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10/21/97

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: CLEMENTINE

ALTERNATE NAMES:

MARICOPA COUNTY MILS NUMBER: 711

LOCATION: TOWNSHIP 5 N RANGE 1 W SECTION 9 QUARTER E2
LATITUDE: N 33DEG 47MIN 22SEC LONGITUDE: W 112DEG 21MIN 50SEC
TOPO MAP NAME: BALDY MTN - 7.5 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:
GOLD
SILVER

BIBLIOGRAPHY:
ADMMR CLEMENTINE FILE
ADMMR CHARLOTTE GROUP FILE
AGS 1990 FALL FIELD TRIP GUIDE

INVESTIGATION AND CHARACTERIZATION PLAN
FOR THE

CLEMENTINE PROJECT

Prepared for:

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December 16, 1995

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1 INTRODUCTION

This report outlines a plan for hydrogeologic investigation of the Clementine Mine site ("the Site") and geochemical characterization of mine waste materials associated with the planned operation. This report has been prepared by ACT Environmental Technologies Inc, ("ACTech") for Kismet Mining, Inc, ("Kismet"). The purpose of this report is to outline our proposed investigation to allow the Arizona Department of Environmental Quality to review this proposal and recommend changes.

Information generated during the investigations and characterization of the site will be used to prepare and submit an Aquifer Protection Permit ("APP") application for the Site. There has been no work conducted to date concerning the existing hydrogeologic conditions of the Site or the characterization of the mine wastes.

The APP to be submitted would address all facilities planned on the Site. Non-discharging facilities will not be included in the APP. Facilities that are defined as "discharging" by ADEQ will be addressed in this investigation and characterization study.

The hydrogeologic investigation will define the static water level that exists in the subsurface of the site, as well as the direction and the amount of flow. The geochemical characterization study will describe the major rock types comprising the waste rock and the consequences of exposing this material to near-surface weathering.

This report has been prepared prior to the submittal of an Aquifer Protection Permit with the Arizona Department of Environmental Quality (ADEQ). This report has been prepared for Kismet Mines, Inc. (Kismet) by ACT Environmental Technologies Inc. (ACTech).

1.1 LOCATION

The Clementine Mine is located about 30 miles northeast of Phoenix, Arizona in Maricopa County in the southeast corner of Section 10, Township 1 North, Range 5 East, Gila and Salt River Basin and Meridian. The property is accessed from Lake Pleasant Highway via Jomax Road and a series of well maintained dirt roads which service the aqueducts of the Central Arizona Project and the mine site (see Figure 1).

The minesite is in the Hieroglyphic Mountains and is located on the Baldy Mountain topographical map (United States Geologic Survey, photorevised 1981). The Clementine Mine is labelled the White Peak Mine on this quadrangle.

1.2 HISTORY

The property is composed of a number of unpatented mining claims held by the Clementine Grubstake. A series of work programs and a single phase of small-scale

production has occurred on the property over the years. Initial underground exploration and development probably occurring in the 1920's or 1930's with approximately 80,000 tons of gold bearing material produced from a small open pit in 1981. This material was stacked on a pad and a cyanide heap leach process was attempted.

1.3 EXPLORATION PROGRAMS

Approximately 180 holes have been drilled on the property, including small diameter diamond drilling to reverse-circulation drilling in 1990. A great deal of the data is unavailable but a complete set of available drill logs and a map of the locations is contained in the report titled "Drilling Records of the Clementine Mine" dated December 15, 1995.

1.4 POTENTIALLY DISCHARGING FACILITIES

The following facilities located on the site are potentially discharging:

- heap leach facility,
- open-pit mine,
- north waste dump.

The heap leach facility is a categorical discharge facility but the open-pit mine and waste dumps are not categorically discharging. The geochemical characterization plan outlined in subsequent sections will be used to determine if these facility will be discharging.

2.0 GEOLOGY

The Clementine Mine orebody is located within the Yavapai Schist sequence and is comprised of quartz veins and veinlets within the "Mine Sequence" of schists and metasediments. The Mine Sequence is a complex unit comprised of intermixed volcanic and sedimentary sequences of mafic tuffs, carbonate-rich sediments, and thin layers of clastic sediments metamorphosed into a distinct unit (see Figure 3, Geology Map).

The structure overlying the orebody, which will become the waste rock, is composed of chlorite schist of the Upper Chloritic Schist Package. This unit is composed of a thinly-laminated, dark chloritic schist of uniform composition, and a paler schist with distinct dark mafic clots on cleavage surfaces. This sequence is a metamorphosed mafic flow overlain by mafic tuffs. The geochemical characterization will focus on the Upper Chloritic Schist Package of which most of the waste rock will be comprised.

Although a great deal of exploration effort have been expended and numerous sampling programs completed, none of the samples exist if a form that would allow for adequate testing. The proposed geochemical characterization plan proposed to drill new holes and get new samples to enable an accurate assessment of the waste rock.

3.0 HYDROGEOLOGY

3.1 GENERAL DESCRIPTION

The Clementine Mine is situated on the east flank of a small, unnamed peak at an elevation of approximately 1680 feet. The eastern portion of the site is drained by an unnamed dry wash that eventually drains into the Agua Fria River bed.

The site is underlain by metasediments and the groundwater occurs in fractures in these rocks. The flow direction is probably topographically controlled and would be in an easterly direction at the site of the existing pit. The groundwater flow direction at the existing leach pad, however, would probably be in a southeasterly direction.

Depth to static water level in current drill holes at the site (which were drilled for exploration reasons) is estimated at 150 to 200 feet below ground surface. These exploration holes are open and no attempt was made to do further testing.

There is an existing well located approximately 6,000 feet southeast of the pit/leach pad in the southwest corner of section 14, township 5 north, range 1 west. The depth to groundwater has been reported at 700 to 800 feet and a considerable volume of water was pumped at one time. There is also an existing well at Big Spring which is in the northwest corner of Section 1, Township 5 North, Range 1 West (approximately 14,000 feet northeast). There are no other known wells in the vicinity of the mine.

There has been no testing, to our knowledge, of the quality or quantity of water available on or near the mine site.

3.2 GROUNDWATER CHARACTERIZATION PROPOSAL

There are potentially three discharging facilities associated with the Clementine Mine. Each of these will be addressed separately in this section

3.2.1 North Waste Dump

The waste rock from the pit will be stacked in the north waste dump as run of mine ore. A geochemical characterization plan is planned to address the issue of whether this facility will be non-discharging. It is the belief of Kismet and ACTech that the waste material from the pit will be found to be non-discharging. For this reason a hydrogeologic program is not planned for this facility at this time.

3.2.2 Open Pit Mine

The open pit mine, when completed, will expose the hangingwall, footwall and the vein

to weathering. It is again the belief of Kismet and ACTech that the open pit will be found to be non-discharging. For this reason a hydrogeologic program is not planned for this facility at this time.

3.2.3 Heap Leach Facility

The heap leach facility, including pregnant and barren solution ponds, is a categorical discharging facility and will be addressed in the APP application. The planned hydrogeologic investigation will address this facility as the sole discharging facility.

The heap leach facility (consisting of the crushed ore heap and underlying leach pad, solution storage ponds, and ADR plant) is designed as a closed loop facility, where solutions are contained above the liner system within the facility, and runoff from surrounding areas is diverted around the facility. The leach pad liner would be a single synthetic liner installed on a prepared liner bedding layer, with free-draining materials immediately above the liner. The pond liner system would consist of two synthetic liners separated by a leak detection and leachate collection and recovery system (LCRS). The level of containment for the heap leach facility is designed to be consistent with ADEQ Best Available Demonstrated Control Technology (BADCT) guidelines (ADEQ, 1995).

3.3 DETERMINATION OF GROUNDWATER PARAMETERS

A series of three ground water monitor wells will be completed around the proposed heap leach facility. The location of the holes is shown on Figure 5. The location of these monitor wells was chosen such that a ground water gradient could be established (a minimum of three holes is required) and that one of the holes can potentially be used as a Point of Compliance (POC) for the APP. These monitor wells will be used to determine the flow rate and gradient of the aquifer.

3.4 SPECIFICATIONS FOR GROUND WATER MONITOR WELLS

Ground water monitor wells will be drilled and installed in compliance with State of Arizona regulations. Please see Appendix 1 fior detailed specifications.

4.0 GEOCHEMICAL CHARACTERIZATION

4.1 INTRODUCTION

This section outlines the proposed plan for geochemical characterization of mine waste materials associated with the planned operation of the Clementine Mine. The mine waste will be used as fill material or disposed of in two waste rock dumps located adjacent to the mine site (see Figure 4, Mine Site Plan)

The purpose of the geochemical characterization study is to determine the effect of near-surface weathering on the waste rock. Representative samples must be used in this study and this proposal deals with how to get these representative samples. If the geochemical characterization study determines that the waste dumps, when exposed to near surface weathering, do not discharge, then they will not be included in the APP.

The geology section gives a brief description of the major rock types and alteration features present at the Clementine Mine site.

4.2 SAMPLE SELECTION

This section outlines the strategy for sample selection for geochemical characterization of waste rock and construction material, as well as remaining open-pit material at the conclusion of mining.

Mining will take place is a relatively concentrate area around a steeply dipping vein system. The south wall of the pit will contain hangingwall material and the north end will contain footwall material. The waste material will primarily be hangingwall material. The ore material will be quartz veins in schists and will be crushed and agglomerated before being leached.

Material to be characterized include:

- waste rock to be disposed of in the north and south waste rock dumps, and exposed to weathering during the operation and after closure.

- selected waste rock (primarily hangingwall material) to be used for leach pad fill, haul roads, and other constructed features.

- ore to be crushed, stockpiled, agglomerated, and stacked on the leach pad for leaching.

- pit walls exposed to weathering during operation and after closure (either hangingwall material or footwall material).

- volcanic ash and tuffs that can be used for leach pad construction.

Sample selection is designed to generate a variety of samples that will range in weathering, oxidation and alteration. The number of samples was selected to present a statistically significant population, with more samples of materials representing more prevalent materials.

The life of mine strip ratio is estimated to be 5:1 so only about 17% of the material mined will be directed to the leach pad. The remainder will go to the waste dumps. It is estimated that 75% of the waste dump material will be hangingwall (63% of the overall material) and 25% footwall (20% of the overall material).

A total of 16 samples are proposed for geochemical characterization. 3 samples from the footwall, 9 samples from the hangingwall and 4 samples from the ore zone. The method of drilling to get these samples is reverse circulation will extra care taken to get accurate samples from a specific drill hole interval.

Three additional samples will be taken of the volcanic ash and tuffs near the mine site for characterization as a pad liner material. Table 4.1 lists the proposed drill hole location and sample intervals for the geochemical characterization study. Table 4.1 also lists the expected alteration features and proposed analytical procedures for the study.

TABLE 4.1 PROPOSED SAMPLE LOCATION

RC HOLE NORTHING	RC HOLE WESTING	DEPTH FEET	STRUCTURAL ZONE	ALTERATION CODE	ANALYTICAL CODE
1		10-15 40-45 60-65 70-75 90-95	HW HW HW OZ FW		
2		10-15 40-45 60-65 70-75 90-95	HW HW HW OZ FW		
3		10-15 40-45 60-63 70-73 80-85	HW HW OZ OZ FW		
		3-5	VA		
		5-7	VA		
		0.5 - 1.0	GT		

Structural codes: HW - hangingwall, OZ - ore zone, FW - footwall, VA - volcanic ash, GT - gravity tailings

4.3 TESTING PROGRAM

The geochemical testing program of reverse-circulation samples will consist of acid-base accounting (ABA) testing on all the selected samples, and batch leach testing (representing precipitation leaching conditions) on a subset of the selected samples. The geochemical testing program for the single sample from the gravity tailings in the existing pond will consist of ABA testing, batch leach testing, and cyanide analysis.

ABA testing will include analysis of acid generation potential (AGP) by analysis for total sulfur. Total sulfur will be analyzed by LECO furnace (EPA, 1978). For samples with measurable total sulfur, sulfur speciation analyses will be conducted (including analysis for pyritic sulfur and sulfate sulfur - EPA 9030A). Acid neutralization potential (ANP) will be analyzed by titration.

The ABA test results will be analyzed by evaluating the ANP/AGP ratio, to be consistent with guidelines used by the BLM (1994) an in other states (CMA, 1992). The ANP-AGP difference will also be assessed, as listed in ADEQ (1995a) and outlined in B.C. AMD Task Force (1989).

Approximately 25% of the total samples will be analyzed using the Synthetic Precipitation Leaching Procedure (SPLP, EPA Method 1312). The actual samples submitted for batch leach testing will be determined from the drill logs to ensure a variety of rock types are represented. The batch leach test extract will be analyzed for the following parameters:

METALS:

Antimony (Sb)	Arsenic (As)	Barium (Ba)
Beryllium (Be)	Cadmium (Cd)	Chromium (Cr)
Lead (Pb)	Mercury (Hg)	Selenium (Se)
Thallium (Tl)	Nickel (Ni)	

CATIONS:

Calcium (Ca)	Magnesium (Mg)	Potassium (K)
Sodium (Na)		

ANIONS:

Total alkalinity	Chloride (Cl)	Nitrate - Nitrate as N
Sulfate (SO_4)		

PARAMETERS:

Total Dissolved Solids	Conductivity

Testing standards will be adequate to meet ADEQ aquifer water quality standards.

6.0 REFERENCES

Howard, K.L., 1990, Geologic Report on the Clementine Mine, Maricopa County, Arizona.

van Zyl, D.J.A., Hutchison, I.P.G., Kiel, J.E., Introduction to Evaluation, Design and Operation of Precious Metal Heap Leaching Projects, 1988, Society of Mining Engineers.

KENNETH L. HOWARD, JR., Ph.D.
AUG 12, 1990

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INTRODUCTION

The Clementine Property is located about 30 miles northeast of Phoenix, Maricopa County, Arizona in T1N, R5E. The property is accessed from Lake Pleasant Highway via Jomax Road and a series of well maintained dirt roads which service the aqueducts of the Central Arizona Project and the mine site (See Figure 1).

The property is composed of a number of unpatented mining claims held by the Clementine Grubstake although all work performed in this study was limited to the Charlotte #2 claim. The current property agreements and specific data on the land package were not available for this review.

This testing program began on April 12 and concluded on July 29, 1990. The components of the program include the following items:

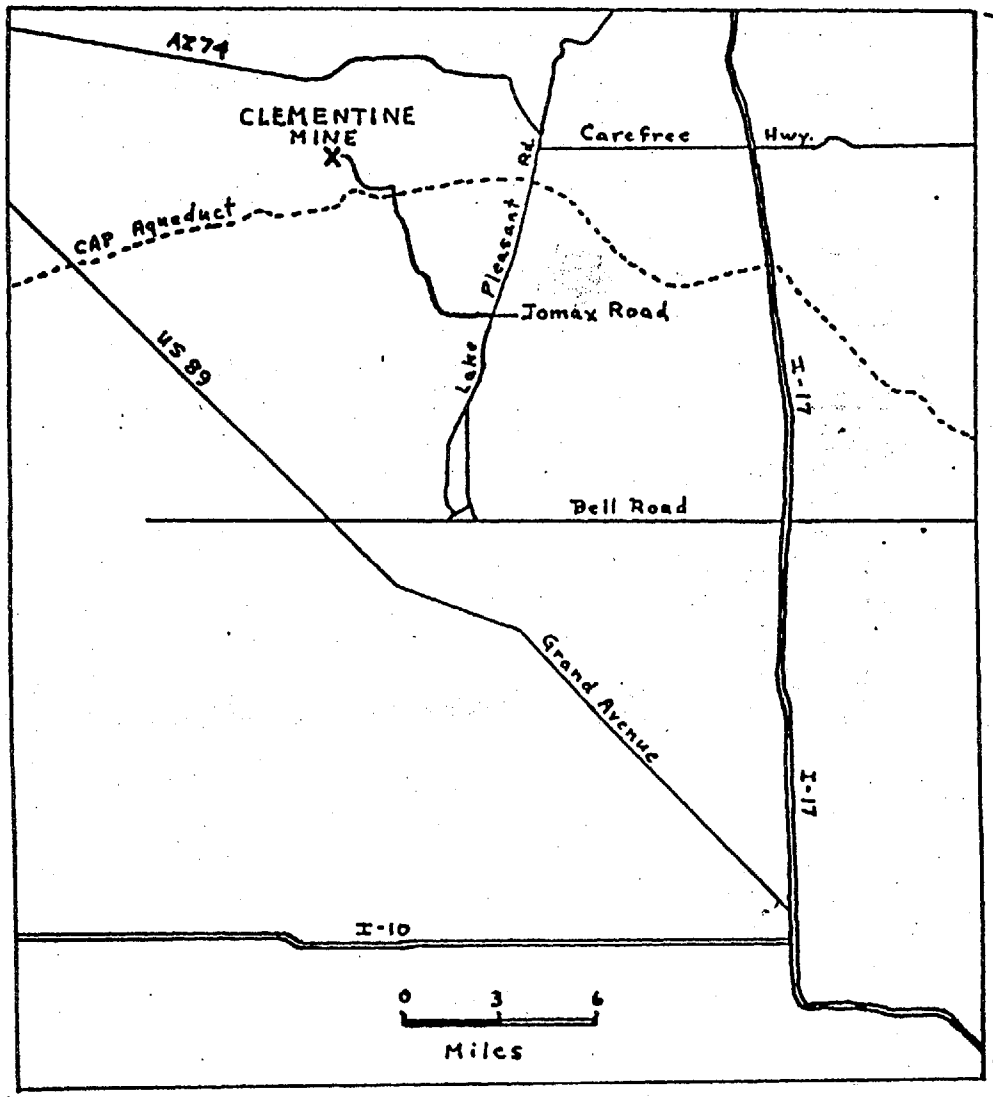
- o Review of existing data available from Copper Lake, East West Minerals and the property owners.
- o Check assaying of Copper Lake drill cuttings.
- o Geologic mapping of the target area at 1"=50' and 1"=100' scales.
- o Construction of cross sections through the target area and selection of drill test sites.
- o Completion of 20 reverse circulation drill holes totaling 2760 feet.
- o Metallurgical test work to determine leaching character of the ore in size fractions not previously tested.
- o Preparation of Measured Mineral Resource Inventory and Mineable Measured Resource estimates.
- o Preliminary economic analysis of the prospect.

The following report documents the results of the program.

OBJECTIVE OF THE PROGRAM

The objective of the program was to develop a mineable resource of 300,000 tons with a grade of 0.150 ounces per ton gold. Based on data in hand at the time that this objective was defined, the goal appeared highly reasonable because of a number of factors:

- o Significant questions on the validity of the assay data from Copper Lake.



