025.00
BN-FRT. PB-ACT.	737 LBS @	99.95		36.84
BN-FRT. PB-CONT.	737 LBS @			
BN-FRT. CU-ACT.	LBS @			
BN-FRT. CU-CONT.	LBS @			
LEAD DUTY	LBS @			
FREIGHT	TONS @			
TOTAL MISCELLANEOUS DEDUCTIONS				

[illegible]

Annex V

Annex VI

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

January 13, 1995

Mr. Dan Proctor
Silver Bell Mining Co., Inc.
P.O. Box 856
American Fork, Utah 84003

Re: Notice of Intention to Commence Small Mining Operations, Silver Bell Mine, S/049/027, Utah County, Utah

Dear Mr. Proctor:

Thank you for your Notice of Intention to Commence Small Mining Operations, received by the Division on January 11, 1995. The application for the proposed Silver Bell Mine, located in the NW¼ of the NW¼ of the NW¼: Section 20, T3S, R3E, SLBM, Utah County, Utah is complete and no additional information is required at this time.

For your reference, I have enclosed copies of our summarized rules regarding "Operation and Reclamation Practices", and the statutory penalty for failure to reclaim a minesite (SMO-1).

With regards to the requested variances for stockpiling topsoil and for ripping/tilling the final surface to a 6" depth, the Division will need to conduct a site inspection *before* these variances can be granted. This inspection will most likely be conducted during late May or June of 1995. Deferring approval of the variances until the site inspection does not affect the Division's acceptance of your mining notice, mining may begin as scheduled. While the variances are likely to be granted, please give special consideration to item #10 of the "Operation and Reclamation Practices. The Division encourages you to stockpile any topsoil material that might be available prior to beginning your mining operation to help ensure successful revegetation efforts upon final reclamation of the minesite. Even an inch or two of soil will greatly aid your revegetation efforts and help in meeting the reclamation standards.

Should you wish to expand your operation beyond the five (5) acre limitation, please notify this office as soon as possible to discuss the necessary permitting requirements.

A Memorandum of Understanding between this Division and the State Department of Environmental Quality (DEQ) requires us to notify them upon receipt of a mining application. If you haven't already done so, you are advised to contact their office prior to starting your small mining operation to determine whether additional permits and/or approvals are required. We will forward a copy of this letter and your notice to the DEQ for their review. Their address and phone number is: Department of Environmental Quality, 288 North 1460 West, Salt Lake City, Utah, 84116, (801) 538-6146.

Thank you for your cooperation. When in the area, a member of the Division staff will examine the site. Best wishes with your mining operation.

Sincerely,

Lynn Kunzler
Reclamation Specialist

jb
Enclosure
cc: Kiran Bhayani, DWQ w/NOI
Roger L. Bon, UGS
Minerals File
S049/027.smo