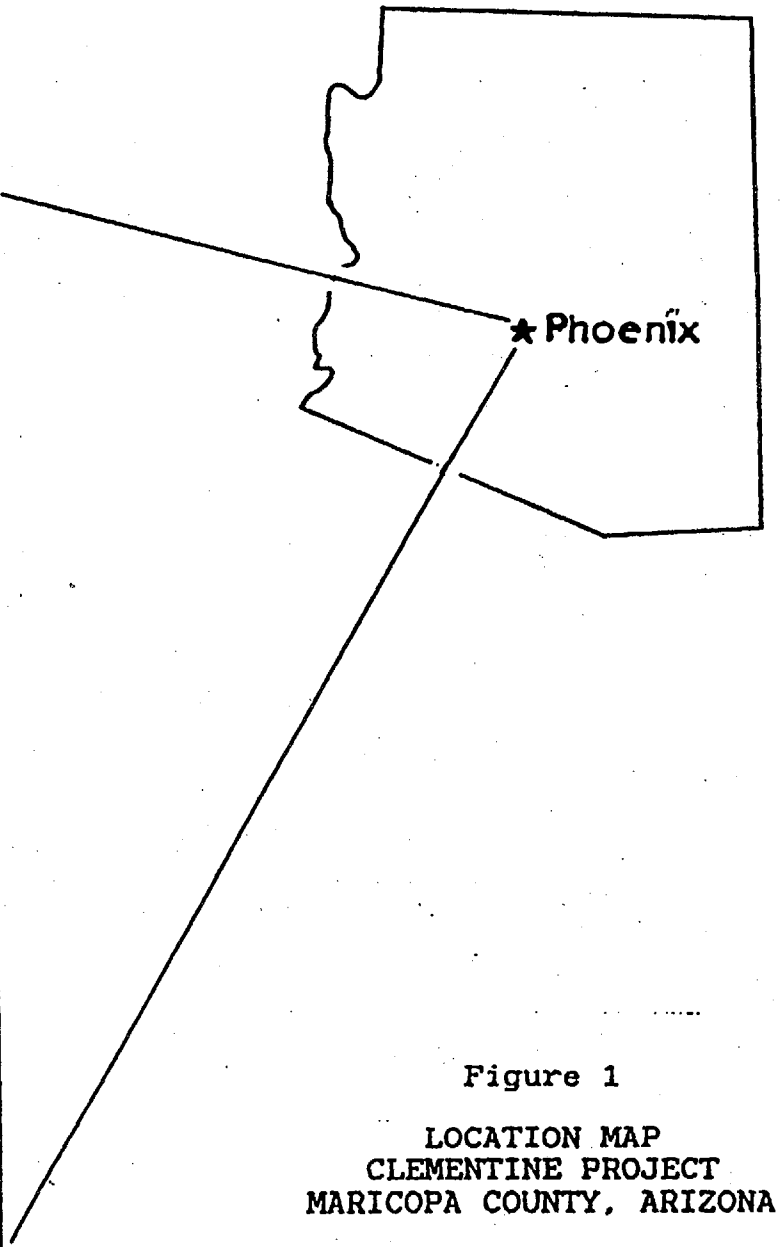


Figure 1

LOCATION MAP
CLEMENTINE PROJECT
MARICOPA COUNTY, ARIZONA

- o Possible structural intercepts controlling high-grade ore which could be projected to the southwest from the current pit.

- o Untested potential in the vicinity of the Charlotte Shaft along a persistent vein.

- o Untested areas southwest and/or south of the existing open pit with potential for shallow mineralization.

After testing each of these options, the original objective was not achieved. However, a potentially economic mining operation has been defined as a result of the testing program.

HISTORICAL DATA BASE

A considerable amount of material was available for review from Copper Lake Explorations Ltd. and East West Minerals. Wherever possible, original data was reviewed. In cases where original data was not found, summary reports prepared by numerous authors were used to supplement the original logs, assays and reports.

Several critical elements could not be found in the historical data base:

- o any evidence of geologic mapping,

- o mine production records,

- o results of production leaching (i.e. recovery, solution strengths, pH, bullion fineness, etc.), and

- o data on mining methods and costs.

The data from Copper Lake was generally of inconsistent quality. Although 160 holes were drilled in the deposit, much of the data could not be used because hole locations and elevations were missing, copies of logs were illegible or assay data was missing. The geologic data on the drill logs was worthless. In some cases, all assay and engineering data was available. This information has been checked by reassay of cuttings and by current drill holes.

When possible, Copper Lake drill data has been used in this study for preparation of sections and determination of reserves. The Copper Lake drill data is believed to be reasonable accurate and is in general agreement with data from East West Minerals and/or this drilling program.

Metallurgical tests conducted by Copper Lake are useful although of limited extent.

Data from East West Minerals includes drilling, metallurgical testing and a bulk sample sent to a custom mill. This data is all of good quality and has been used without exception.

Numerous reports on the property from various sources were reviewed. The "ore reserves" calculated in these reports are of no use because geology and metallurgical data were not incorporated in definition of "Mineable Reserves". The various "ore reserves" are summarized below:

Date	Author	Proven(000)	Probable(000)	Possible(000)	W/O
1981	Bond	309 @ .058	539 @ .06	2338 @ ?	NG
1981	Bruder	1003 @ .054	5520 @ .055	17700 @ .05	1.4/1
1982	Beling	341 @ .098		Not Given	8.5/1
		217 @ .105		Not Given	6/1

The "reserve" estimate by Beling in 1982 is probably closest to the reality of the situation. The other "reserves" were generated by using polygonal calculations inappropriate for a dipping vein system.

The reports written at the time frame of active mining indicate a low level of technical expertise and poor mine and grade control by Copper Lake.

CURRENT PROGRAM - TECHNICAL ASPECTS (RC)

Drilling: A reverse circulation Ingersoll-Rand TH-100 drill was contracted from Drilling Services Company, Chandler, Arizona for the program. The rig delivered 750 cfm of air at 250 psi. A Mission SD-5 Silverdril Hammer was used throughout. Samples were collected with a cyclone. Figure 2 shows the rig used.

A thick bentonite slurry was used in limited quantities to help lubricate the drill steel and to gain a seal to prevent cutting leakage around the outside of the drill string. The slurry was simply poured into the top of the holes as needed. No water injection was used during the drilling. All holes were drilled with a $5^1/_2$" Sandvik Mission button bit.

Site locations were surveyed from existing control points with Brunton and tape. Bearings and angles on all holes were also set with Brunton compass.

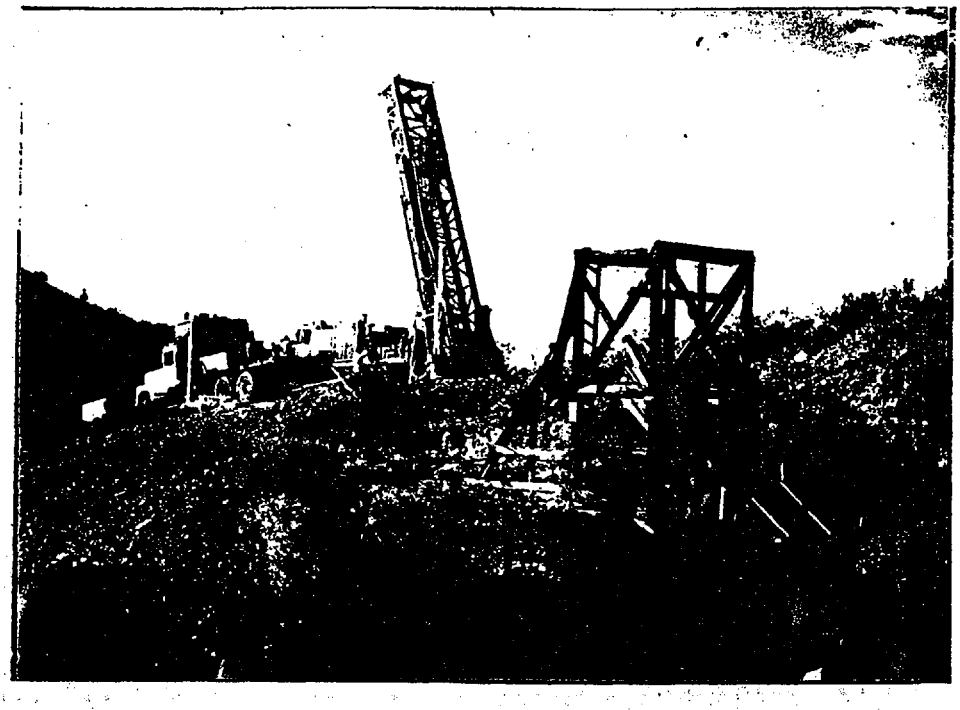


Figure 2: TH-100 drill rig on site at hole MM-15. The Charlotte Shaft headframe appears in the foreground. Photo looking south.

Sampling: Samples from the cyclone were fed directly into a three-tiered Humboldt splitter. A 1/8 split was collected in pans, bagged and sealed at the end of each five foot sample interval. Because of the small size of the program, only one sample was collected for both assay and metallurgical purposes.

A small sample for logging was collected from each interval and wet screened at 10 mesh for on-site geologic logging. Copies of the field logs are included in Appendix 5. Fines from a few of the samples were panned to detect the presence of visible gold. No attempt was made to estimate grade on site.

Sample weight was somewhat variable but generally approximated 20 to 25 pounds. Recoveries were not precisely determined but were estimated at 80-100% for most intervals. Two samples were lost during drilling as a result of crew sampling errors.

All samples were collected in plastic bags.

Assaying: Samples were trucked to Triad Labs, Inc., Wickenburg, Arizona for assaying. Samples were crushed to minus 1/4" and split to a 250 gram sample. The 250 gram split was crushed to minus 200 mesh and one assay ton taken to fire assay for gold.

Systematic check assays were not taken. Check assay control was provided by Skyline Labs as part of the metallurgical test program for composited intervals.

GEOLOGICAL PROGRAM AND RESULTS

Since no geologic map of the project area was available, the pit area and mineralized zone extending southwest to the Charlotte Shaft were remapped at scales of 1"=50' and/or 1"=100' dependent on exposure. Locations were controlled with Brunton and tape from existing survey control points. The following discussion relies on this mapping and the results of drilling to interpret the geologic history of the deposit. Figure 3 shows the project area overview and many of the geologic features discussed.

Yavapai Schist Sequence: Mapping shows that the host sequence in the Yavapai Schist is composed of three major units:

- o Basal Chloritic Schist Package
- o "Mine Sequence" schists and metasediments
- o Upper Chloritic Schist

These units are shown on the geologic map (see Figure 4) and on the geologic cross sections in Appendix 2.

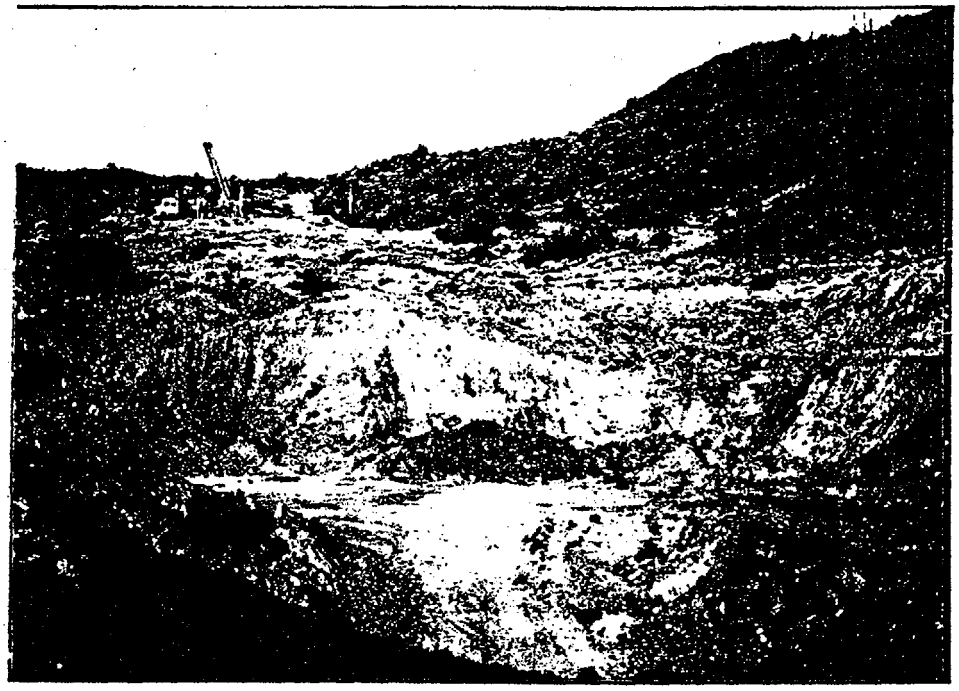


Figure 3: Overview of Clementine Project looking southwest from the Copper Lake open pit toward the Charlotte Shaft. The drill rig is on Midland hole MM-15. The main vein system is shown in the lower right hand corner of the photo. The red stained pit wall in the right center of the photo is a footwall split of the main structure.

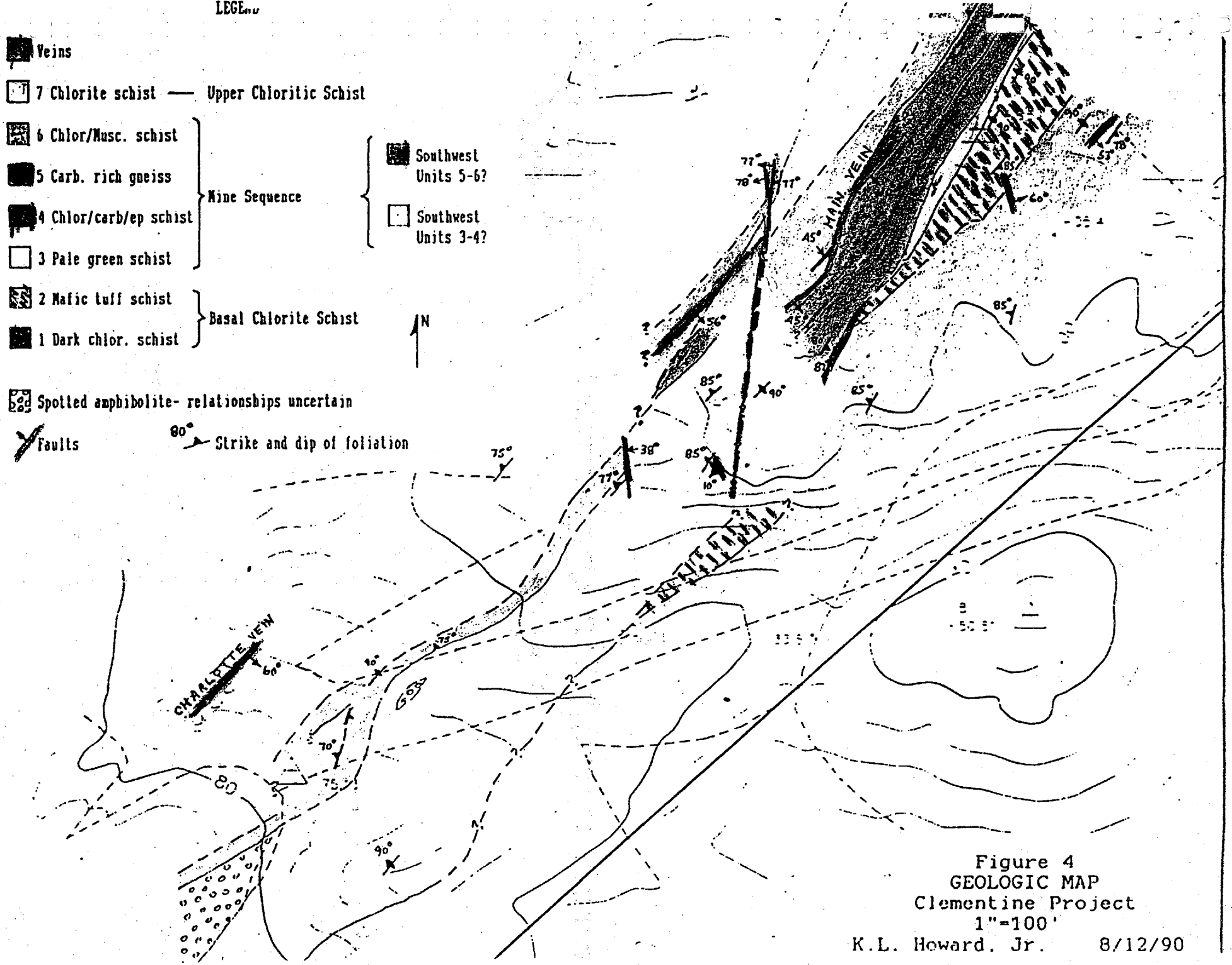


Figure 4
GEOLOGIC MAP
Clementine Project
1"=100'
K.L. Howard. Jr. 8/12/90

The Basal Chloritic Schist Package occupies the south wall of the open pit and is continuously traceable for 2000 feet along strike to the southwest. The unit is composed of two major rock types, 1) a thinly-laminated, dark chloritic schist of uniform composition, and 2) a paler schist with distinct dark mafic clots on cleavage surfaces. The sequence is probably a metamorphosed mafic flow overlain by mafic tuffs. Although no definitive top and bottom indicators were found, this sequence is believed to represent the stratigraphic base of the Yavapai sequence on general stratigraphic grounds.

The "Mine Sequence" is a complex unit comprised of four distinct mapable rock types in the area of the open pit. It is probably the metamorphosed equivalent of a mixed volcanic-sedimentary sequence with mafic tuffs, carbonate-rich sediments, and thin layers of clastic sediments. In areas west of the pit where exposure is poor, the sequence is mapped as a two unit package. In the pit area, the subunits are delineated individually. The most distinctive unit in the "Mine Sequence" is a fine-grained gray gneissic rock with abundant quartz-biotite-(amphibole?). This distinctive textured rock is found locally throughout the "Mine Sequence".

Just to the southwest of the Charlotte Shaft, a very distinct rock unit appears on strike with the "Mine Sequence". The rock is characterized by clots of green radiating amphibole which give it a spotted appearance. The origin of this rock is not known, but it could have been a dioritic intrusive sill.

The Upper Chloritic Schist is a massive unit similar to the Basal Package. It was probably a mafic volcanic before metamorphism.

Andesite dikes of Tertiary age mentioned in some previous reports were not observed.

The entire Yavapai stratigraphy has been regionally metamorphosed to greenschist and/or lower amphibolite grades. The zonation observed suggests an increasing thermal gradient along strike from northeast to southwest. The metamorphism and its relationship to veining and ore is discussed in detail in the section on mineralization.

Structure-Folding/Faulting: The Yavapai schists strike generally southwest and dip within a few degrees of vertical in the pit area. Further to the southwest, dips are more commonly 75-85° to the north. Local cross-folding was noted in a few places (most prominently just east of the Charlotte Shaft) with steep axes generally plunging to the south-southeast.

Shear-outs typical of isoclinal fold limbs are locally present and are important on the south side of the deposit where a strong shear appears to offset mineralization and cut units 2 and 3 out of the normal stratigraphic sequence. No subsidiary folds concordant to the strike of the foliation were seen, but several folded quartz veins were seen in the vicinity of the shear-out. A regional mapping program would be necessary to completely understand the Precambrian structural history of the deposit.