ACTIVITY	Responsibility	January 1996	February 1996	March 1996	April 1996	May 1996	June 1996	July 1996	August 1996	September 1996	October 1996	November 1996	December 1996	January 1997
Prepare Conceptual Report	PRD	xxxxxxxx	xxxxxxxx											
Business Plan	PRD & TD	xxxxxxxx	xxxxxxxx											
Develop Mine Plan	LSG	----------	------											
Design & Cost Drilling Program	DP & PRD	xxxx												
Obtain Colored Air Photos	PRD	xxxx												
Contract Permitting Lawyer	DP & LSG	xxxx												
Investigate Effects of NSR Royalty and Buy-out	PRD	xxxx												
Quotes for Mine Development and Production	LSG		----------	----------										
Reseach Smelters	PRD		------	----------										
Permitting	DP		------	----------										
Ore-dressing Study	DAWSON		------	----------										
Identify and Purchase Crusher and Mill	DP & LSG		------	----------										
Establish S.G.'s	DP		xx	------										
Spectographic Scans	DP & PRD			------										
Hire Mill Superintendent as Contractor	DP & LSG			------										
Research into Tintic & Park City Ore-dressing	DP & PRD			----------										
Raise Initial Venture Capital $296,000	TD			----------										
Select Millsite	DP & LSG			----------										
Investigate Depreciation, Depletion and Tax Regime	PRD & TD			----------										
Tailings Disposal Study	DP & LSG			----------										
Arrange NSR buy-out	DP			----------										
Investigate Geophysical Possibilities	PRD			----------										
Hire Mill Superintendent Full-time	DP & LSG			------										
Raise $2,250,000 Capital	TD			------	----------									
Contract Driller	DP & PRD				----------									
Prepare Pre-Feasibility Report	PRD				----------									
Road Repair	LSG					---------I								
Underground mapping	DP					----------								
Study of other Mines in American Fork District	DP & PRD					----------	----------	----------	----------	----------	----------			
Prepare Drillpads and Access	DP					------								
Set up Mill	MS					------	------							
Portal Repair	CONTRACTOR					---	------I							
Surface Topographic Survey, Establish Grid	DP & PRD						----------							
Surface Mapping, Sampling, Geochem. Soil Survey	PRD						----------							
Drilling	DP & PRD						----------	----------	----------					
Tunnel Repair	CONTRACTOR						------	II						
Operate Mill 100tpd	MS						------	----------	----------	----------	----------	----------	----------	
Development with production (Phase III)	CONTRACTOR							----------	----------	----------	---------III			
Production, 200 tpd	CONTRACTOR											--- ----------	------	
Development and Haulage Tunnel	CONTRACTOR							----------	----------	----------	----------	----------	IV	
Study Economics of Aerial Tramway	DP & LSG									----------				
Operate Mill, 200tpd	MS													----------
Production, 300 tpd	CONTRACTOR													1998

Annex VII. Activity Timetable for Development of Silver Bell Mine

	PRE-FEASIBILITY STAGE					TOTAL	INVESTMENT
	February 1996	March 1996	April 1996	May 1996	June 1996	February - June	June 1996
D. Proctor	$7,000	$7,000	$7,000	$7,000	$7,000	$35,000	
S. Grantham	$7,000	$7,000	$7,000	$7,000	$7,000	$35,000	
P.R. Donovan		$5,000	$5,000	$5,000	$5,000	$20,000	
Travel	$5,000	$2,500	$2,500	$2,500	$2,000	$14,500	
Metallurgical Study	$7,500	$7,500	$5,000			$20,000	
Mill Consultant/Superintendent	$2,500	$2,500	$5,000	$5,000	$5,000	$20,000	
Book-keeper					$3,000	$3,000	
Legal & Permitting	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000	
Office	$1,000	$500	$500	$500	$500	$3,000	
Utilities	$250	$75	$75	$75	$50	$525	
Telephone & Fax	$700	$300	$300	$300	$800	$2,400	
Office Equipment	$3,000	$500	$500	$500	$500	$5,000	
Office Supplies	$100	$100	$50	$50	$50	$350	
Courier	$50	$50	$50	$50	$50	$250	
Field Supplies			$1,000	$1,000	$500	$2,500	
Assays & analyses	$500	$500			$500	$1,500	
Options for Property & Equipment	$5,000	$10,000	$10,000		$0	$25,000	
Mining Engineering Study		$5,000	$10,000	$10,000		$25,000	
Accountancy	$300	$300	$300	$300	$300	$1,500	
Vehicle				$500	$500	$1,000	
Quigley	$2,000	$1,500				$3,500	
Miscellaneous	$1,500	$1,000	$1,000	$1,000	$500	$5,000	
						$234,025	
Contingency 15%						$35,104	
			SUB-TOTAL			$269,129	
Fund Raising 10%						$26,913	
					TOTAL	$296,042	
Millsite purchase							$45,000
Mill Purchase							$330,000
NSR Royalty Purchase							$100,000
Road Repair							$75,000
Drill pads and access							$15,000
Portal Repair							$75,000
Tunnel Repair							$50,000
Core shack, crusher, pulverizer etc.							$10,000
Millsite preparation & tailings study							$150,000
2 Vehicles							$50,000
Environmental Bond							$40,000
							$940,000
				Contingency	15%		$141,000
							$1,081,000
				Fund Raising	10%		$108,100
					TOTAL		$1,189,100

Annex VIII. Pre-Feasiblility and Investment Budget, Silver Bell Mine.