Post-mineral structures are not common and generally exhibit minor offsets. One post-mineral structure clearly cross cuts the stratigraphy in the west end of the open pit. It strikes NS and dips 80°W. Offset is less than 50 feet. Movement is probably normal.

Mineralization: Two dominant vein sets were observed in mapping:

- the main vein trend strikes N50°E and dips 30-60°S, and
- a set of flat veins strikes NS and dips 10-40°W.

The main vein trend is seen throughout the deposit and in both the footwall and hangingwall of the main structural zone. The flat vein set is not prominent in the pit area but is noted in the west pit wall and for several hundred feet further to the southwest. The flat veins appear to form a cap above the main vein system which does not occur above the zone of flat veins. The structures which do appear above the flat vein zone are generally narrow (1-6") and dip 60-85°S.

Veins are commonly irregular in strike and dip with wavy traces in outcrop or pit faces. Several small veins were apparently folded with axes parallel to foliation and dipping gently west. Several of these veins were noted in unit 2 in the south wall of the pit in proximity to a major shear sub-parallel to foliation.

The main vein trend is continuous from the exposures in the pit to the southwest for a distance of at least 800 feet as traced in drilling. The main vein does not outcrop west of the current open pit. The main vein is a complex system of parallel veins and splits. It is locally up to 20 feet in true thickness, but is more commonly 10-15 feet thick. The footwall and hangingwall zones may be intensely mineralized over true thicknesses of up to 50 feet. The main vein system terminates abruptly to the northeast. The termination is simply the end of the fracture system: no faults or cross veins are visible despite excellent exposure.

The thickest portions of the vein system are limited to the "Mine Sequence" rock package. The vein structures persist into the Basal Chlorite Schist Package, but are virtually absent in the Upper Schist Package.

The vein exposed in the Charlotte Shaft workings does not appear to be the same vein as the main structural zone traced southwest from the pit. The Charlotte Vein appears to be a parallel but separate system, although the possibility that the two vein systems interconnect at depth, cannot be ruled out.

Vein mineralogy is generally simple. Veins are dominated by quartz (multiple generations), carbonates, hematite and black manganese oxides. Sulfide minerals are extremely rare and are seen less frequently than gold. Grade does not show a positive correlation to any vein constituent. Gold can commonly be panned from drill cuttings, but no grains coarser than 100 mesh were observed in the samples.

Alteration directly related to the veins is not obvious. There are no persistent alteration halos. Fresh Yavapai schists are commonly in contact with the veins. No alteration was noted that suggests hydrothermal activity of any consequence in the system.

A strong metamorphic imprint is found in the Yavapai schists. The easternmost exposures are lower greenschist facies while amphibole bearing rocks are common near the Charlotte Shaft on the western end of the zone. Biotite (very dark chlorite?) appears commonly in the central and best mineralized portion of the structural zone. This biotitic alteration often limits the ability to distinguish rock units and appears to be most prevalent in proximity to intense mineralization. It is possible that biotite formation is related to the thermal event which generated the vein system.

Geologic Summary: It is my belief that the Clementine deposit formed during the metamorphism of the Yavapai schists. I believe that the original Yavapai sequence was a submarine volcanic/sedimentary sequence that was gold bearing. Subsequent tectonic activity lead to metamorphism, folding and fracturing, and migration of gold, iron and manganese oxides and carbonates into fractures created by intense deformation.

Gold mineralization appears to correlate with a zone of biotitic alteration/metamorphism? lying between the greenschist and lower amphibolite isograds. If this is truly the case, the exploration potential for additional large veins is limited to the area between these isograds.

The Tar Baby vein lying northwest of the open pit is the most likely candidate for further exploration, as it lies in the proper metamorphic regime, has similar vein mineralogy and dips into the correct metamorphic regime. The southern projection of this structure into the pit area hypothesized by Robyn was not found, so the potential of this structure must be considered limited.

The correlation of the best mineralization grades and thicknesses with the "Mine Sequence" rocks probably reflects their ability to sustain open fractures during deformation and metamorphism as opposed to the more massive chloritic schists in the Yavapai.

The deposit is virtually unchanged by events younger than the metamorphism. Some gold migration into post-mineral shearing is suggested by hole C-14 (see section 100NE in Appendix 2), but such movement of gold is inconsequential to the deposit as a whole.

Figure 5 shows an interpretive geologic map of the prospect. The metamorphic gradients are shown along with the vein intercepts relative to the "Mine Sequence" Package. Field relationships support the hypothetical history presented above.

DRILLING ASSAY RESULTS

This section discusses the results of investigations of the validity of the Copper Lake drill data base as well as the results of the Midland program. Figure 6 shows the location of all known drill holes. The holes are plotted based on best available engineering data. Not all the holes shown have been used in compilations for determining reserves.

Assessment of Copper Lake Drill Assays: Small samples of cuttings from the Copper Lake holes were salvaged from a collapsing shed on the property. These cuttings were assayed by Skyline Labs, Inc. of Wheatridge, Colorado for comparison against the original data from Copper Lake assaying. The comparative results are presented on Table 1.

In general, the reassay of Copper Lake cuttings is relatively close to the original assay data for the selected intervals. Based on these results, it has been assumed that Copper Lake data is useable if due care is exercised. The possibility that Copper Lake, missed large amounts of high grade material due to poor assay results, now appears unlikely. Data compiled by Tom Robyn, using check samples and known fire assay data from Copper Lake, appears to be correct and useful in grade determinations. Holes from Robyn's compilations have been used without reservation in this study.

The data on Table 1 suggest that Copper Lake assays may overstate the gold grade in lower grade ranges (.02 to .05 opt) although there are too few sample pairs to be certain. As a result of this suspicion, isolated or uncorroborated assays in the lower grade ranges have not been used for reserve purposes (i.e. C-106 on Section 350SW).

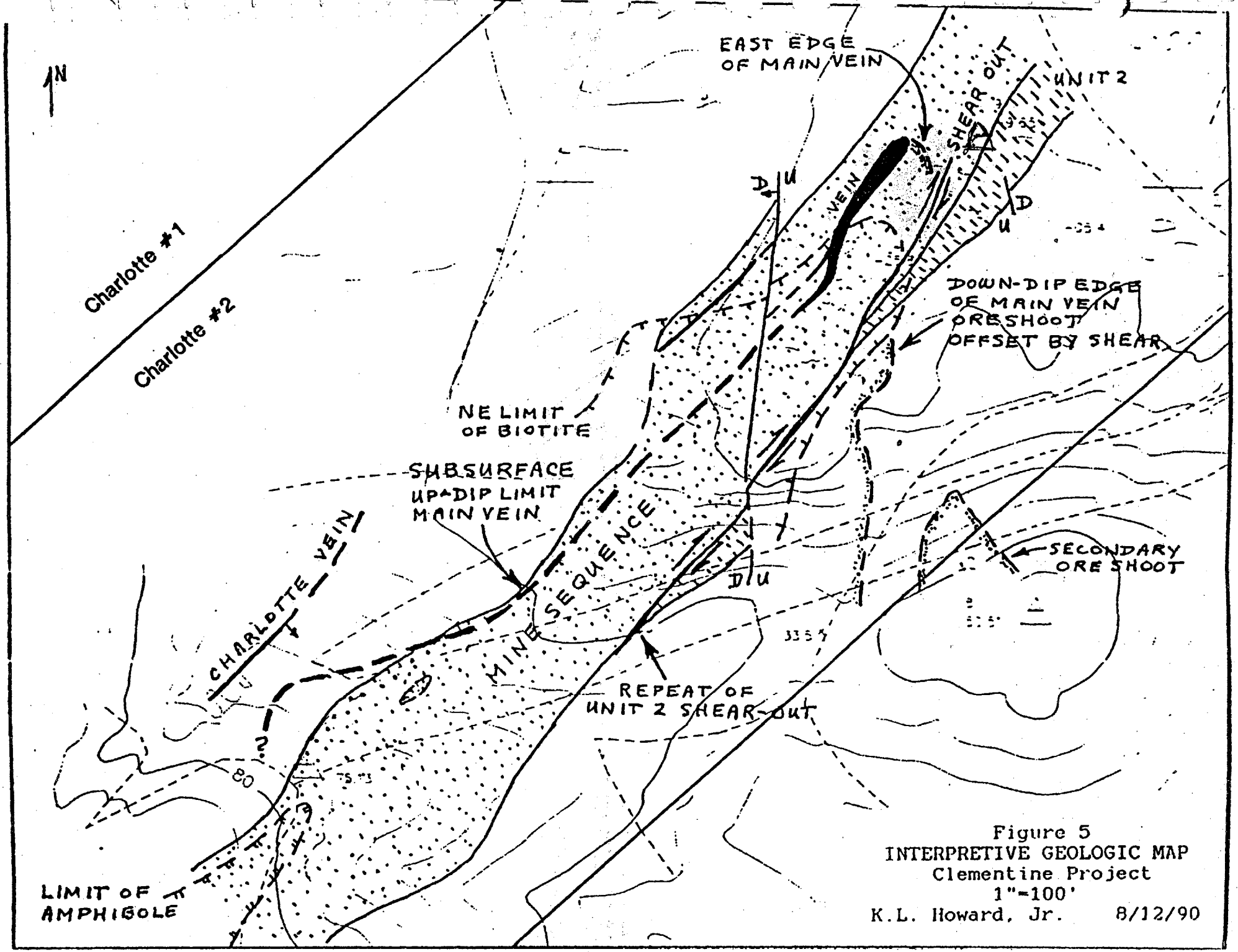


Figure 5
INTERPRETIVE GEOLOGIC MAP
Clementine Project
1"=100'
K.L. Howard, Jr. 8/12/90

TABLE 1
COPPER LAKE VERSUS MIDLAND ASSAY RESULTS

HOLE #	INTERVAL	COPPER LAKE (opt)	SKYLINE (opt)
CR 123	0-20	no data	.020
	20-30	.149	.155
	30-40	no data	.028
	40-50	no data	<.005
CR 129	0-65	.029	.009
	65-90	.098	.076
CR 130	0-40	.040	.012
	40-95	.134	.038
	95-130	.045	.008
	130-150	no data	<.005
CR 131	0-45	no data	<.005
	45-75	no data	.024
	75-80	1.374	.870
	80-85	no data	.018

The worst discrepancy is in hole 130 for the interval from 40 to 95 feet. Other data is in relatively good agreement.

Comparison of Copper Lake and Midland Drill Holes: A number of holes in the current program offset Copper Lake holes that are critical to proper determination of geology and reserves. ~~Table 2 shows the grade comparisons for these offset pairs.~~

For purposes of grade determination, the Midland Mining holes have been used in preference to Copper Lake data in all cases. Where superseded by the current drilling, Copper Lake data has not been used on the appended sections.

The comparison of the offset holes is quite good. No truly systematic errors are indicated. ~~The data from C5 and C23 continue to suggest a high bias in Copper Lake assays in low grade ranges,~~ but hole C56 does not show any bias. It seems reasonable to accept that Copper Lake assay data for the >0.06 opt range is sufficiently accurate to use in resource calculation.

~~It is useful to note that short >0.02 opt intervals in MM-11 and C-56 do not seem to correlate in position. Short intercepts of this type can seldom be correlated or projected between holes and have therefore been ignored in resource calculations.~~

Summary of Midland Drill Hole Results: Table ~~2 presents~~ a summary of ~~significant~~ grade intercepts in the Midland drill program. More complete ~~summaries and assay lab reports~~ are given in Appendix 4. Copies of the field geologic logs ~~are provided~~ in Appendix 5. More detailed logging under laboratory conditions has ~~not been~~ done.

There were few surprises in the Midland drill program. The most damaging revelation was the lack to down-dip continuity of the main vein system on sections 50NE through 150NE. This finding could not have been predicted in advance.

In most other respects, the drilling confirmed previous results for grade and geometry of the vein zones.

Comparison of Grade with Observed Geology: While the main vein zone was readily recognizable in the drill cuttings due to the abundance of hematite and manganese oxides associated with quartz and carbonates, visual estimation of grade was not possible. In certain cases, strong vein mineralization did not produce grades in economic ranges. No single mineral was consistently associated with good gold grade. If manganese oxides were present, the gold grade tended to be high, but this was not uniformly true: some high-grade intercepts showed no manganese oxides at all.

In short, there is no consistent visual key in drill cuttings that allows estimation of gold-grade.

TABLE 2
COMPARISON OF MIDLAND VS. COPPER LAKE DRILLING

Intervals adjusted to equal elevations

Midland Hole Footage	Grade (opt)	Comparative Intervals *		Copper Lake Hole Footage	Grade (opt)
MM-9		18' apart		C-5	
0-5	.018			15-35	.026
5-15	.076 *			*35-40	.122
15-20	.210 *	30'@ .076	40'@ .118	*40-60	.172
20-35	.031 *			*60-70	.053
35-50	.003			*70-75	.029
50-75	<.001			75-105	No Data
75-85	.005				
85-100	<.001				
MM-12		20'apart		C-23	
0-20	.025			20-40	.030
20-25	.117*			*40-50	.125
25-45	.030*	30'@ .056	20'@ .063	*50-60	.032
45-55	.136*			60-85	.012
55-80	.006				
MM-10		8' apart		C-131	
0-5	<.001			20-45	No Data
5-20	.007			*45-110	.178
20-40	.022*	70'@ .190	65'@ .178	110-175	No Data
40-55	.751*				
55-80	.059*				
80-90	.013*				
90-100	.005				
MM-11		12' apart		C-56	
0-10	.014			0-50	.003
10-75	.003			50-60	.084
75-85	.028			60-110	.004
85-105	.003			*110-125	.018
105-120	.014*	15'@ .014	15'@ .018	125-180	.003
120-150	.003				

TABLE 3
SUMMARY OF SIGNIFICANT INTERCEPTS - MM-1 TO MM-20
Intercepts of >0.04 opt

Hole Number	Interval (ft)	Length (ft)	Grade (opt)
MM-1	none		
MM-2	none		
MM-3	none		
MM-4	none		
MM-5	60-65	5	.044
MM-6	10-45	35	.083
MM-7	0-10	10	.045
MM-8	0-35	35	.054
MM-9	5-35	30	.076
MM-10	20-80	60	.219
MM-11	none		
MM-12	20-55	35	.056
MM-13	20-25	5	.099
MM-14	60-70	10	.056
MM-15	70-75	5	.060
MM-16	none		
MM-17	115-120	5	.061
MM-18	none		
MM-19	none		
MM-20	45-70	25	.090
	125-135	10	.075

METALLURGICAL TESTING

Based on numerous metallurgical test reports, it is apparent that it is difficult to obtain good gold recoveries using conventional low cost technologies. Heap leaching of raw ore is not feasible and Copper Lake's attempt to heap leach run-of-mine ore was clearly doomed based on column leach tests.

Flotation tests indicate fair bench scale recoveries at -80 mesh grinds, but a bulk flotation test at the Red Tail Mill yielded only 35% recovery.

Testing indicates that cyanide leaching of ore after grinding to 65-150 mesh yields recoveries of 85-90% of the gold. The costs of grinding to this size fraction are high, but it is potentially practical to employ such a grind with a (CIP) (Carbon in Pulp) circuit.

The current metallurgical program has attempted to fill gaps in the data package on cyanide leaching for size fractions that could be attained by crushing plants, thus eliminating the costly step of grinding to -100 mesh. The results of the previous testing and the current metallurgical program are discussed in the following sections.

Previous Data: A considerable amount of metallurgical testing has been done on the Clementine ores by several laboratories. Tests on the leaching character of the ore have been performed by Skyline Labs, Inc., Mountain States Research and Development, Inc., and Vaughan Construction. Flotation and gravity test work have been performed by McGowen Ore Testing Co., Auro-Tech Assaying and Metallurgy International, Inc..

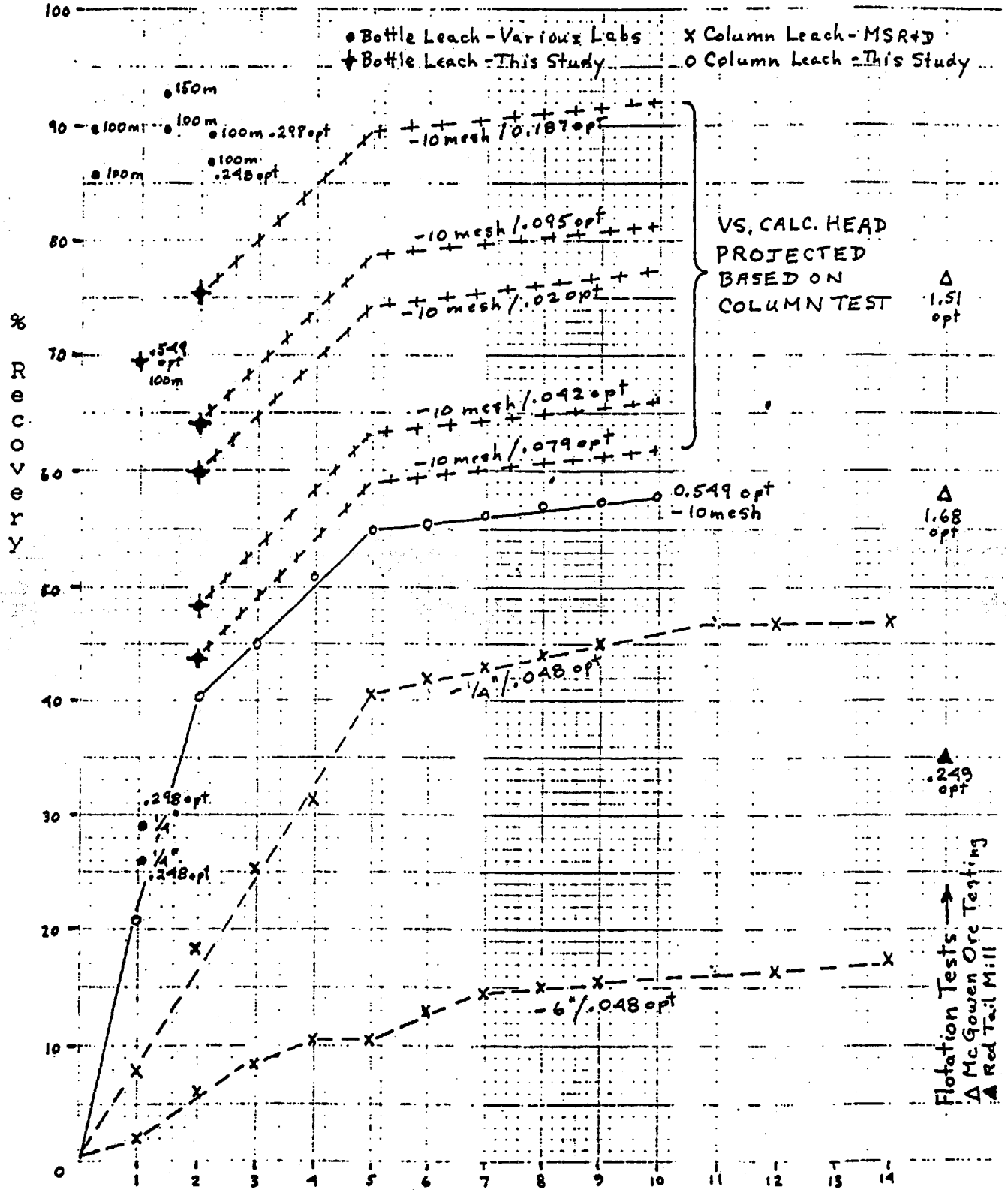
The results of the testing programs are shown on Figure 7 (page 20) along with current results for comparison.