	START-UP PRODUCTION			PRODUCTION			TOTALS
	July 1996	August 1996	September 1996	October 1996	November 1996	December 1996	
D. Proctor	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$42,000
S. Grantham	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$42,000
P.R. Donovan	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$30,000
Mill Superintendent	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$30,000
Draftsman	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$12,000
Book Keeper	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$18,000
Secretary	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$12,000
Watchman & Security	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$12,000
Junior Geologist	$2,000	$2,000	$2,000				$6,000
Accountant	$500	$500	$500	$500	$500	$500	$3,000
Legal	$500	$500	$500	$500	$500	$500	$3,000
Travel	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$18,000
Laboratory	$2,000	$2,500	$2,500	$2,000	$2,000	$2,000	$13,000
Office	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$6,000
Utilities	$200	$200	$200	$200	$200	$200	$1,200
Telephone & Fax	$800	$800	$800	$800	$800	$800	$4,800
Courier & Postage	$100	$100	$100	$100	$100	$100	$600
Office Equipment	$400	$400	$400	$400	$400	$400	$2,400
Office Supplies	$250	$250	$250	$250	$250	$250	$1,500
Field Supplies	$1,000	$1,000	$1,000	$500	$500	$500	$4,500
Miscellaneous	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$24,000
TOTAL G&A	$48,750	$49,250	$49,250	$46,250	$46,250	$46,250	$286,000
	TOTAL 3 MONTHS:		$147,250				

WORKING CAPITAL CALCULATION

	3 months July-Sept.	Cost per ton	TOTAL	
MINING	12,200	$28.00	$341,600	
MILLING	5,200	$16.00	$83,200	Per month
SHIPPING	5,200	$8.00	$41,600	/ 3
		TOTAL	$466,400	$155,467
G & A July-September			$147,250	
TOTAL WORKING CAPITAL			$613,650	

Annex IX. Start-up and Production Budget, Silver Bell Mine.

		Pre-Feasibility Studies Feb-June	Equipment & Rehabilitation June	Start-up Production July-Sept	TOTAL
GENERAL & ADMINISTRATIVE	Operational Salaries	$110,000		$84,000	$194,000
	Administrative Salaries	$4,500		$24,000	$28,500
	Travel	$14,500		$9,000	$23,500
	Laboratory Assays & Analyses	$1,500		$7,000	$8,500
	Office	$11,525		$8,250	$19,775
	Vehicle Rental	$1,000			$1,000
	Field Supplies	$2,500		$3,000	$5,500
	Miscellaneous	$5,000		$12,000	$17,000
	TOTAL G&A	$150,525		$147,250	$297,775
PRE-FEASIBILITY STUDIES	Metallurgical Study	$20,000			$20,000
	Mining Engineering Study	$25,000			$25,000
	Geological Consulting	$3,500			$3,500
	TOTAL	$48,500			$48,500
	TOTAL PRE-FEASIBILITY STUDY	$199,025			$199,025
	Permitting	$10,000			$10,000
	Options for Property & Equipment	$25,000			$25,000
PLANT	Millsite Purchase		$45,000		$45,000
	Mill Purchase		$330,000		$330,000
	2 Vehicles		$50,000		$50,000
MISCELLANEOUS	NSR Royalty Purchase		$100,000		$100,000
	Environmental Bond		$40,000		$40,000
PRE-PRODUCTION	Road Repair		$75,000		$75,000
	Mine Rehabilitation		$125,000		$125,000
	Millsite Preparation & Tailing Disposal		$150,000		$150,000
DRILLING			$25,000	$255,000	$280,000
WORKING CAPITAL	Contract mining			$341,600	$341,600
	Milling			$83,200	$83,200
	Freight to Smelter			$41,600	$41,600
	TOTAL WORKING CAPITAL			$466,400	$466,400
	SUB-TOTAL	$234,025	$940,000	$868,650	$2,042,675
CONTINGENCY	15%	$35,104	$141,000	$130,298	$306,401
	SUB-TOTAL	$269,129	$1,081,000	$998,948	$2,349,076
FUND RAISING	10%	$26,913	$108,100	$99,895	$234,908
	TOTAL	$296,042	$1,189,100	$1,098,842	$2,583,984

Annex X. Combined Pre-Feasibility, Capital, and Start-up Budget, Silver Bell Mine.