The critical problem encountered in metallurgical testing is reflected in data from Auro-Tech Assaying which performed a screen-assay analysis on gravity jig tailings. The data are presented below:

Size Fraction (mesh) (holes per sq. in)	Gold Assay (opt) (ounces/ton; oz/ton)
+48	.034
48-65	.050
65-100	.043
100-150	.113
150-200	.229
-200	.785

The data indicate that gold particle sizes are very small and that liberation of gold is a major problem unless very fine grinds are used.

Figure 8
SUMMARY OF METALLURGICAL TEST RESULTS



The results of flotation tests on bench and bulk mill scale samples clearly demonstrate the liberation problem. At 80 mesh grind, recoveries range from 58-77% in bench tests. In an actual mill test on 641 tons of material at the Red Tail Mill, Congress, Arizona, recovery by flotation is impractical.

Cyanide leaching tests were conducted in several time frames from 1981 through 1988. The tests are dominantly in two size ranges: 1) material from +1/4" to 6" run-of-mine, and 2) material ground to 65-150 mesh. Recoveries for material crushed to 1/4" showed a maximum recovery of 47% in a column leach test of 14 day duration. Coarser size fractions recovered less gold. Recovery on 6" run-of-mine peaked at 17.5% after 14 days. Heap leaching of coarse ore by Copper Lake was apparently a failure as the tests indicate.

Gold recovery with cyanide leaching at grinds of 65 mesh and finer is far more successful. Recoveries of 85-93% of the gold were achieved in leaching tests of 6 to 25.5 hour duration by Skyline Labs and Vaughan Construction. It is apparent that gold can be recovered at very high percentages if the ore is ground finely enough to allow the cyanide solution to access the gold grains.

No work Index data were determined by any of the laboratories, but an estimate of 15Kw-hr/ton of ore was suggested by Metallurgy International.

Current Program: Since grinding to the 100 mesh range and recovery of gold would be very expensive, the current program was designed to look at previously untested size ranges that could be achieved with crushing rather than more expensive grinding. Size ranges of -1/4", -1/8" and -10 mesh were selected for initial testing. Samples were run at Skyline Labs, Inc. using agglomeration and a combination of bottle rolls and column leaches. The reports from Skyline are attached as Appendix 7. The tests were run with addition of a Nalco wetting agent to improve cyanide access to fractures in the crushed ore.

Results from 1/4" and 1/8" material were comparable to data that had been generated in previous tests. Crushing in these size ranges does not give adequate gold recovery.

At a -10 mesh crush, however, recovery jumped dramatically. Over the course of a 10 day column leach on high grade ore, a recovery of >60% was indicated. Based on this encouragement, a series of bottle roll tests were conducted on drill hole composites in various grade ranges. The samples were crushed to -10 mesh, agglomerated with wetting agent and leached for 2 days.

Based on this encouragement, a series of bottle roll tests were conducted on drill hole composites in various grade ranges. The samples were crushed to -10 mesh, agglomerated with wetting agent and leached for 2 days. (See Appendix 7)

Results confirmed the trend seen in the column leach results and gave recoveries of 43-73% in two days versus calculated heads. Recovery versus assay heads ranged from 20-85% over two days. The recoveries achieved were not related to head grade. Results of the test program are shown on Figure 7.

The tests show a consistent discrepancy between fire assay head recovery versus solution assay and calculated head recovery as detailed in the Skyline report. This discrepancy may be related to nugget effect problems or analytical problems. No consistent assay problem is indicated in comparison of assay heads for the samples as determined by Skyline vs original assays of cuttings from Triad Labs.

Figure 7 shows projections of the recovery curves for each sample drawn to parallel the results of the column leach test on -10 mesh material. The curves are extrapolated assuming that slope breaks in the recovery curve for Column 1 will be replicated by other samples. If this is the case, ultimate recoveries should fall in the range of 60-90% for -10 mesh agglomerated ore.

There is still considerable uncertainty in the metallurgical results because of the limited program conducted, but it appears that recoveries in the range of 70% could be expected for -10 mesh crushed and agglomerated ore in a heap leach circuit. Further testing would be necessary to confirm this number with higher confidence, but the results to date are encouraging and indicate that lower cost recovery options are available compared to fine grinds and CIP circuits.

The testing showed that reagent consumptions are not excessive. No lime was required to buffer pH. Cement added at 10#/ton and contained carbonates were sufficient to maintain pH. Cyanide consumption ranged from .04-.08 #/ton on the column leach tests.

The results should be reviewed by a metallurgist familiar with cyanide recovery systems, and any further testing should be done under the direction of experienced metallurgists. The results should be reviewed before a decision is made to proceed with the project, and further testing should be done to remove uncertainties in the projected recoveries used in this report.

MINERAL RESOURCE INVENTORY

A Mineral Resource Inventory is a tabulation of tonnage and grade of mineralization irrespective of potential mineability. It includes all material delineated to date by drilling. The Measured Mineable Resource calculation that follows this section attempts to estimate that portion of the Mineral Resource Inventory that can be mined under specific mining and cost parameters.

Definitions: Because the Clementine property has had extensive drilling, all of the Mineral Resource Inventory is considered to be Measured under the following definition from the USBM/USGS.

"Measured ore is ore for which tonnage is computed from dimensions revealed in outcrops, trenches, workings, and drill holes and for which the grade is computed from the results of detailed sampling. The sites for inspection, sampling, and measurement are so closedly spaced and the geological character is so well defined that the size, shape, and mineral content are well established. The computed tonnage and grade are judged to be accurate within limits which are stated, and no such limit is judged to differ from the computed tonnage or grade by more than 20 percent."

Categories for Indicated and Inferred ore resources were not calculated in this study because of their small potential size. the difficulty in projecting grades and the structural complexity of the deposit.

Method of Calculation: Based on grade distributions and values observed on cross sections (Appendix 1), two grade ranges were selected for used in calculation of the Mineral Resource Inventory: 1) 0.02-0.07 ounces per ton gold, and 2) >0.07 ounces per ton gold. These grade ranges have also been used for calculation of the Mineable Measured Resource in a later section of this report.

The Mineral Resource was calculated from cross sections based on grade boundaries drawn to reflect geologic controls. Isolated narrow intercepts of >0.02 opt were not included in the calculation if geologic/grade continuity could not be demonstrated. This approach limits the Measured Mineral Resource Inventory to the main vein zone and the Charlotte Vein.

Grade for each block was determined by footage weighted average of drill penetrations within each block. Drill hole grades were used without any factoring with the exception of the block on section 150NE where hole EW-1 indicated a multi-ounce intercept. This hole was not used in grade determination, but was replaced

by blasthole data and the grade from a 641 yard bulk test which indicated a grade of 0.25 opt.

Each block was measured and a volume calculated. Measurements were generally approximated to plus-minus two feet. A planimeter was not used. Only one ton factor determination was found in previous reports. The indicated conversion was 11.5 cubic feet per ton. For this study, tonnage was calculated using a factor of 12.0 cubic feet per ton. Accuracy of the numbers given for the Mineral Resource Inventory is estimated at ± 15% for tonnage and ± 10% for grade.

Results: Based on the above definitions and parameters, a Measured Mineral Resource Inventory of 223,100 tons at a grade of 0.10 opt gold was determined. Table 4 shows the results by individual block and section.

The bulk of the gold in the resource is contained in the >0.07 opt category. This grade range contains 88,400 tons at 0.192 ounces per ton.

No Indicated or Inferred Resource Inventory numbers have been calculated. The best potential for additional resources is on sections 350SW and 400SW.

MEASURED MINEABLE RESOURCE CALCULATION

Method of Determination: The ore blocks used in determination of the Measured Reserve were taken directly from the Mineral Resource Inventory. The parameters used in determining the mineable portion of the Mineral Resource Inventory are listed below:

- o Cutoff grade at 0.02 opt.
- o Pit slope equal to 50°.
- o Waste:ore ratio to be held to less than 6:1.

Cutoff was selected at 0.02 opt based on the thin rind of low grade that surrounds the better grade core of the resource. This material would almost certainly have to be mined to obtain 100% extraction of the >0.07 opt material.

The pit slope was chosen at 50° to minimize waste and to conform to the footwall of the main vein zone on the northwest side of the proposed pit.

The waste:ore ratio was selected arbitrarily so that overall stripping could be minimized.

TABLE 4
CLEMENTINE PROJECT
MARICOPA COUNTY, ARIZONA
MINERAL RESOURCE INVENTORY-MEASURED
Cutoff Grade = 0.02 opt

SECTION	TONS @ .02-.07 OPT	GRADE OPT	TONS @ >.07 OPT	GRADE OPT	CUMULATIVE TONS
200-300NE	-	-	-	-	-
150NE	1500	0.042	5300	0.250	6800
100NE	6000	0.037	8200	0.263	14200
	2500	0.028	6500	0.230	9000
50NE	6000	0.040	2400	0.162	8400
	9200	0.033	2400	0.133	11600
	13500	0.036	2600	0.183	16100
00	5800	0.041	9400	0.186	15200
	3100	0.031	2500	0.120	5600
	9700	0.037			9700
	2500	0.069			2500
50SW	19500	0.035	5000	0.687	24500
			4100	0.126	4100
100SW	9400	0.042	11000	0.131	20400
	7900	0.024			7900
150SW	4400	0.053	4500	0.096	8900
200SW	14600	0.037	5300	0.116	19900
	2100	0.054			2100
250SW	-	-	9600	0.095	9600
300SW	4000	0.058	3300	0.181	7300
350SW	1200	0.061	-	-	1200
400SW	-	-	2000	0.072	2000
450SW	2700	0.069	1600	0.242	4300
	3100	0.055	1500	0.135	4600
			1200	0.084	1200
500SW	3100	0.058	-	-	3100
550SW	2900	0.058	-	-	2900
TOTALS	134700	0.040	88400	0.192	223100

TOTAL RESOURCE @0.20 OPT CUTOFF = 223,100 TONS @ 0.100 OPT

Using these criteria, a pit layout was drawn on cross sections attempting to extract the maximum amount of the resource. The pit walls from the sections were then plotted on a plan map and cross checked for slopes. Waste blocks were measured and volumes determined from the final revision of the cross sections.

The final preliminary pit plan is shown on Figure 8 and the corresponding cross sections are shown in Appendix 3.

While the Pit Plan and Mineable Measured Resource calculations are not totally precise, they do represent a fairly accurate look at the deposit from a potential mining perspective. Some additional material would have to be moved in a mining operation to account for haulage roads, and a final pit plan should be engineered using computers to optimize resource extraction.

Results: The Measured Mineable Resource as estimated in this study is 116,000 tons at 0.129 opt gold. The results are shown by section on Table 5. The waste:ore ratio based on the preliminary pit plan is 4.77:1 based on the parameters specified above. These figures have been used for preliminary economic analyses presented later in this report.

ECONOMIC ANALYSIS

Methods and Assumptions: Based on the figures developed for Measured Mineable Resources, a preliminary attempt has been made to examine the economic viability of a mining operation. The costs used are estimates based on mining and processing costs for western United States gold mining operations. No quotes have been solicited for mining or milling costs or for capital purchases.

Two comparative cases (Tables 6 and 7) have been developed based on two feasible metallurgical flow sheets:

Case 1: crush ore to -10 mesh, agglomerate and heap leach, and
Case 2: grind ore to -100 mesh and use CIP recovery circuits.

The scenarios assume that mining, crushing and/or grinding would be contracted, but that Midland would handle the leaching and recovery systems. Midland would also hire plant staff, pit geologist, plant operator and operations manager. Estimates of capital costs are based on purchase of used plant and equipment.

Under the mining agreement, a royalty of 10% NSR has been used for the first 50,000 tons of production. The royalty diminishes to 5% NSR thereafter. Refinery costs of 4% are based on common charges for US refiners.

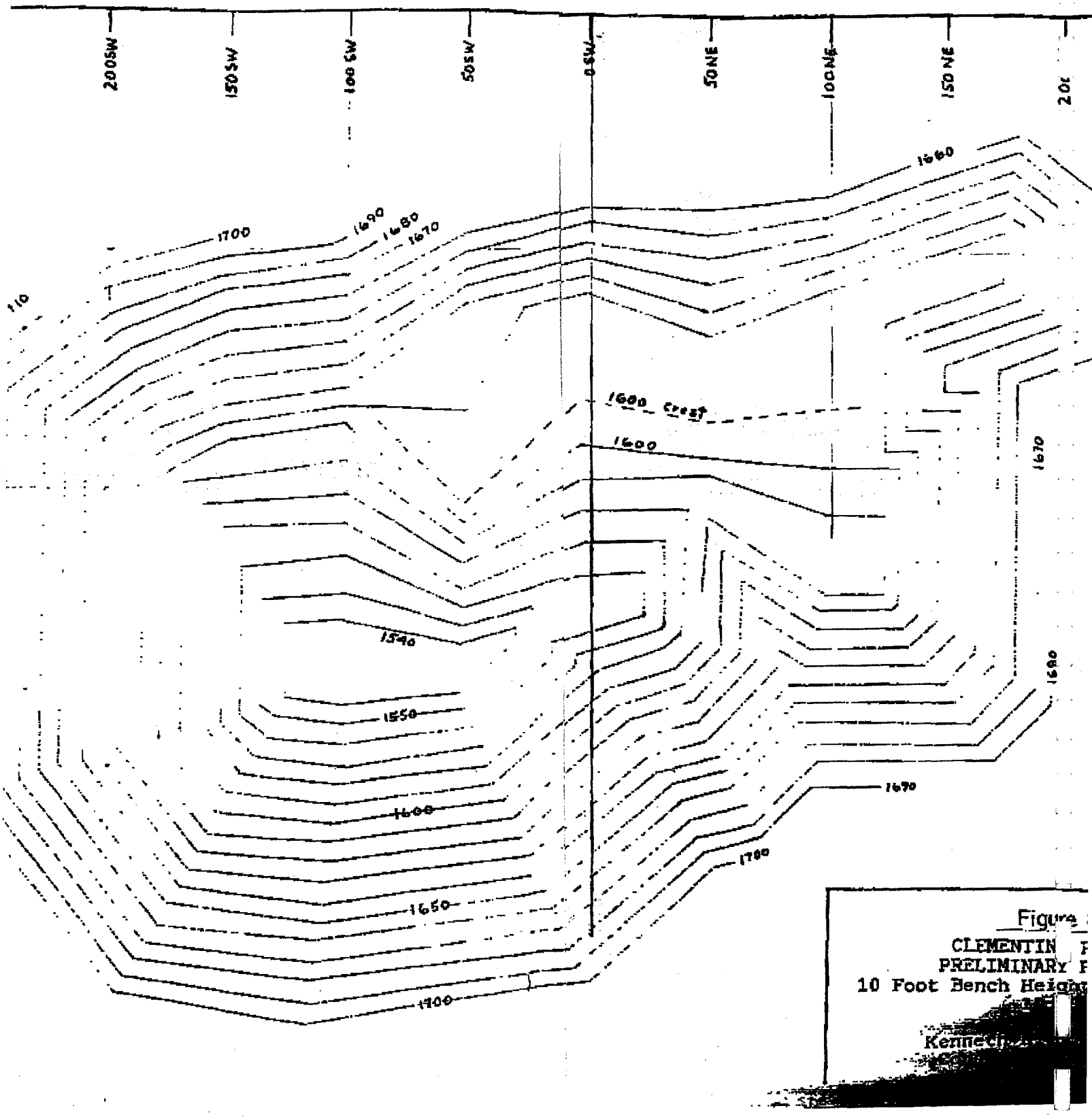


Figure
CLEMENTIN
PRELIMINARY
10 Foot Bench Heig
Kennedy

TABLE 5
CLEMENTINE PROJECT
MARICOPA COUNTY, ARIZONA
MINEABLE MEASURED RESOURCE
PRELIMINARY PIT PLAN
Cutoff Grade = 0.02 opt
Slope = 50

SECTION	TONS @ .02-.07 OPT	GRADE OPT	TONS @ >.07 OPT	GRADE OPT	TONS ORE	TONS WASTE
200NE	-	-	-	-	-	7300
150NE	800	0.042	5200	0.250	6000	24600
100NE	5500	0.037	7300	0.263	12800	29200
	1600	0.028	5900	0.230	7500	
50NE	6700	0.034	6000	0.162	12700	42500
			2100	0.133	2100	
00	5800	0.041	9400	0.186	15200	70000
	3100	0.031			3100	
	2400	0.037			2400	
50SW	15000	0.035	5000	0.687	20000	78000
			4100	0.126	4100	
100SW	13600	0.032	12800	0.093	26400	91500
150SW	-	-	3700	0.096	3700	116500
200SW	-	-	-	-	0	73300
250SW	-	-	-	-	0	20300
TOTALS	54500	0.035	61500	0.213	116000	553200

TOTAL MINEABLE @0.20 OPT CUTOFF = 116,000 TONS @ 0.129 OPT

WASTE/ORE RATIO = 4.769

OUNCES OF CONTAINED GOLD = 14964

Month Ending:	Capital	OpMon1	OpMon2	OpMon3	OpMon4	OpMon5	OpMon6	OpMon7	OpMon8	OpMon9	OpMon10	Total
Pre/Post-Production Costs												
Pre-development Testing	60000											60000
Water Well/Pipeline	10000											10000
Equipment Purchases	10000											10000
Pad Preparation/piping	100000											100000
Consulting Services	12000											12000
Permitting	5000											5000
Recovery Plant	50000											50000
Reclamation											50000	50000
TOTAL PRE-POST EXPENSE	247000	0	0	0	0	0	0	0	0	0	50000	297000
Gold Production Stats.												
Tons Leached		13125	13125	13125	13125	13125	13125	13125	13125	11025	0	116025
Recovered Grade (opt) 70%		0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0	
Production/month (ozs)		1185.19	1185.19	1185.19	1185.19	1185.19	1185.19	1185.19	1185.19	995.56	0	10477.06
Gold Price ($/oz)		365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	
Cash Flow Analysis												
Gross Prod. Rev. ($)			432593	432593	432593	432593	432593	432593	432593	432593	363378	3824126
Less: 10%/5% Royalty ($)			41529	41529	41529	39162	20764	20764	20764	20764	17442	264249
REVENUE AFTER ROYALTY		0	391064	391064	391064	393432	411829	411829	411829	411829	345936	3559877
Operating Costs ($)												
Stripping ($2.50/ton)		156250	156250	156250	156250	156250	156250	156250	156250	131250		1381250
Mining ($3.00/ton)		39375	39375	39375	39375	39375	39375	39375	39375	33075		348075
Crushing/agglom. costs		65625	65625	65625	65625	65625	65625	65625	65625	55125		580125
Bedding costs ($0.10/t)		1313	1313	1313	1313	1313	1313	1313	1313	1103		11603
Assay costs		197	197	197	197	197	197	197	197	165		1740
Shipping & Refining			17304	17304	17304	17304	17304	17304	17304	17304	14535	152965
Labor-wages		7500	7500	7500	7500	7500	7500	7500	7500	6300	6300	72600
-payroll taxes-16%		1200	1200	1200	1200	1200	1200	1200	1200	1008	1008	11616
-benefits -20%		1500	1500	1500	1500	1500	1500	1500	1500	1260	1260	14520
Maintenance		1000	1000	1000	1000	1000	1000	1000	1000	1000		9000
Repairs						4000						4000
Water/pump/reagents		1500	1500	1500	1500	1500	1500	1500	1500	1500		13500
Surveying		300	300	300	300	300	300	300	300	300		2700
Vehicle leases		600	600	600	600	600	600	600	600	600	600	6000
Rentals		300	300	300	300	300	300	300	300	300		2700
Miscellaneous		200	200	200	200	200	200	200	200	200	200	2000
Security services		1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	12000
Fees & Assessments		100	100	100	100	100	100	100	100	100		900
Pit Geologist		4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	40000
Site supervisor		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	50000
IRECT OPERATING COSTS		287159	304463	304463	304463	308463	304463	304463	304463	260790	34103	2717294