	PRODUCTION												
	January 1998	February 1998	March 1998	April 1998	May 1998	June 1998	July 1998	August 1998	September 1998	October 1998	November 1998	December 1998	TOTALS
D. Proctor	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$84,000
S. Grantham	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$84,000
P.R. Donovan	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000
Mill Superintendent	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000
Draftsman	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Book Keeper	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000
Secretary	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Watchman & Security	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Junior Geologist						$2,000	$2,000	$2,000					$6,000
Accountant	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$6,000
Legal	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$6,000
Travel	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000
Laboratory	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Office	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$12,000
Utilities	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$2,400
Telephone & Fax	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	$9,600
Office Equipment	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$3,000
Office Supplies	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$3,000
Field Supplies	$500	$500	$500	$500	$500	$1,000	$1,000	$1,000	$1,000	$500	$500	$500	$8,000
Courier & Postage	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$1,200
Miscellaneous	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$48,000
TOTAL G&A	$46,100	$46,100	$46,100	$46,100	$46,100	$48,600	$48,600	$48,600	$46,600	$46,100	$46,100	$46,100	$561,200
Contingency 10%	$4,610	$4,610	$4,610	$4,610	$4,610	$4,860	$4,860	$4,860	$4,660	$4,610	$4,610	$4,610	$56,120
SUB-TOTAL	$50,710	$50,710	$50,710	$50,710	$50,710	$53,460	$53,460	$53,460	$51,260	$50,710	$50,710	$50,710	$617,320
Tons milled	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	72,000
G&A per Ton milled	$7.68	$7.68	$7.68	$7.68	$7.68	$8.10	$8.10	$8.10	$7.77	$7.68	$7.68	$7.68	$7.79
Drilling						$50,000	$50,000	$50,000	$50,000				$200,000

Annex XI. Production Budget (full year, 1998-2002), Silver Bell Mine.

	PRODUCTION												
	January 1998	February 1997	March 1997	April 1997	May 1997	June 1997	July 1997	August 1997	September 1997	October 1997	November 1997	December 1997	TOTALS
D. Proctor	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$84,000
S. Grantham	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$7,000	$84,000
P.R. Donovan	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000
Mill Superintendent	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000
Draftsman	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Book Keeper	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000
Secretary	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Watchman & Security	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Junior Geologist						$2,000	$2,000	$2,000					$6,000
Accountant	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$6,000
Legal	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$6,000
Travel	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$36,000
Laboratory	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$24,000
Office	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$12,000
Utilities	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$200	$2,400
Telephone & Fax	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	$9,600
Office Equipment	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$3,000
Office Supplies	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$3,000
Field Supplies	$500	$500	$500	$500	$500	$1,000	$1,000	$1,000	$1,000	$500	$500	$500	$8,000
Courier & Postage	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$1,200
Miscellaneous	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$48,000
TOTAL G&A	$46,100	$46,100	$46,100	$46,100	$46,100	$48,600	$48,600	$48,600	$46,600	$46,100	$46,100	$46,100	$561,200
Contingency 10%	$4,610	$4,610	$4,610	$4,610	$4,610	$4,860	$4,860	$4,860	$4,660	$4,610	$4,610	$4,610	$56,120
SUB-TOTAL	$50,710	$50,710	$50,710	$50,710	$50,710	$53,460	$53,460	$53,460	$51,260	$50,710	$50,710	$50,710	$617,320
Tons milled	2,000	3,000	3,000	4,000	4,000	4,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000
G&A per Ton milled	$23.05	$15.37	$15.37	$11.53	$11.53	$12.15	$9.72	$9.72	$9.32	$9.22	$9.22	$9.22	$11.22
Drilling					$50,000	$50,000	$50,000	$50,000	$50,000				$250,000

Annex XIa. Production Budget (1997), Silver Bell Mine.