PRE-G&A CASH FLOW	-247000	-287159	86601	86601	86601	84969	107366	107366	107366	151039	311833	595583
General & Admin.												
Supervision (hdqtrs)		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	50000
Accounting		500	500	500	500	500	500	500	500	500	500	5000
Telecommunication		1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	14000
Travel		500	500	500	500	500	500	500	500	500	500	5000
Automotive Expense		500	500	500	500	500	500	500	500	500	500	5000
MSHA Safety Training		500										500
Prof. Services		3000										3000
Insurance												
Liability		10000										10000
Property Damage		200	200	200	200	200	200	200	200	200	200	2000
Miscellaneous		300	300	300	300	300	300	300	300	300	300	3000
TOTAL G & A		21900	8400	8400	8400	8400	8400	8400	8400	8400	8400	97500
MONTHLY CASH FLOW	-247000	-309059	78201	78201	78201	76569	98966	98966	98966	142639	303433	498083
CUMULATIVE CASH FLOW	-247000	-556059	-477858	-399657	-321455	-244887	-145921	-46955	52011	194650	498083	498083
Assumptions & Parameters												
Operating Cost ($/ton)												
Stripping		2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50		
Mining Ore		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00		
Crushing cost ($/ton)		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00		
Refining cost (4%)		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Ore Statistics												
Grade		0.129	0.129	0.129	0.129	0.129	0.129	0.129	0.129	0.129		
Tons ore/day		525	525	525	525	525	525	525	525	525		
Tons waste/day		2500	2500	2500	2500	2500	2500	2500	2500	2500		
Days/month-operating		25	25	25	25	25	25	25	25	21	21	242
Days/month-down weather		1	1	1	1	1	1	1	1	1	1	10
Days/month-down maint.		1	1	1	1	1	1	1	1	1	1	10
Days/month-sched. off		3	3	3	3	3	3	3	3	3	3	30
Tons waste/month		62500	62500	62500	62500	62500	62500	62500	62500	52500	0	552500
Tons ore/month		13125	13125	13125	13125	13125	13125	13125	13125	11025	0	116025
Cumulative ~~yards~~ TONS ore		13125	26250	39375	52500	65625	78750	91875	105000	116025	116025	116025
Cumulative yards waste		62500	125000	187500	250000	312500	375000	437500	500000	552500	552500	552500
Cumulative Ounces Au		1185.2	2370.4	3555.6	4740.7	5925.9	7111.1	8296.3	9481.5	10477.1		10477.1

Month Ending:	Capital	OpMon1	OpMon2	OpMon3	OpMon4	OpMon5	OpMon6	OpMon7	OpMon8	OpMon9	OpMon10	Total
Pre/Post-Production Costs												
Pre-development Testing	60000											60000
Water Well/Pipeline	10000											10000
Equipment Purchases	10000											10000
Plant purchase	200000											200000
Consulting Services	12000											12000
Permitting	5000											5000
Recovery Plant	50000											50000
Reclamation											50000	50000
TOTAL PRE-POST EXPENSE	347000	0	0	0	0	0	0	0	0	0	50000	397000
Gold Production Stats.												
Tons Leached		13125	13125	13125	13125	13125	13125	13125	13125	11025	0	116025
Recovered Grade (opt) 90%		0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0	
Production/month (ozs)		1523.81	1523.81	1523.81	1523.81	1523.81	1523.81	1523.81	1523.81	1280.00	0	13470.50
Gold Price ($/oz)		365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	365.00	
Cash Flow Analysis												
Gross Prod. Rev. ($)			556192	556192	556192	556192	556192	556192	556192	556192	467201	4916733
Less: 10%/5% Royalty			53394	53394	53394	50351	26697	26697	26697	26697	22426	339749
REVENUE AFTER ROYALTY		0	502797	502797	502797	505841	529494	529494	529494	529494	444775	4576985
Operating Costs ($)												
Stripping ($2.50/ton)		156250	156250	156250	156250	156250	156250	156250	156250	131250		1381250
Mining ($3.00/ton)		39375	39375	39375	39375	39375	39375	39375	39375	33075		348075
Crushing/grinding/leaching		196875	196875	196875	196875	196875	196875	196875	196875	165375		1740375
Assay costs		197	197	197	197	197	197	197	197	165		1740
Shipping & Refining			22248	22248	22248	22248	22248	22248	22248	22248	18688	196669
Labor-wages		7500	7500	7500	7500	7500	7500	7500	7500	6300	6300	72600
-payroll taxes-16%		1200	1200	1200	1200	1200	1200	1200	1200	1008	1008	11616
-benefits -20%		1500	1500	1500	1500	1500	1500	1500	1500	1260	1260	14520
Maintenance		1000	1000	1000	1000	1000	1000	1000	1000	1000		9000
Repairs						4000						4000
Water/pump/reagents		1500	1500	1500	1500	1500	1500	1500	1500	1500		13500
Surveying		300	300	300	300	300	300	300	300	300		2700
Vehicle leases		600	600	600	600	600	600	600	600	600	600	6000
Rentals		300	300	300	300	300	300	300	300	300		2700
Miscellaneous		200	200	200	200	200	200	200	200	200	200	2000
Security services		1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	12000
Fees & Assessments		100	100	100	100	100	100	100	100	100		900
Pit Geologist		4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	40000
Site supervisor		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	50000
DIRECT OPERATING COSTS		417097	439345	439345	439345	443345	439345	439345	439345	374881	38256	3909646

PRE-G&A CASH FLOW	-347000	-417097	63453	63453	63453	62496	90150	90150	90150	154613	406519	320339
General & Admin.												
Supervision (hdqtrs)		5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	50000
Accounting		500	500	500	500	500	500	500	500	500	500	5000
Telecommunication		1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	14000
Travel		500	500	500	500	500	500	500	500	500	500	5000
Automotive Expense		500	500	500	500	500	500	500	500	500	500	5000
MSHA Safety Training		500										500
Prof. Services		3000										3000
Insurance												
Liability		10000										10000
Property Damage		200	200	200	200	200	200	200	200	200	200	2000
Miscellaneous		300	300	300	300	300	300	300	300	300	300	3000
TOTAL G & A		21900	8400	8400	8400	8400	8400	8400	8400	8400	8400	97500
MONTHLY CASH FLOW	-347000	-438997	55053	55053	55053	54096	81750	81750	81750	146213	398119	222839
CUMULATIVE CASH FLOW	-347000	-785997	-730944	-675892	-620839	-566743	-484993	-403243	-321493	-175280	222839	222839
Assumptions & Parameters												
Operating Cost ($/ton)												
Stripping		2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50		
Mining Ore		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00		
Milling cost ($/ton)		15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00		
Refining cost (4%)		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Ore Statistics												
Grade		0.129	0.129	0.129	0.129	0.129	0.129	0.129	0.129	0.129		
Tons ore/day		525	525	525	525	525	525	525	525	525		
Tons waste/day		2500	2500	2500	2500	2500	2500	2500	2500	2500		
Days/month-operating		25	25	25	25	25	25	25	25	21	21	242
Days/month-down weather		1	1	1	1	1	1	1	1	1	1	10
Days/month-down maint.		1	1	1	1	1	1	1	1	1	1	10
Days/month-sched. off		3	3	3	3	3	3	3	3	3	3	30
Tons waste/month		62500	62500	62500	62500	62500	62500	62500	62500	52500	0	552500
Tons ore/month		13125	13125	13125	13125	13125	13125	13125	13125	11025	0	116025
Cumulative yards ore		13125	26250	39375	52500	65625	78750	91875	105000	116025	116025	704550
Cumulative yards waste		62500	125000	187500	250000	312500	375000	437500	500000	552500	552500	552500
Cumulative Ounces Au		1523.8	3047.6	4571.4	6095.2	7619.1	9142.9	10666.7	12190.5	13470.5		13470.5

It is assumed that mining and stripping will proceed concurrently so that the revenue stream will help to cover stripping costs after the first 30 days of operation. Gold price is assigned at $365.00 per ounce. Reclamation costs are based on $2500.00 per acre.

Case 1 Results: Case 1 (Table 6) assumes use of contracted mining and crushing plus agglomeration. Heap leaching of agglomerated ore is assumed to recover 70% of the contained gold. The scenario assumes purchase of a cyanide recovery circuit. Case 1 shows a potential pre-tax profit of $490,000 after capital recovery versus a financial exposure of $556,000. The operation would last approximately 10 months.

Sensitivity analyses were run on Case 1 for a number of variables. The results of analyses for gold price, royalty, recovery, capital and operating costs are shown on Table 8. The project is most sensitive to gold recovery, operating cost and gold price. Table 8 shows the various breakeven prices and/or costs and also presents possible upside and downside scenarios. If higher than anticipated gold price and recovery are coupled with decreased royalty, the project could produce a profit of $1,186,000 after capital payback. If gold price dropped to $350/oz and recovery dropped to 65% coupled with higher operating costs and capital costs, the project would not even recover capital.

Case 2 Results: Case 2 (Table 7) assumes use of contracted mining and crushing plus grinding equipment. The ore would be ground to -100 mesh and leached by CIPO plant. The case includes $50,000 for additional equipment purchases and milling costs are raised by $10.00 per ton to cover grinding costs. All other parameters are unchanged. The case shows a pre-tax profit of $223,000 after capital recovery against a maximum exposure of $731,000. While still profitable, this case is not as attractive as Case 1.

Summary: If the cost figures used in these calculations are attainable, a small but profitable operation is possible. There is a significant upside potential in the economics if the following conditions are met:

- Gold price greater than $365/oz.
- Royalty renegotiated below the current effective rate of 7.5%.
- Gold recovery of greater than 75% can be achieved for an agglomeration/heap leach circuit.
- Operating and capital costs can be held to currently projected levels.

TABLE 8
SENSITIVITY ANALYSIS
Case 1: Preliminary Economic Analysis

	Gold Price $/Toz	Percent Recovery	Percent Royalty	$x000 Capital	Operating Cost $/ton	$x000 Pre-Tax Profits*
Basic Case 1	365	70.0	10/5	247	23.43	498
Breakeven Scenarios	317.46	70.0	10/5	247	23.43	0
	365	59.75	10/5	247	23.43	0
	365	70.0	20.3	247	23.43	0
	365	70.0	10/5	745	23.43	0
	365	70.0	10/5	247	27.72	0
Upside Scenario[1]	400	75.0	5	247	23.43	1,186
Downside Scenario[2]	350	65.0	10/5	300	25.00	(57)

Underlining indicates parameter(s) varied from Case 1 base scenario.

* Profit shown is pre-tax and after capital recovery.

[1] Economic analysis with combination of increased gold price, higher gold recovery and lower royalty than base Case 1.

[2] Economic analysis with combination of lowered gold price, lower gold recovery, increased capital, and higher operating costs.

Further analysis of the economics, metallurgy, and possible costs are warranted.

ADDITIONAL EXPLORATION POTENTIAL

Potential for discovery of significant new reserves in the immediate prospect area is very limited. Six areas adjacent to the proposed pit are discussed below:

1) The best possibility for adding mineable reserves appears to lie between the Charlotte Shaft and the proposed open pit. Drill data in the area are incomplete and sketchy, particularly regarding the precise location of the up-dip termination of ore grade in the main vein system. As currently envisioned the area of a West Pit Extension has limited tonnage at moderate grade with a high waste:ore ratio of 9.33:1. A limited drilling program to better define the ore zone in this area could raise tonnage and grade enough to warrant extension of an existing operation.

Table 9 shows the measured resources in a west extension as known at this time for a pushback to Section 450SW. It is possible that additional ore could be developed to improve the grade and lower the stripping ratio. The area should be drilled only it a mine is going to be developed on the Measured Mineable Reserve.

2) Down-dip extensions of the main vein zone do not look promising because of depth, overburden and the narrow character of the zone in deeper drill intercepts.

3) Veins are known to the east of the present pit from small prospect pits and Copper Lake drilling. These veins are on the same trend as the main vein zone but are not connected. All available data suggest that these veins are low in grade, narrow and erratic and offer no substantial tonnage potential.

4) Several small stockpiles and dumped truckloads of ore are present east and northeast of the open pit. Limited evaluation by Bondurant (1988) suggest that 5,000 tons at 0.085 opt gold may be available from these stockpiles. Further sampling is warranted if an operation is developed.

5) The Tar Baby Vein is located north of the present pit and offers some potential for additional shallow ore. The vein is similar in mineralogy to the main vein zone and is gold bearing. The vein dips into the proper metamorphic zoning pattern, but is small and topographically poorly positioned to gain any large tonnage of low stripping ore. The vein should be sampled and drill tested if an operation is started.

TABLE 9
CLEMENTINE PROJECT
MARICOPA COUNTY, ARIZONA
POTENTIAL MINEABLE RESOURCE - WEST PIT EXTENSION
Cutoff Grade = 0.02 opt
Slope = 50

All numbers are incremental increase for the section over the resource shown on Table 2.

SECTION	TONS @ .02-.07 OPT	GRADE OPT	TONS @ >.07 OPT	GRADE OPT	TONS ORE	TONS WASTE
150SW	5700	0.066	1700	0.095	7400	11900
200SW	14600 2100	0.037 0.054	5300	0.113	19900 2100	29200
250SW	-	-	9600	0.095	9600	100000
300SW	-	-	3300	0.181	3300	118700
350SW	-	-	-	-	0	95000
400SW	-	-	-	-	0	40000
TOTALS	22400	0.046	19900	0.114	42300	394800

TOTAL MINEABLE @0.20 OPT CUTOFF = 42,300 TONS @ 0.078 OPT

WASTE/ORE RATIO = 9.333

OUNCES OF CONTAINED GOLD = 3300

6) The Charlotte Vein offers no shallow potential based on underground sampling by Robyn (1988) and the current drilling program. The zone is too narrow to provide sufficient tonnage to impact the property.

Since my work has been restricted to the Charlotte #2 claim, I cannot comment on the potential of the remainder to the property. Additional mapping and sampling will be required to make such an assessment. Emphasis should be placed on vein systems which could intersect metasedimentary rocks within the proper metamorphic zone.

No further exploration of the property is recommended. If a mine is built, based on present reserves, additional mapping, sampling and possibly drilling are warranted west of the open pit and along the Tar Baby Vein. This work could be carried out by the mine staff.

RECOMMENDATIONS

If Midland Mining wishes to pursue the Clementine Project, the following steps should be taken to increase 1) the confidence level in economic parameters and 2) the confidence in an overall gold recovery of 70% or greater:

- The royalty is too high for a project of this size. It should be renegotiated as a Net Profits Royalty or lowered to the range of 3-5% Net Smelter Return.
- Bulk metallurgical tests on large samples (1 ton or greater) should be conducted to assure that gold recovery will reach acceptable levels in a production mode.
- Contractors should be asked to submit quotes for mining and crushing operations. Local labor rates should be determined.
- Capital equipment should be researched and priced.
- The permitting and reclamation requirements for the state of Arizona and USBLM should be researched so that time requirements and costs can be accurately assessed.
- The entire data base should be reviewed by competent engineers and metallurgists looking for potential "fatal flaws" in the data package that would preclude successful mine development.

Each of these recommendations is relatively low cost and will greatly decrease the level of risk associated with the project. If each of these recommendations yields positive information, an economic operation will result.

CONSULTANTS STATEMENT AND QUALIFICATIONS

I, Kenneth L. Howard, Jr., am an Independent Consulting Geologist. I hold a Bachelor of Science Degree in Earth Sciences from Massachusetts Institute of Technology and a Doctorate in Geology from the University of California, Berkeley. I have 20 years experience in the mining industry as a geologist in mine operations, exploration, exploration management and consulting.

I have no beneficial interest in Midland Mining, N.L. either as an employee, shareholder or officer. I have no beneficial interest in the Clementine Property through either Midland or any of the property owners of lessees.

To the best of my knowledge, all factual data used in preparation of this report are true and correct. Data provided by the property owners and other sources has been used where deemed accurate, but its validity cannot be guaranteed. Interpretations of the data and recommendations are subject to review and alteration as new data become available from continuing work on the property.

Dr. Kenneth L. Howard, Jr.
Consulting Geologist
August 12, 1990

APPENDIX 4
MIDLAND DRILL HOLE ASSAY AVERAGES
CLEMENTINE PROJECT, MARICOPA CO., AZ

HOLE NO.	INTERVAL	FOOTAGE	GRADE	BEST INT. >.04 OPT
MM-1	0-10	10	0.0025	
	10-45	35	<0.001	
	45-55	10	0.0050	
	55-85	30	<0.001	
	85-90	5	0.0040	
	90-120	30	<0.001	
MM-2	0-10	10	0.0250	
	10-15	5	0.0140	
	15-25	10	0.0055	
	25-30	5	0.0150	
	30-50	20	0.0055	
	50-70	20	0.0010	
	70-75	5	0.0060	
	75-125	50	0.0010	
	125-160	35	0.0030	
MM-3	0-20	20	0.0150	
	20-55	35	0.0060	
	55-95	40	0.0149	
	95-160	65	0.0041	
	160-170	10	0.0090	
MM-4	0-20	20	0.0197	
	20-30	10	0.0055	
	30-40	10	0.0195	
	40-55	15	0.0090	
	55-65	10	0.0010	
	65-75	10	0.0075	
	75-95	20	0.0133	
	95-120	25	0.0054	
	120-135	15	0.0153	
	135-145	10	<0.001	
	145-160	15	0.0057	
MM-5	0-35	35	0.0020	
	35-50	15	0.0067	
	50-60	10	<0.001	
	60-65	5	0.0440	5' @ 0.044 opt
	65-90	25	0.0040	
	90-100	10	<0.001	
	100-110	10	0.0050	
	110-150	40	0.0010	
	150-180	30	<0.001	
MM-6	0-10	10	0.0150	
	10-20	10	0.0825	
	20-35	15	0.0437	35' @ 0.083 opt
	35-45	10	0.1440	
	45-50	5	0.0100	
	50-65	15	0.0033	
	65-80	15	<0.001	

BULK ASSAY REPORT

TRIAD MINERALS CO.
ASSAYING & CONSULTING
P.O. Box 2754 - Mile Post 115, Hwy. 89
Wickenburg, Arizona 85358
602-684-3816

DATE 6-27-90

COMPANY MIDLAND MINING N.L. LAB #062690-4

RVC DRILL CUTTINGS

Sample Description	Ounces per ton AU (gold)	Ounces per ton AG (silver)	Remarks
MM1 0-5	.003		
" 5-10	.002		
" 10-15	.001		
" 15-20	.001		
" 20-25	.001		
" 25-30	.001		
" 30-35	-.001		
" 35-40	-.001		
" 40-45	-.001		
" 45-50	.005		
" 50-55	.005		
" 55-60	-.001		
" 60-65	-.001		
" 65-70	-.001		
" 70-75	-.001		
" 75-80	-.001		
" 80-85	-.001		
" 85-90	.004		
" 90-95	-.001		
" 95-100	-.001		
" 100-105	.002		
" 105-110	-.001		
" 110-115	-.001		
" 115-120	-.001		

Certified Assays When Signed And Dated
6-27-90 DATE SIGNATURE

(-) IS TO BE READ LESS THAN .001

DRILL HOLE ASSAY AVERAGES: Page 2

HOLE NO.	INTERVAL	FOOTAGE	GRADE	BEST INT. >.04 OPT
MM-7	0-10	10	0.0450	10' @ 0.045 opt
	10-15	5	0.0160	
	15-65	50	<0.001	
	65-105	40	0.0026	
	105-115	10	0.0010	
	115-120	5	0.0050	
MM-8	0-5	5	0.1580	35' @ 0.054 opt
	5-35	30	0.0368	
	35-55	20	0.0100	
	55-70	15	0.0030	
	70-85	15	<0.001	
	85-95	10	0.0055	
	95-100	5	<0.001	
MM-9	0-5	5	0.0180	
	5-15	10	0.0760	30' @ 0.076 opt
	15-20	5	0.2100	
	20-35	15	0.0310	
	35-50	15	0.0033	
	50-75	25	<0.001	
	75-85	10	0.0045	
	85-100	15	<0.001	
MM-10	0-5	5	<0.001	
	5-20	15	0.0067	
	20-40	20	0.0215	
	40-55	15	0.7510	60' @ 0.219 opt
	55-80	25	0.0590	
	80-90	10	0.0130	
	90-100	10	0.0050	
MM-11	0-10	10	0.0140	
	10-75	65	0.0029	
	75-85	10	0.0275	
	85-105	20	0.0025	
	105-120	15	0.0140	
	120-150	30	0.0025	
MM-12	0-20	20	0.0250	
	20-25	5	0.1170	
	25-45	20	0.0297	35' @ 0.056 opt
	45-55	10	0.1360	
	55-80	25	0.0058	
MM-13	0-20	20	0.0215	
	20-25	5	0.0990	5' @ 0.099 opt
	25-35	10	0.0085	
	35-50	15	0.0315	
	50-60	10	0.0105	
	60-70	10	0.0050	
	70-90	20	<0.001	
	90-100	10	0.0070	

DRILL HOLE ASSAY AVERAGES: Page 3

HOLE NO.	INTERVAL	FOOTAGE	GRADE	BEST INT. >.04 OPT
MM-14	0-45	45	0.0010	
	45-60	15	0.0057	
	60-70	10	0.0560	10' @ 0.056 opt
	70-75	5	0.0150	
	75-85	10	0.0055	
	85-110	25	0.0011	
	110-130	20	0.0050	
	130-150	20	0.0015	
MM-15	0-50	50	0.0016	
	50-60	10	0.0065	
	60-70	10	0.0125	
	70-75	5	0.0600	5' @ 0.06 opt
	75-95	20	0.0157	
	95-140	45	0.0047	
	140-145	5	0.0110	
	145-155	10	<0.001	
	155-160	5	0.0260	
	160-190	30	0.0010	
	190-200	10	0.0020	
	200-210	10	0.0080	
	210-220	10	0.0030	
	220-240	20	<0.001	
MM-16	0-60	60	0.0033	
	60-65	5	N.S.	
	65-90	25	0.0038	
	90-95	5	0.0120	
	95-150	55	0.0052	
MM-17	0-65	65	0.0018	
	65-70	5	0.0100	
	70-95	25	0.0020	
	95-105	10	0.0060	
	105-115	10	0.0010	
	115-120	5	0.0610	5' @ 0.061 opt
	120-140	20	0.0018	
MM-18	0-50	50	0.0037	
	50-75	25	<0.001	
	75-90	15	0.0030	
	90-100	10	<0.001	
	100-115	15	0.0030	
	115-120	5	0.0310	
MM-19	0-30	30	0.0067	
	30-35	5		
	35-50	15	0.0117	
	50-55	5	0.0050	
	55-70	15	0.0193	
	70-125	55	0.0067	
	125-140	15	0.0020	
	140-150	10	<0.001	

APPENDIX 3

Clementine Project
Maricopa County, Arizona

CROSS SECTIONS
PRELIMINARY PIT LIMIT OUTLINES

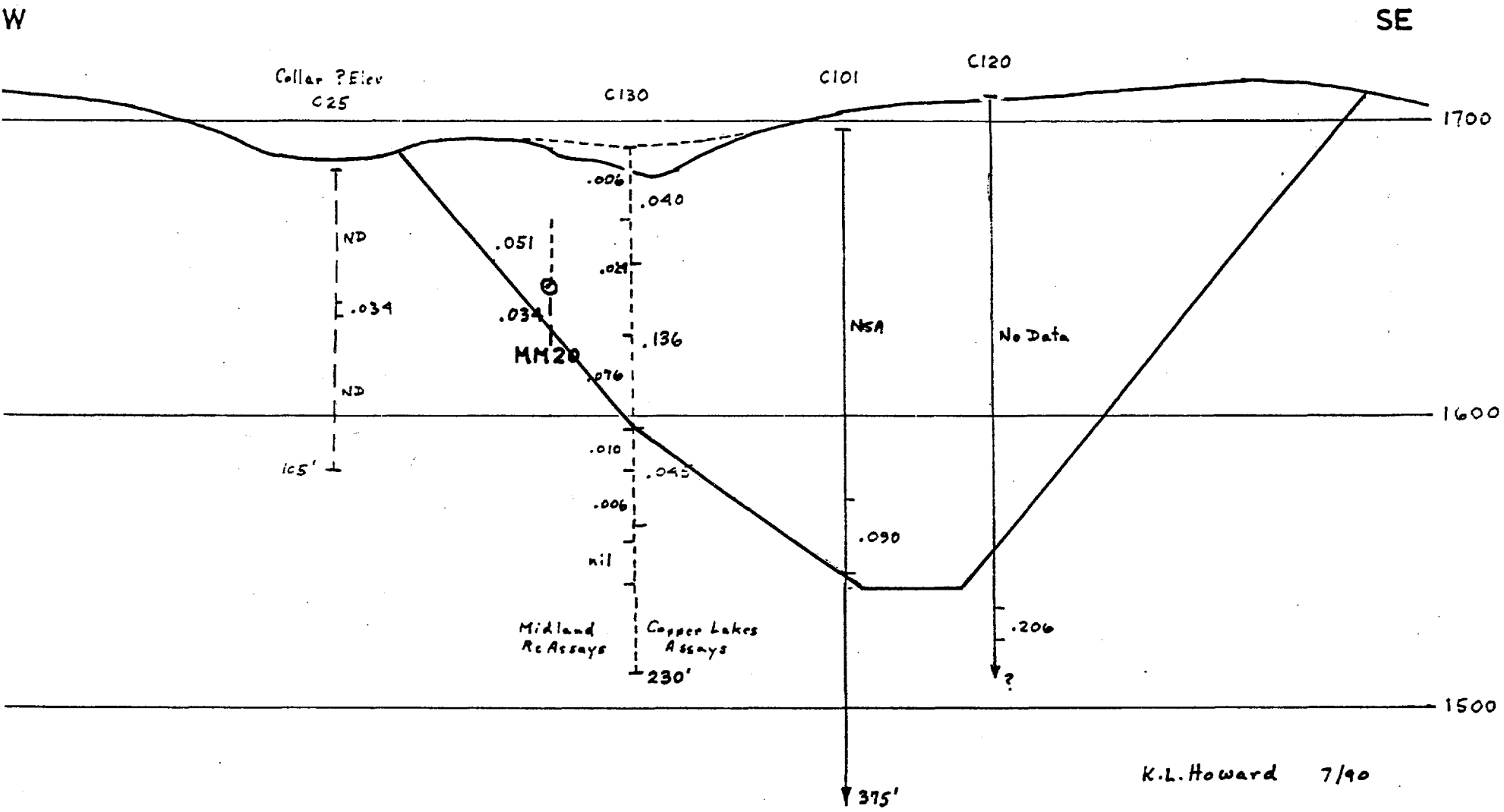
Explanation:

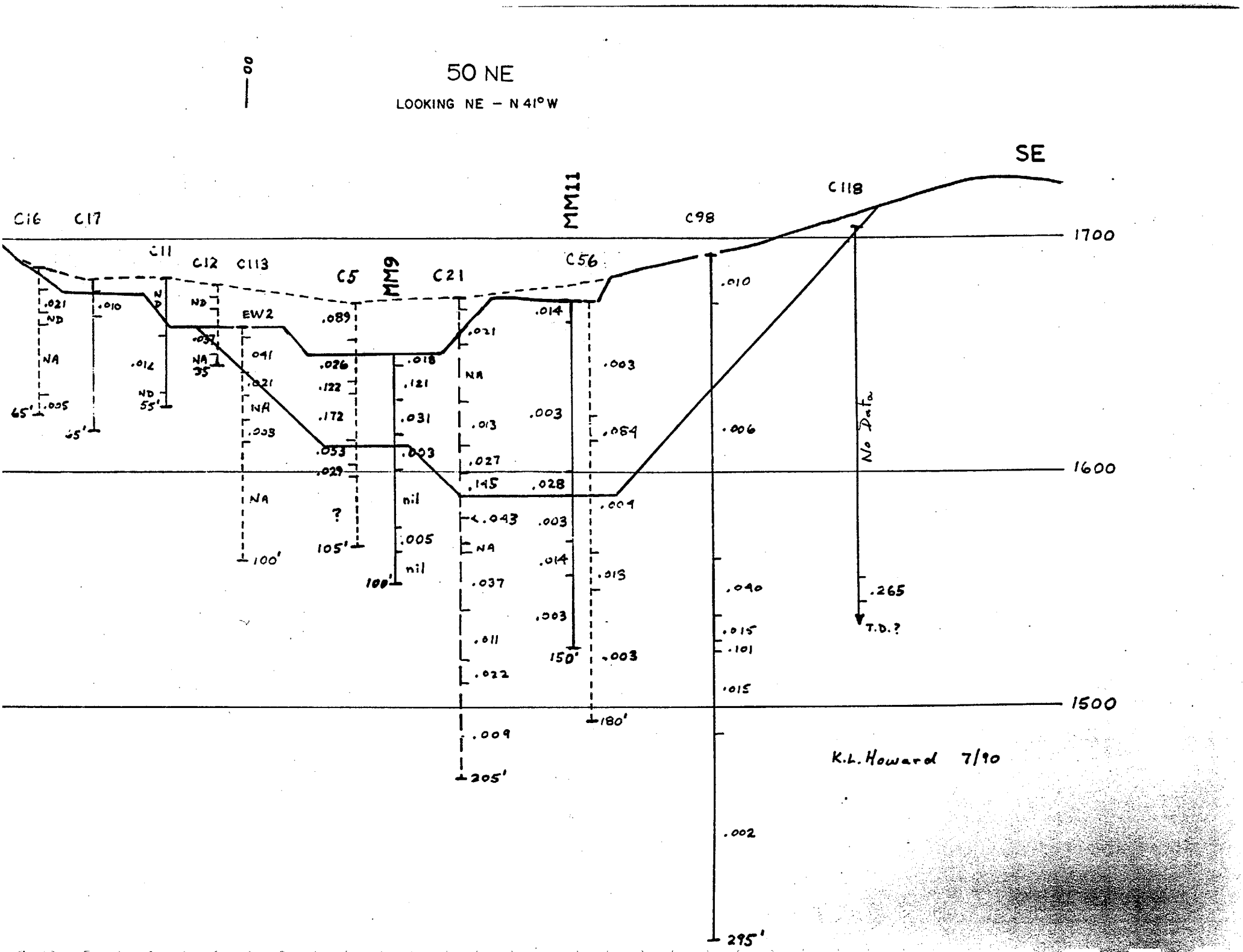
- 14 Sections included: 450SW through 200NE inclusive
- Scale: 1" = 50'
- Grades posted in ounces per ton
- Solid pit outlines correspond to Preliminary Pit Plan discussed and shown in Plan View in text.
- Dashed pit outlines correspond to Possible West Extension discussed in text.

100

100 SW

LOOKING NE – N 41° W




50 NE
LOOKING NE – N 41° W
SE
C16
C17
C11
C12
C113
C5
MM9
C21
C56
MM11
C98
C118
1700
1600
1500
.021
ND
NA
.005
65'
.010
65'
.012
ND
55'
ND
ND
.037
NA
35'
EW2
.041
.021
NA
.008
100'
.089
.026
.122
.172
.053
.029
?
105'
.018
.121
.031
.003
nil
.005
nil
100'
.021
NA
.013
.027
.145
<.043
NA
.037
.011
.022
.009
205'
.014
.003
.028
.003
.014
.003
150'
.010
.006
.040
.015
.101
.015
.002
295'
.003
.084
.004
.015
.003
180'
No Data
.265
T.D.?
K.L. Howard 7/90

SAMPLE DESCRIPTIONS
LEACH PAD SAMPLES
CLEMENTINE MINE

Two trenches were cut into the leach pad, one on the southern corner and one on the northern corner. Channel samples were cut vertically down the trenches, and approximately three buckets of 25 pounds of sample collected for assay.

The trenches reveal that abundant amounts of waste in the form of unmineralized gneiss are mixed with vein material.

The sample from each bucket was crushed, mixed and homogenized, then split for assay. Assay was by 1AT fire-assay method at Jacobs Assay Office, Tucson.

Sample CLLP-1 was taken from the southern corner, CLLP-2 from the northern corner.

The results are:

Sample #	Gold, oz/ton	Silver, oz/ton
CLLP-1/1	trace	0.25
/2	trace	0.30
/3	0.011	0.25
CLLP-2/1	0.008	0.20
/2	0.005	0.25
/3	0.005	0.15

These results show that because of the mixing of waste with ore, the grade of the material on the leach pad is too low to process.

Note that metallurgical test data obtained prior to construction of the leach pad showed that the Clementine ore is not amenable to treatment by heap leaching method. The ore must be milled to at least -65 mesh to obtain reasonable recoveries, and the grade of material on the pad is too low for milling.

HOWARD MINING & EXPLORATION CO.
Duffy Lane
..., Colorado 80116
lephone (303) 688-9623

November 14, 1989

Mr. Tom Robyn
Larkspur Holdings, Inc.
6934 S. Garfield Way
Littleton, CO 80122

Dear Tom:

Enclosed please find copies of field notes, location map and summary table of results from our recent sampling of the Clementine placer prospect, Maricopa County, Arizona.

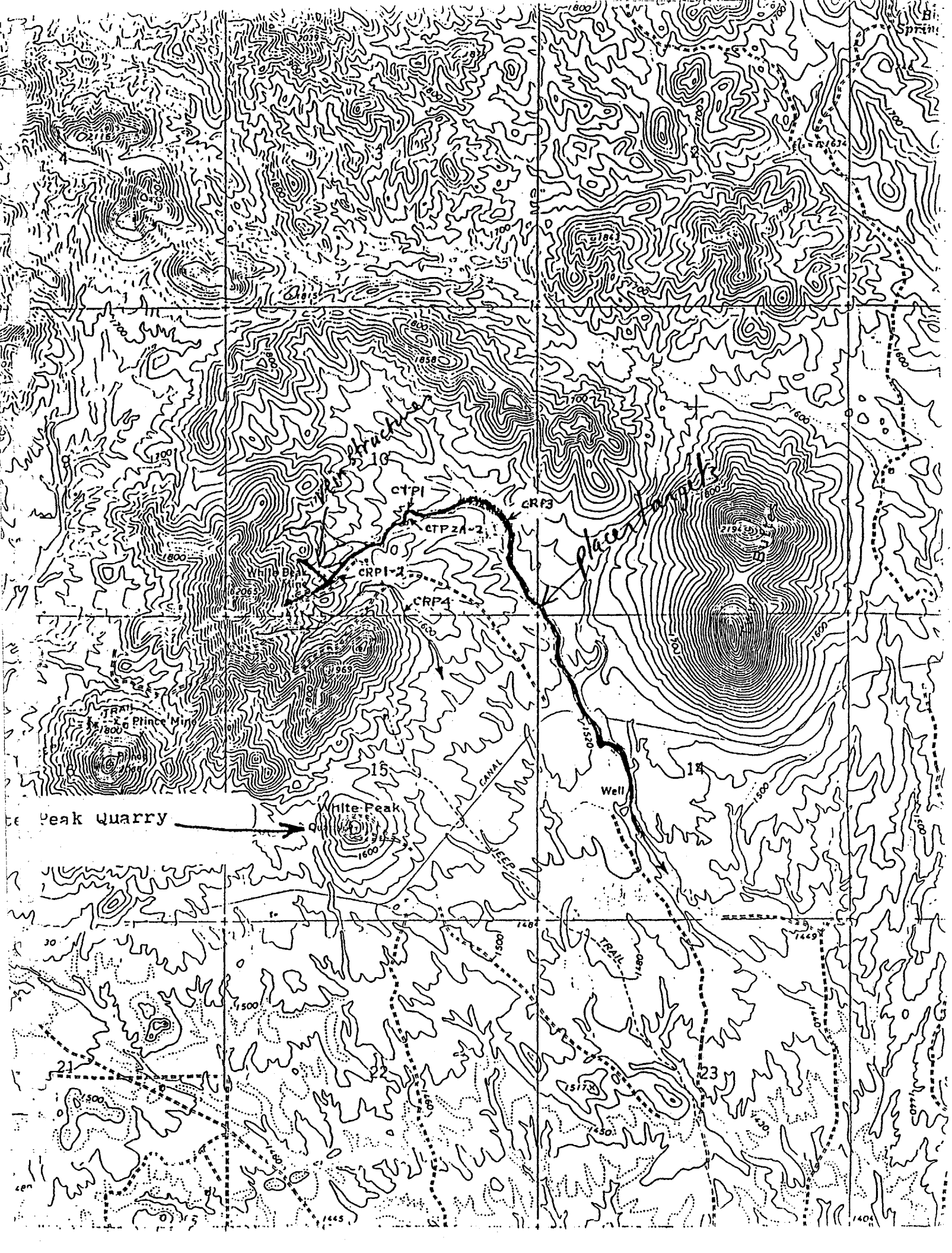
As you know, the results were very negative and HM&ECo has no further interest in the property. We appreciate your calling the property to our attention. It is too bad that the grades were not close to economic levels.