		Oxide	Sulfide			Oxide	Sulfide
Ag	15%	73.23%	52.82%	Pb	22%		
Cu	15%	6.27%	10.13%	Zn	22%		
Au	15%	4.17%	0.72%				
		83.67%	63.67%			16.33%	36.33%

		Oxide	%	Sulfide	%	
Produced 1st year	Ag+Au+Cu	83.67%	50%	63.67%	50%	73.67%
	Pb+Zn					26.33%
Produced Thereafter	Ag+Au+Cu	83.67%	20%	63.67%	80%	67.67%
	Pb+Zn					32.33%

COST or UNIT DEPLETION

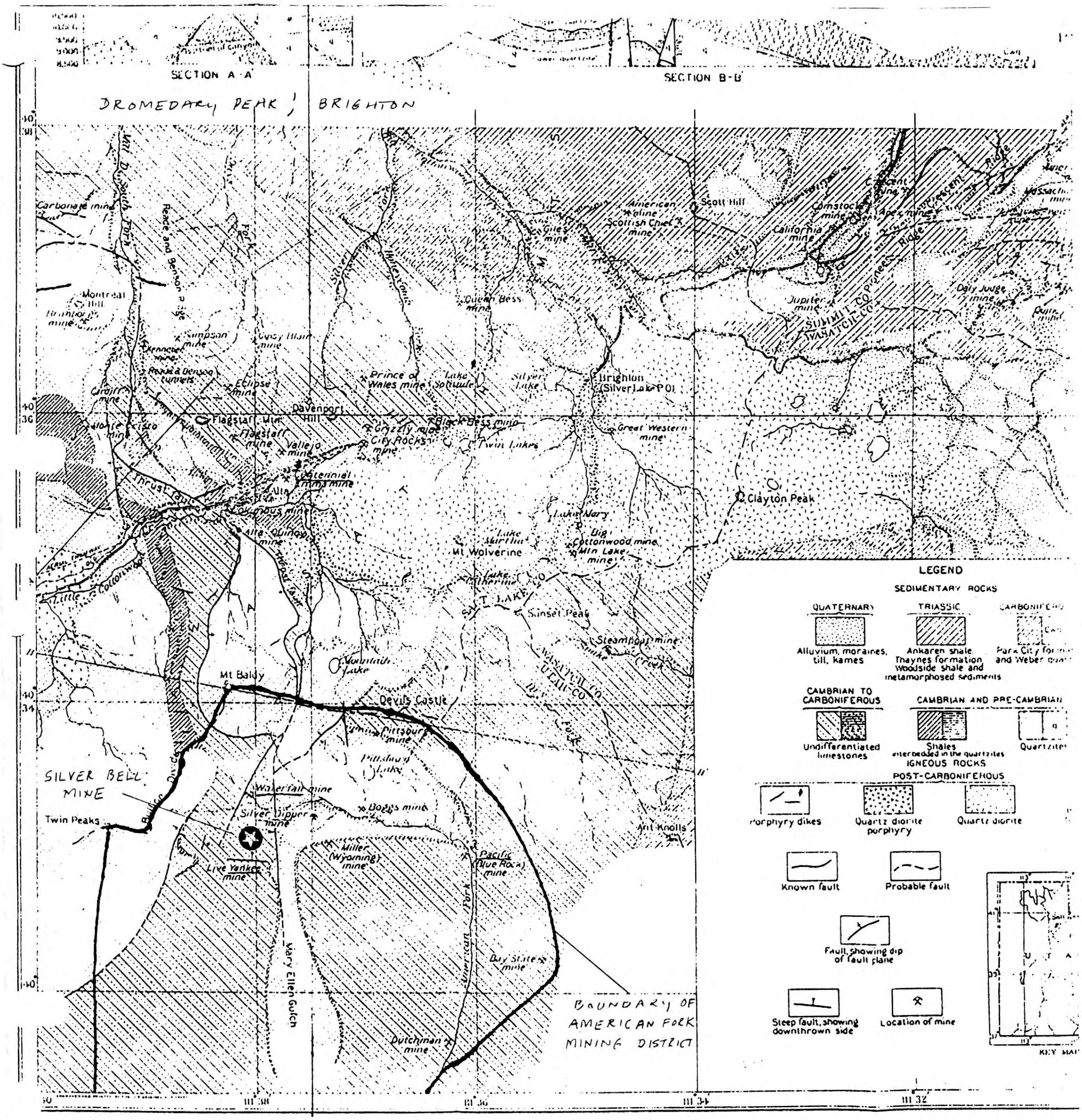
	Depletion basis	Reserve tonnage	Cumulative Tons	Unit Depletion Rate	Tons mined	Depletion Allowance	Adjusted depletion basis
Year 1	$1,970,334	94,824	94,824	$20.78	23,000	$477,914	$1,492,420
1996				New tons	70,000	Drilling	$280,000
							(capitalized)
Year 2	$1,492,420	141,824	164,824	$10.52	62,700	$659,795	$832,625
1997				New tons	60,000	Drilling	$250,000
Year 3	$1,082,625	139,124	224,824	$7.78	72,000	$560,285	$522,341
1998				New tons	55,000	Drilling	$200,000
Year 4	$722,341	122,124	279,824	$5.91	72,000	$425,867	$296,474
1999				New tons	50,000	Drilling	$200,000
Year 5	$496,474	100,124	329,824	$4.96	72,000	$357,019	$139,455
2000				New tons	45,000	Drilling	$200,000
Year 6	$339,455	73,124	374,824	$4.64	72,000	$334,238	$5,218
2001				New tons	45,176	Drilling	$200,000
Year 7	$205,218	46,300	420,000	$4.43	46,300	$205,218	$0
2002					-		$0
Year 8	$0	-	420,000	$0.00	-	$0	$0
2003					-		$0