Sincerely,

Ken

encs.

Kenneth L. Howard, Jr.
President


CTP1
CRP3
CTP2A-2
CRP1-2
CRP4
White Peak Mine
Prince Mine
White Peak Quarry
Well
CANAL
TRAIL
Placer Tunnels

CLEMENTINE

11/9/89

CTP 1 — 2'5" old terrace on fractured volcanic bedrock ①

			bucket wt	
wt > 1/4"	+1/4"	3780	-1600 grams =	3170
wt < 1/4"		4080	-	3390
		3920		3500
				3020

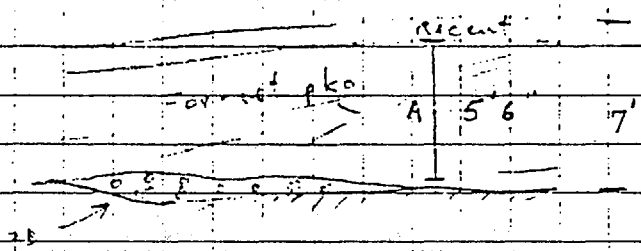
24880 - 1120 = 23.76 kg

maximum cobble in 2' - column consist of loose thin layer of < 4" of surface veneer - 9% < 1/4" diminishes with depth from 35-15% of sample

%-1/4" = 26.4%

-1/4"	3920	2830 - 320 =	8.51 kg
	4910		

CTP 2A



+1/4"	3640	13.770 kg	②
	3380		
	1560		
	4190		
	1000		
-1/4"	3800	10.590 kg	
	3490	-.48	③
	3350	10.11 kg	

2A - clay rich - Vast population of fine fraction - 100% - 4"

%-1/4" = 43.5%

2B — Channel 4-6" cobbles - max thickness 18"

3 cut composite along 7' of channel exposure

+1/4"	5520	3540	
	3820		
	4220		
	3080	2016	
-1/4"	2640		
	2320		

4960 - 320 = 4640

2688

%-1/4" = 26.6%

7.30 kg

CTP1 pans very clean - magnetite dominant heavy ~25 grams - minor epidote - subsidiary amphibole - no gold

no clay problem - magnetite 20-100 mesh

CTP2A pans very clean - epidote + amphibole dominant ~15 grams + 2 grams magnetite finer grained than CTP1 no gold

CTP2B pans very clean - amphibole + magnetite 15 grams - trace epidote - no gold

CRP1 Recent wash over older channel gravel 1" thickness - 12' width

older gravel

+¼			-¼" = 5620	1-8" cobbles
	2100	3600		
	3320	5000		
	4680	2920	3250	
	1680	5000		
	3620		687kg	
	1700	38.260 kg	1.32	
	2380	1.32	6.55 kg	
	2260	36.94 kg	semi-consolidated	

older channel doesn't show any q-c - pit vein fragments

% -¼" = 15.3%

10-12 grams mag + cp
2 grams - 200 m Au

CRP2 12" recent wash w/ ab. vein frags - loose - 4" cobbles

+¼			-¼"	4250	
	1960			1540	10-12 grams mag + amphibole
	3030			2260	pans well - NO GOLD
	3700	1/2		8.05	
	1900	11c		.48	
	1980			7.53kg	
	5220				
	2820				
	24.110 kg		% -¼" =	24.6%	
	1.12				
	23.00 kg				

CRP3 - Recent stream channel above "S" bend ~100 meters

+1/4" 4380 | -1/4 4100 - 160 = 3.940 kg
2520
4820
2460
2180

16360 - 800 = 15.56 kg

abundant hematite ~30 grams
mag = ep = amphiboles
some +1/8" magnetite

~8 colors @ -250 mesh

CRP4 Pothole on south stream - andesite

+1/4" 4690 | -1/4 4230
3250 | 4600
3240 | 8.63 - .32 = 8.31 kg

11.18 - .48
10.7 kg

EAST WEST MINERALS, INC.
Head office: 3 Harbor Drive • Suite 103
Sausalito, California 94965
Telephone: (415) 331-8880 • Fax: (415) 331-5937

PPL notes on problems ↓

1. mill tailing pond not emptied as agreed upon.
2. Hardinge outflow pumps packing failed
3. generator failed due to a loose connector shorting out.
4. Fittings leaked so badly, pipe joints had to be welded
5. Scraper on vac. filter froze + tore filter bag, sending cons to the pond. John did not catch this, Robynd
6. Carbon filters on gold recovery system silted up immediately, due to turbid pregnant liquor, and could not be used. Resorted to modified CIL system in ag tanks. Lost time + gold.
7. no assay lab on site.

April 5, 1989

Mr. John Rud
Morgan Millsites
8010 East Morgan Trail
Suite 8
Scottsdale, Arizona 85258

Dear Mr. Rud:

East West Minerals Inc. experience with our bulk sampling run at the Redtail Mill was painful and costly. The trouble we encountered in our mill run should not have occurred, and we consider that the mill's ability to perform as well as its readiness to perform were misrepresented to us.

The mill tailings pond was not emptied as agreed upon. The pump after the Hardinge mill became so leaky that the packing had to be replaced in the middle of our run. The generator failed because a cable came loose and burned out the connectors, causing a shutdown of about 16 hours. Fittings in the mill leaked so badly that our consulting metallurgist had to insist that the pipes be welded. These are things that would have been avoided if the mill had been prepared properly to our run.

One of the scrapers on the vacuum filter was frozen, and tore holes in the filter bags. This led to our concentrate being pumped directly to the tailings pond. The mill crew, as well as yourself, claimed that the muddy discharge water from the filter system was the result of silt being sucked from the pond because it was so full. Our consulting processing engineer immediately recognized that the muddy discharge was caused by the torn filters. As a result of you and your crew being unable to recognize the actual problem, a significant amount of gold we had recovered ended up being pumped into the tailings pond.

The carbon filters on the recovery system silted up immediately. You had claimed that the recovery system had performed well, but it turned out that you had fed only jig concentrates to the agitation tanks and not flot concentrates. As a result, your pregnant liquor was not a typical turbid liquor of the type which we tried to circulate through the system. Therefore, we could not utilize the mill's recovery system and had to resort to a modified CIL circuit in the agitation tanks. This caused delays and additional costs, and also cost us some lost gold. How much of a loss we will never know.

Mr. John Rud/Morgan Millsites
April 5, 1989

The mill did not have an assay lab on site. We are not aware of any custom mill which does not provide on-site assaying for their clients.

In short, the mill was misrepresented and not prepared for operation, and has caused us considerable financial loss.

Yours sincerely,

Tony D.S. Wicks

TDSW:cms

THOMAS L. ROBYN, PH.D.
6934 South Garfield Way Littleton, CO 80122
303/694-9359

Hale Tognoni
Great American Tower, Suite 670
3200 N. Central Avenue
Phoenix, AZ 85012

July 22, 1987

Dear Mr. Tognoni:

Enclosed is a copy of a report that I sent to East West Minerals, Inc. on the Clementine property. I am looking forward to working on the property again, if the situation arises.

I have not talked with anyone in the last few days about the property, so I don't know if negotiations are continuing. As I mentioned in my report, there is a reasonable possibility that the vein continues to the southwest, and additional drilling should be done along its strike.

I enjoyed meeting you and discussing various aspects of mining and exploration. Thank you again for the pleasant lunch, and I look forward to meeting you again.

Sincerely,

Tom Robyn

Thomas L. Robyn

Enclosure

PROPERTY: Clementine Mine, AZ

LOCATION. Thirty miles NW of Phoenix, in the Pikes Peak mining district. Sections 9, 10, 14, 15 and 16, T.5N., R.1W., Gila & Salt River Basin Meridian, Maricopa County, AZ. 23 unpatented placer claims, 86 unpatented lode claims, 1 mill site.

DATA UPDATE. July 8, 1987, by T. L. Robyn.

OWNER. Robert Hicks, 602/948-7823 (home); his attorney is Hale Tognoni, 602/263-0771, Great American Tower, 3200 N. Central Avenue, Suite 670, Phoenix, AZ, 85012.

CONTACTS. Irwin Singer, 416/489-7157 (office) or 416/364-9126 (home). Tom Sills, consulting geologist, 416/831-8201.

BEDROCK POTENTIAL: Exploration to date on the property includes drilling of 172 rotary drill holes, mainly on the Charlotte #2 claim, but also on the Charlotte #'s 1 & 3. Significant intercepts of gold mineralization were made in 50 of these holes, in true thicknesses of 10-80'(20-35' being most common). As a result of this drilling, a small open pit was developed and ore placed on an asphalt-based leach pad.

Two studies of reserves have been done on the property. The first, done in May, 1981 by Brian Bond, Consulting Geological Engineer, reports proven gold reserves of 329,352 tons @ 0.58 opt and probable reserves of 538,627 tons @ 0.06 opt (using a 0.02 opt gold cutoff grade). Possible reserves were estimated at 2,338,008 tons, of which 906,575 tons are at depths of less than 200'. Bond stated that additional mineralization could occur at greater depths.

The second study, done in May, 1982 by David C. Beling, Mining Consultant, utilized a cutoff grade of 0.04 opt gold and determined "total measured and indicated reserves have been estimated at 341,000 tons averaging 0.098 oz Au/ton", which required a stripping ratio of 8.5 tons of waste per ton of ore. A second, selective pit plan was designed by Beling to reduce the stripping ratio and improve the grade. This resulted in an estimated 195,000 tons @ 0.117 opt gold; assuming a nominal 10% mine dilution, mine output would be 217,000 tons averaging 0.105 opt gold at an adjusted strip ratio of 6.0/1.

On June 25 and 26, 1987, Thomas L. Robyn, Consulting Geologist, visited the property and evaluated earlier reports as well as the mine site. Sections drawn by Robyn across the ore zone and along its length show that the quartz-carbonate vein hosting the ore dips to the SE and strikes NE. Some flexure and raking of the vein is observed, but its extensions appear to be predictable. Previous drilling was concentrated on following the vein's strike extension to the NE, while its SW extension was not drilled. Robyn's compilation of previous work, however, shows that drilling along the SW strike extension was terminated even though the southwestern-most holes were still in high-grade ore.

Robyn concluded that reasonable proven reserves are: 1) 200,000 tons @ 0.1 opt gold, using a 0.04 opt cutoff; or, 2) 400,000-500,000 tons @ 0.055 opt gold, using a 0.02 opt cutoff for stripping ratios of about 6/1. These reserves could possibly be doubled if the vein is mineralized along its SW extension where it is shallow enough to be mined by open-pit methods. This interpretation requires that the vein is not faulted off along its SW extension.

METALLURGY: During April, 1981, Mountain States Research and Development conducted leaching tests on Clementine ore. The tests showed gold recovery to be a function of feed size. Gold recovery ranged from 17.5% on 6 inch run-of-mine ore to 47.7% on -1/4 inch crushed ore.

Subsequent testing was done by Mountain States utilizing fine-grind, agitation leach. Again, recovery increased as feed size decreased. Gold recovery in this test ranged from 56% for -10 mesh feed, to 83.5% for -65 mesh feed, and finally to 93% for -100 mesh feed.

These tests show that treatment of Clementine ore will require processing either by agglomeration heap-leach or agitation-leach methods.

Bateman in Reno is performing bottle-roll tests on four 1500-pound samples of ore collected by Tom Sills during mid-June.

SITUATION: The previous leaseholder began operations at Clementine by developing a small open pit and stacking 84,000 tons of ore on an asphalt-based pad for treatment by Merrill-Crowe extraction. Despite the results of Mountain States' work, which showed that recovery was very low for feed size of greater than 1/4 inch material, run-of-the-mine ore was stacked on the pad. Some of the fragments are as large as 2'x3' in size. Recovery was reported to be less than 20%, which should have been anticipated.

As a result, included with the property is a developed heap-leach operation. The leach pad, pregnant pond and overflow ponds are in place. A mine operations building and a Merrill-Crowe plant are on site. The completeness of the M-C plant and its operational condition should be evaluated by an engineer. The site is fenced, and piping is in place. Additionally, another 30,000-40,000 tons of ore are broken and/or stacked ready for movement to the pad.

However, the ore already placed on the pad would have to be removed, crushed, ground, agglomerated and replaced on the pad; or, alternatively, the ground ore could be fed to an agitation leach system.

CONDITIONS.

- $32,000 up front.
- 30 days for a title search.
- $75,000 work committent for calendar 1987.

- Starting 1988, $7,000/month advance royalty.
- From 1988 on, $150,000/year work committment, or pay $150,000.
- On production, one-half of royalty held back until all costs of development are recovered.
- Royalty as follows:
  * for <0.04 opt Au, 1.8%
  * .04-.05 opt, 2.6%
  * .05-.06 opt, 3.6%
  * .06-.08 opt, 5%
  * .08-.10 opt, 6% (this is the expected grade)
  * .1-.12 opt, 7%
  * .12-.15 opt, 8%
  * .15-.20 opt, 10%
  * .20-.25 opt, 15%
- Right-to Purchase; all monies deductible. $4 million at end of 1988, increasing by $500,000/year thereafter.

STATUS. Under option to Singer; Singer will JV with East West.

RECOMMENDATION. Data available indicate the Clementine property is an attractive acquisition target. However, the deposit is probably not economical unless additional drilling extends the known ore zone, or unless the known amount of reserves can be processed economically with agglomeration heap-leach methods.

An option should be obtained on the property which would allow East West to compile existing data, log and assay drill cuttings from holes for which data are lacking, establish a computerized data base, and conduct a drilling program to test possible ore extensions to the SW.

The following program and budget are recommended:

- Computerization of existing data:	$ 1,200	
- Logging of existing cuttings:	1,850	
- Assay of cuttings:	1,500	
- Review of existing data	750	
- Permitting for drilling	500	
- Mobilization/demobilization	2,000	
- Drilling:		
for reverse circulation:		
8 holes totalling 1800; @ $10/ft.	18,000	
(or, if reverse-circ rig not avail.		
core drilling @ $26/ft.		46,800
drill bits	2,000	
- Geologic supervision:		
Geologist, $150/day for 90 days:	13,500	
Expenses; motel, meals, car:	6,600	
Air travel:	250	
- Headquarters oversight:	5,000	
SUBTOTAL	$53,150,	or $81,950

Such a program will test the extension of the vein to the SW. If unsuccessful, no further expenditure is required. If successful, additional drilling would be necessary to define reserves. Fill-in drilling would probably be:

- Reserve-definition drilling:		
40 holes totalling 8,000' @ $10/ft. (if done by reverse circulation)	$ 80,000	
or,		
40 holes @ $26/ft. (if done by core drilling)		208,000
drill bits	10,000	
- Geologic supervision:		
Geologist, $150/day for 120 days:	18,000	
Expenses: car, meals, motel	8,800	
Air fare	750	
- HQ oversight	10,000	
- Assays	3,500	
- Data processing	2,500	
SUBTOTAL	$133,550	or, $261,550

Therefore, the total range of costs to define additional reserves will be between $186,700 and $343,500 depending on the types of drill rigs available at the time. It should be noted that as of June 30th, 1987 there were no reverse-circulation rigs available in Arizona. However, two companies will have them available in September. This is a reasonable time frame given the compilation and checking of existing data which should be done prior to a drill program. Additionally, a savings of $156,800 can be realized by using reverse-circulation rigs. Because recovery of cuttings on this property has been marginal (using an airtrac percussion drill with attached cyclone), either reverse-circulation or core drilling is required. Some of the drill holes could have penetrated ore-grade vein rock, but inefficient recovery precludes knowing this. The additional cost of these types of drilling is minimal considering the expenditures that could be made based on poor recovery and, therefore, inadequate information.

Additionally, if the program is unsuccessful, the existing leach facilities could be utilized to recover some of the program's cost. There are about 120,000 tons of material available that would average about 0.055 opt gold. If equipment was rented to process this ore by agglomeration heap-leach (70% recovery), about 4,600 ounces of gold could be recovered. At $400/ounce, this yields a gross revenue of $1,840,000. The net from such an operation could very well cover the program's cost.

CONTRACTORS:

Drilling:

- Connors Drilling, Montrose, CO 303/249-3701, John Godbe
  Has Arizona license for drilling
  Will use a rev. circ. porta-drill with top-head drive
  Mob, $2K; demob, $1K, $10-11/ft.
  NOTE: booked until Sept.

- Drilling Services, AZ, 602/895-9336, Mark Madison

  Mob/demob, $750.00; $10.25 /ft. plus bits (ca. $2K)
  or, $210/hr.
  NOTE: booked until late Sept.

- Joy Drilling, Phoenix, AZ, 602/884-5965
  No rev-circ rigs
  Core drilling; NX @ $22-25/ft., NC @ $25-26/ft.

- Longyear, Phoenix, 602/486-1881, on 99th Ave.
  No rev. circ. rigs
  Core drilling; HQ @ $22-25/ft.
  Associated with Lang Exploratory Drilling, SLC, 801/973-6667, Randy Myers; Lang has reverse circ. rigs.

- Boyles Bros., Phoenix
  No rev. circ. rigs.

Geologists:

- Richard Harrison
  5 yrs as project/mine geologist at St. Cloud mine in NM, owned by Goldfield Corp. Mine is 500 tpd UG, Ag-Au-Cu epithermal veins in Tertiary volcanic rock. Was with mine from exploration through development and production.
  On contract w/ NMBOM until August 30.
  Second-year Ph.D. student. completed course work and now on field work/research.
  Will work for $150/day + expenses, stay with drilling to end of 8 hole program.
- William T. Schuling,

- Bill Josey,
  Worked for 5 years at Stibnite, ID, leach plant as mine manager.

Geologists from Contract Firm:

- North American Exploration, Inc.:

  - Offices in SLC (801/544-3421) or VA (804/9734328)
    Geologists for $100/day.

Data Processing:

- Tentime, Denver, 303/837-0181, Dave Mundorf
  data entry @ $40/hr; estimated 6 hours to enter Clementine

data.
if client enters data, charge @ $10/hr + 6.94 cents/CPU-sec.

10989 East Duffy Lane
Franktown, CO 80116
(303) 688-9623
July 9, 1990

Mr. J. Robert Hicks
Clementine Mine Grubstake
6441 E. McDonald
Scottsdale, Arizona 85253

Dear Mr. Hicks:

This letter is to notify you that the drill testing program and drill site reclamation have been completed.

A total of 20 RVC holes were completed from 13 existing site locations. The holes were refilled with the cuttings and excess cuttings were spread. Each of the sites is marked with a 1"x2" orange stake for identification from the numerous drill holes and cuttings piles from previous operators. A map of the final site locations is attached. A list of the individual holes and their final depths is also attached.