STATUTORY or PERCENTAGE DEPLETION

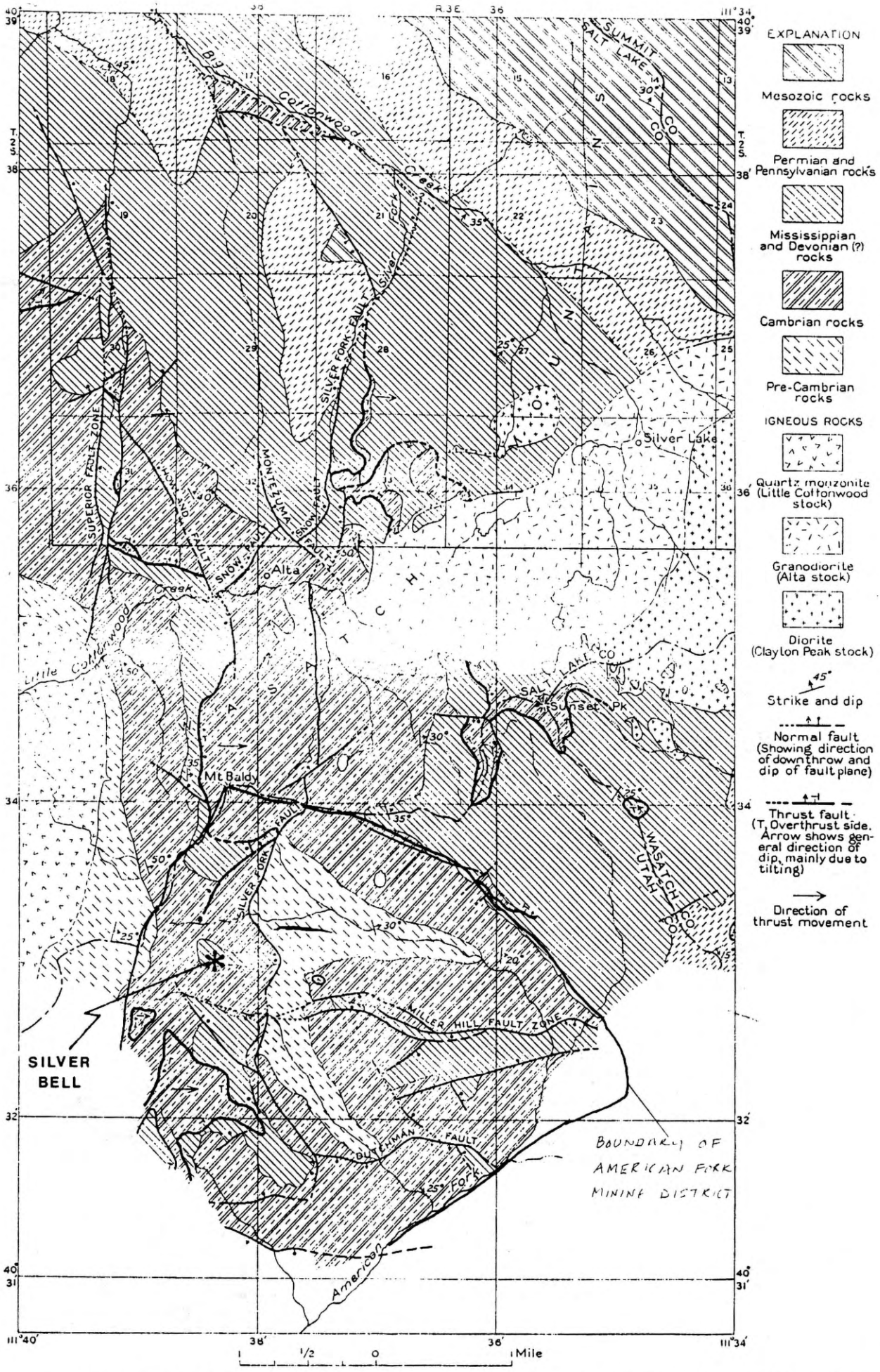
Smaller of:

Statutory percentage of gross			50% of predepletion net		
Gross Revenue	15% Gross Revenue	22% Gross Revenue	Predepletion Net	50%	CUMULATIVE DEPRECIATION
GROSS INCOME	Cu, Ag, Au	Pb, Zn	NET OPERATING INCOME		
$1,242,360	$915,247	$327,113	$133,160		$477,914
	$137,287	$71,965			
TOTAL	$209,252			$66,580	
$9,483,640	$6,417,579	$3,066,061	$6,060,720		
	$962,637	$674,533			
TOTAL	$1,637,170			$3,030,360	$2,115,084
$15,388,520	$10,413,411	$4,975,109	$11,403,200		
	$1,562,012	$1,094,524			
TOTAL	$2,656,536			$5,701,600	$4,771,619
$15,828,192	$10,710,938	$5,117,254	$11,842,872		
	$1,606,641	$1,125,796			
TOTAL	$2,732,437			$5,921,436	$7,504,056
$15,828,192	$10,710,938	$5,117,254	$11,842,872		
	$1,606,641	$1,125,796			
TOTAL	$2,732,437			$5,921,436	$10,236,493
$15,828,192	$10,710,938	$5,117,254	$11,842,872		
	$1,606,641	$1,125,796			
TOTAL	$2,732,437			$5,921,436	$12,968,929
$15,828,192	$10,710,938	$5,117,254	$12,976,122		
	$1,606,641	$1,125,796			
TOTAL	$2,732,437			$6,488,061	$15,701,366
$2,638,032	$1,785,156	$852,876	$2,588,032		
	$267,773	$187,633			
TOTAL	$455,406			$1,294,016	$16,156,772

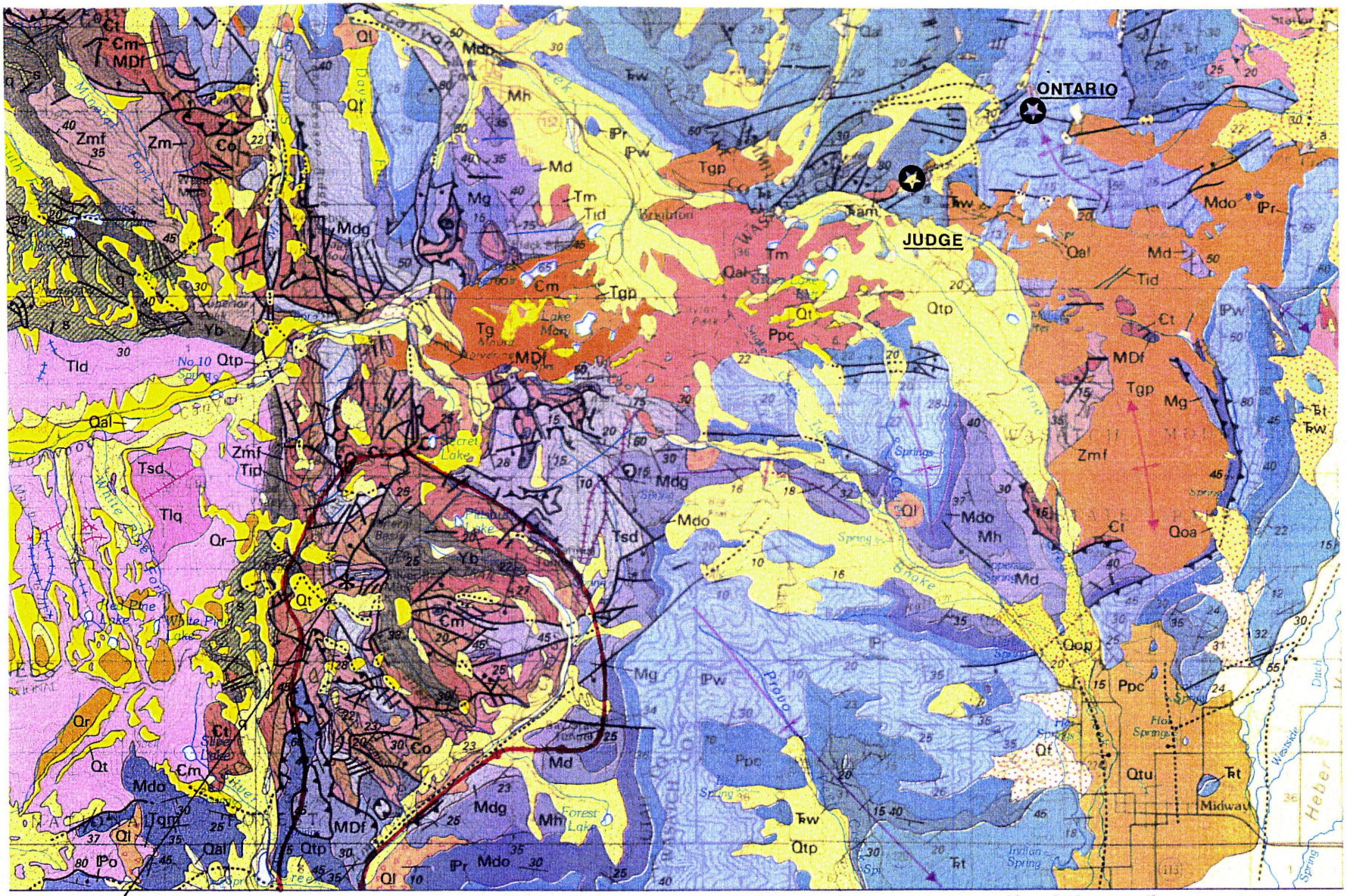
Annex XII. Depletion over 8 years.



Annex XIII. Geologic Reconnaissance Map of the Cottonwood-American Fork Mining region, Utah (c. 1:34,000) (from USGS Bull. 620-I, 1916, Plate ?).



Annex XIV. Generalized Geologic Map of Cottonwood - American Fork Area (c. 1:34,000)(from USGS Bull. 620-I, 1916, Plate ?)



Annex XV. Geology of the American Fork Mining District (1:100,000)(from Bryant, 1990).