No water was encountered in any of the drill holes to a maximum depth of 240 feet. The Arizona Department of Water Resources should be notified of these results on the appropriate forms. If you have any problems or questions about completion of the DWR reports, please contact me and I will try to assist you.

I have also enclosed a copy of notification to the BLM that the program has been completed pursuant to the Notice of Intent.

Assay results are coming in on the drilling. I will see that you get copies of the data when the results are complete.

Sincerely,

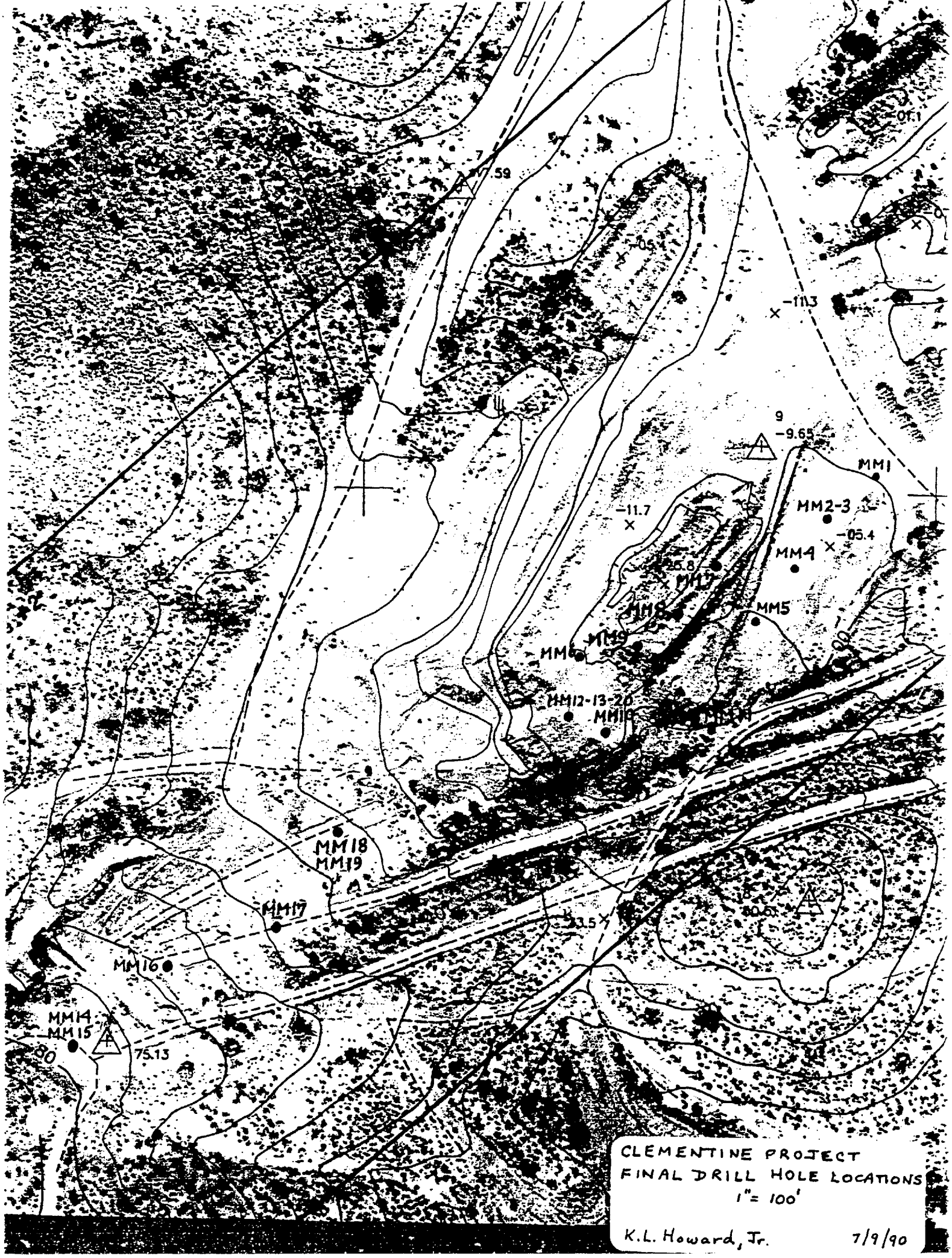
Kenneth L. Howard, Jr.

Kenneth L. Howard, Jr.
Consulting Geologist

xc. M. Elsbach

SUMMARY OF DRILLING PROGRAM
June 21-28, 1990

Hole #	Depth	Angle	Bearing
MM-1	120	-90	-
MM-2	160	-50	N40°W
MM-3	170	-70	N40°W
MM-4	160	-51	N44°W
MM-5	180	-70	N39°W
MM-6	80	-90	-
MM-7	120	-90	-
MM-8	100	-90	-
MM-9	100	-90	-
MM-10	100	-90	-
MM-11	150	-90	-
MM-12	80	-90	-
MM-13	100	-50	N45°W
MM-14	150	-50	N41°W
MM-15	220	-70	N41°W
MM-16	150	-50	N39°W
MM-17	140	-50	N41°W
MM-18	120	-50	N36°W
MM-19	150	-90	-
MM-20	150	-30	S60°W



CLEMENTINE PROJECT
FINAL DRILL HOLE LOCATIONS
1" = 100'

K.L. Howard, Jr. 7/9/90

MYSTIC MINING CO. MARICOPA COUNTY

RRB WR 12/31/82: John Robson of the J. S. Redpath Corporation reported that the American Copper and Nickel Company has a commitment to drill the Mystic property, Maricopa County. They have apparently entered into some sort of limited partnership with Ranchers Exploration and Development Corporation.

NJN WR 3/4/83: Fred M. Johnson, Geologist, P.O. Box 2162, Durango, Colorado, 81301, phone (303) 247-0118, visited. He is currently consulting for Ranchers on their Mystic exploration program. We discussed syngenetic models that might account for the iron-gold association seen in the Precambrian marine volcanic environments.

NJN WR 6/3/83: John T. Ray, Senior Geologist for American Copper and Nickel Company, Inc., 11437 W. 48th Ave., Wheat Ridge, Colorado 80033, phone (303) 425-1230., visited and reported that they have dropped their option with Ranchers Exploration and Mining on the Mystic Mine, Maricopa County. The mineralization though sometimes of high grade, was reported as too inconsistent to warrant development at today's gold prices. The deposit is still open on strike to the northeast and to the southwest.

NJN WR 8/12/83: George Allen with the U.S.G.S. Precious Metal Exploration Group reports the USGS is interested in doing work on tertiary remobilized gold deposits. Of interest to them was the geology of the Mystic Mine area in Maricopa County.

RRB WR 9/2/83: Armand H. Beers, Chief Geologist, Morrison Knudsen Company, Boise, Idaho, called for information on the location and geology of the Mystic Mine, Maricopa County. I sent him excerpts from our file.

KAP WR 2/10/84: Mr. Albert C. Harding's original claims on his Mystic discovery, Mystic Mine, Maricopa County are the Question #1, #2, #4-#7 and the Gunbolt. These claims are located in the W½ Sec. 12 and the E½ Sec 11, T5N R1W.

NJN WR 3/2/84: Rick Renn (c) visited and reported that Goldsil Mining and Milling has picked up the Mystic Mine, Maricopa County, from Ranchers Exploration Inc. They plan to evaluate the available information and then put the property into production. Mr. Renn will be the project geologist.

MYSTIC MINING CO. MARICOPA COUNTY

KAP WR 6/7/84: Rick Renn, Geologist, Goldsil Resources Ltd reported Goldsil has contracted the sinking of an inclined shaft at the Mystic Mine (file) Maricopa County. Work is to start by June 20, 1984. He further reported they are scheduling gold production to begin by the end of 1984. A semi-portable, fully contained vat cyanide leach system is planned to treat the ores.

NJN WR 8/3/84: Rick Renn, Geologist with Goldsil Mining and Milling (c) reported that they have a few small title problems at the Mystic MIne (f) Maricopa County. When these are settled, driving of the decline will begin.

KAP WR 11/30/84: In the company of Nyal Niemuth a visit was made to the Mystic Mine (f) Maricopa County. There was evidence of recent reclaimation of previous sample trenches. New work 100-200 feet east of original shaft collar has been done to excavate an area 50' x 100' of alluvium to hardrock (8'-15' deep), possibly in preparation for collaring a proposed shaft.

KAP WR 12/7/84: Maps of the claims locations for the Mystic MIne (f) and the Bummer Group were obtained for inclusion in the Mystic Mine file. The original claims of the Mystic Mine are the Question No. 1, 2, 4, 5, 6, & 7 and the Gunbolt located by Albert Harding. An additional group of over 100 Bummer claims were located by Coe and Van Loo Engineers around the original seven for protection. The entire group was eventually transferred to Ranchers Gold and Silver, a partnership controlled by Ranchers Exploration and Development.

NJN WR 12/7/84: Rick Renn called and reported he is no longer with Goldsil Mining and Milling. They h ave cut back on their exploration staff and are getting up to put some of their properties into production. The latest news regarding the Mystic (f) is that $8-9 million will be raised in Houston before the end of the year. With these funds development should start in January.

MYSTIC MINING COMPANY

NJN WR 5/16/86: Ernie Black (c), reported that if Pak-Man Resources Industries Ltd. (c) and 2001 Resources Industries Ltd. (c) follow through on their purchase agreement with Albert Harding (c), they will become the outright owners of the Mystic (file) Maricopa County.

RRB WR 8/29/86: Mark Olm of Terra Technologies Corp. P O Box 36561, Tucson, AZ 85740 (602) 297-6358 or (702) 565-3366 reports that Terra has acquired the Mystic property, Maricopa County.

Tucson
296-5940

NJN WR 10/31/86: Mark Olm (c) of Terra Technologies (c) reported that they bought out the Mystic Mine, Maricopa County from Messrs. Al Harding and Pike. They are currently reviewing the data on the property and looking at the surrounding geology. Terra Technologies has not yet received all of the data from Hecla (ie Ranchers' data) nor the core. Those materials are expected to be received in November. After reviewing them with Albert Harding's data, they will probably conduct a drilling program of their own. No production decision will is expected soon, although by the middle of next year they expect their plans for the property to jell.

NJN WR 5/2/87: Mark Olm (card) of Terra Technologies (card) report that they have correlated all of Al Hardin (card) and Ranchers Gold and Silver Exploration Program (file) on the Mystic (file) Maricopa County and are now looking for a joint venture partner. They are especially interested in finding someone to finance the sinking of a shaft to produce a bulk sample from underground. This would be a stage development on the Mystic and would also include some other nearby properties which are geological prospects. Immediate plans at the Mystic will be a trenching program to evaluate the near-surface potential and drilling to test the parallel structure 250' to the south identified by magnetic survey and intersected by one hole of Ranchers. That hole encountered an andesite dike and 1 foot of .1 oz/ton Au.

NJN WR 6/5/87: Mark Olm (card) of Terra Technologies (card) reported that Fischer Watt Mining (card) is going to be their joint venture partner on the Mystic (file) Maricopa County. This will be a 6 month exploration contract. Planned work will consist of magnetic and VLF geophysical surveys of the property to be followed by a trenching and drilling program.

NJN WR 8/14/87: Terra Technologies (card) have run into problems with someone else having their name first and have changed their name to Terra Mines Ltd. Mailing address had changed to P O Box 36561, Tucson, Arizona 85740, while the phone remains the same, 297-6358. They have established a Mystic (file) Maricopa County project office in Peoria, Arizona, phone 582-0212. The address of the core shack office is 8969 NW Grand Avenue, Suite B, Peoria, Arizona. shortly they hope to have the office moved into a nearby house. The phone will remain the same. Terra Mines Ltd's main office address is: P O Box 2466, Henderson, Nevada 89015, 702-565-3366.

MG WR 2/5/88: Mr. Mark Olm of Terra Mines Ltd. reported that a new drilling program was to begin immediately at the Mystic Mine (file) Maricopa County. Apparently 15 holes, totaling 6,000 feet, will be drilled using reverse ciruculation equipment.

NJN WR 2/26/88: Fred Brost (card) reported that Total Erickson Resources is drilling at the Mystic (file) Maricopa County.

NJN WR 5/20/88: Bud Hillemeyer, geologist for Fischer-Watt Gold (card) reported that close-spaced drilling has provided detailed information on the zoning of mineralization at the Mystic Mine (file) Maricopa County. The mineralization occurs between 2 bounding structures which are high-angle faults. Within this zone, horizontal joint sets appear to control the mineralization in an extremely variable fashion. Current work has identified 50,000 tons of 0.5 oz/ton Au. However, this is economically unminable because it occurs in discrete pods. Using knowledge of the horizontal joint sets they will try to identify 30,000 tons that is mineable. If successful, they will then go underground to bulk sample and develop the deposit.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Charlotte Group Date March 1, 1962

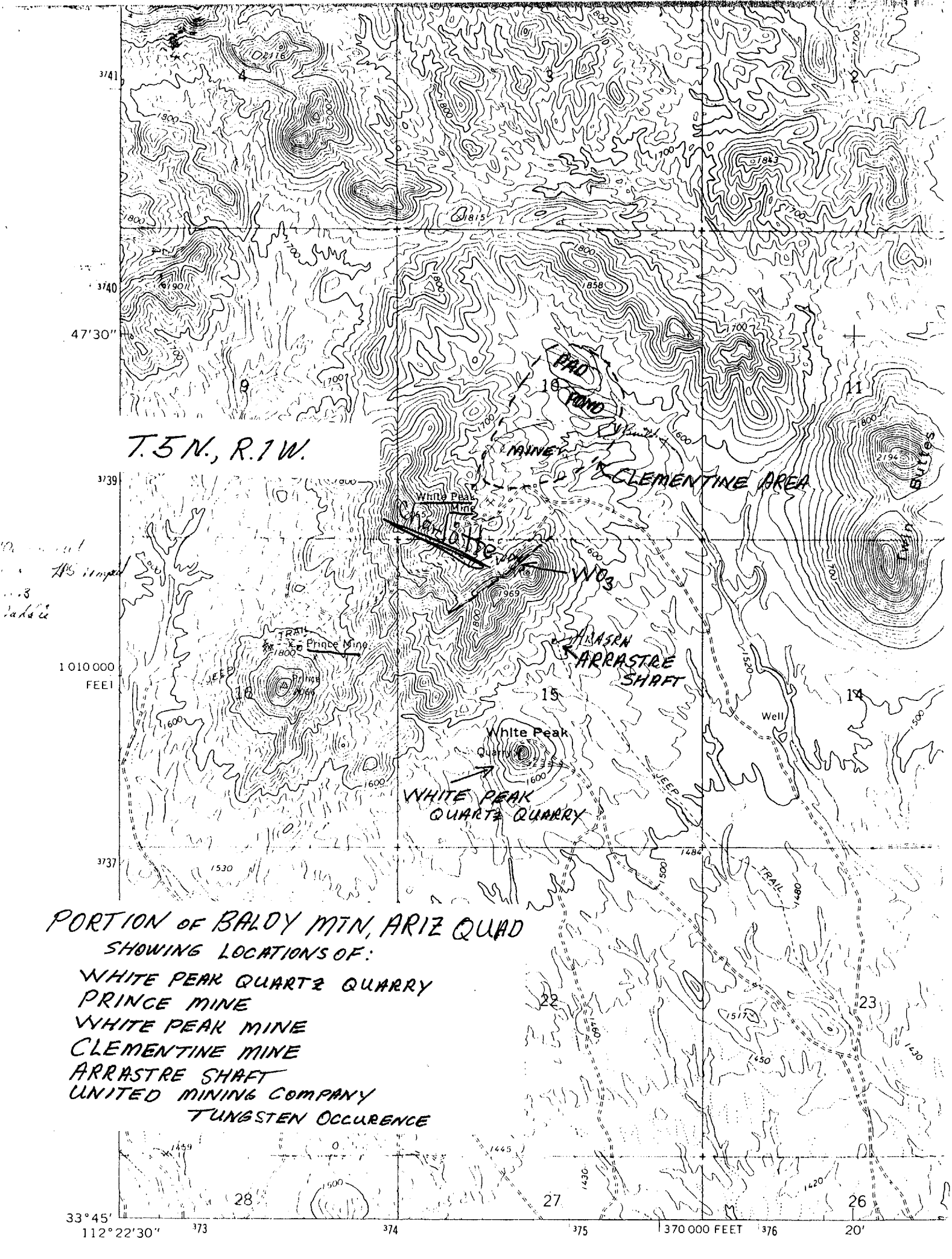
District Pikes Peak District, Maricopa Co. Engineer Lewis A. Smith

Subject: Mine visit with Gerald Weathers, Consulting Geologist.

Since the last visit the bulldozer cut was deepened on the south end to 25 feet and the veins (3 parallel flat ones) have steepened by a considerable amount in dip at the face. The cut is about 170 feet long starting on the NE and extending SE on a course of about N 10 degrees E. The cut is about 10-12 feet wide. The upper vein is about 1 foot thick and runs about $30 in gold. The middle vein is about 4 to 6 inches thick and the lower vein is about 1 foot thick. The upper vein contains quartz, siderite, ankerite, calcite and some manganese and iron oxides. It is vugular, the vugs being lined by small clear quartz crystals, amethystine quartz, and some fluorite. The middle vein is similar to the upper vein. The lower vein is lower grade ($6-8) and contains mostly calcite, some siderite and much more manganese dioxide than the others. The overall width from the footwall of the lower vein to the hangingwall of the upper vein is about 7 feet, which assays $7 gold and $1 silver. The initial dip of the veins is about 20 degrees, but at about 30 feet from the initial exposure of the upper vein, they flatten to 10-15 degrees, but in the southern cut face they have again steepened to about 40 degrees. The general course of the veins appears to be roughly N 65-70 degrees W and the dip is generally southwest. The average schist laminae trend in the mineralized area is about N 5 degrees E, whereas outside of the mineralized area the trend is closer to N 30-40 degrees E. Near the north end of the cut the veins are intercepted by a fault which dips about 40 degrees southwest and trends about N 45 degrees W. This fault, according to Weathers, appears to have rotated the schists from N30-40degrees E to N 4 degrees E. The veins appear to be plunging down on the footwall of the suspected andesite "dike" mentioned in previous reports. The most mineralized area is about 150 feet by 200 feet and appears to be bordered by two transverse siderite veins which are also pre-mineral but of a different age than the veins in the cut. These veins consist of 1-2 feet of siderite and ankerite, containing wulfenite, calamine, chrysocolla and possibly pyromorphite. They are said to run fairly well in lead and zinc. A couple of pieces of sulphide found in the dump material contained bornite and chalcopyrite and a little sphalerite. Inspection of the 15 foot shaft failed to reveal any sulphides, so it is assumed that a relicit sulphide bleb was the source of the pieces. These siderite veins should be prospected deeper, since the veins while narrow, are persistent for several hundred feet to the northwest from the 15 foot shaft. Other parallel and mineralogically similar veins are present southwest of these two veins. One of these contains relicit galena bunches coated by cerussite and anglesite and wulfenite.

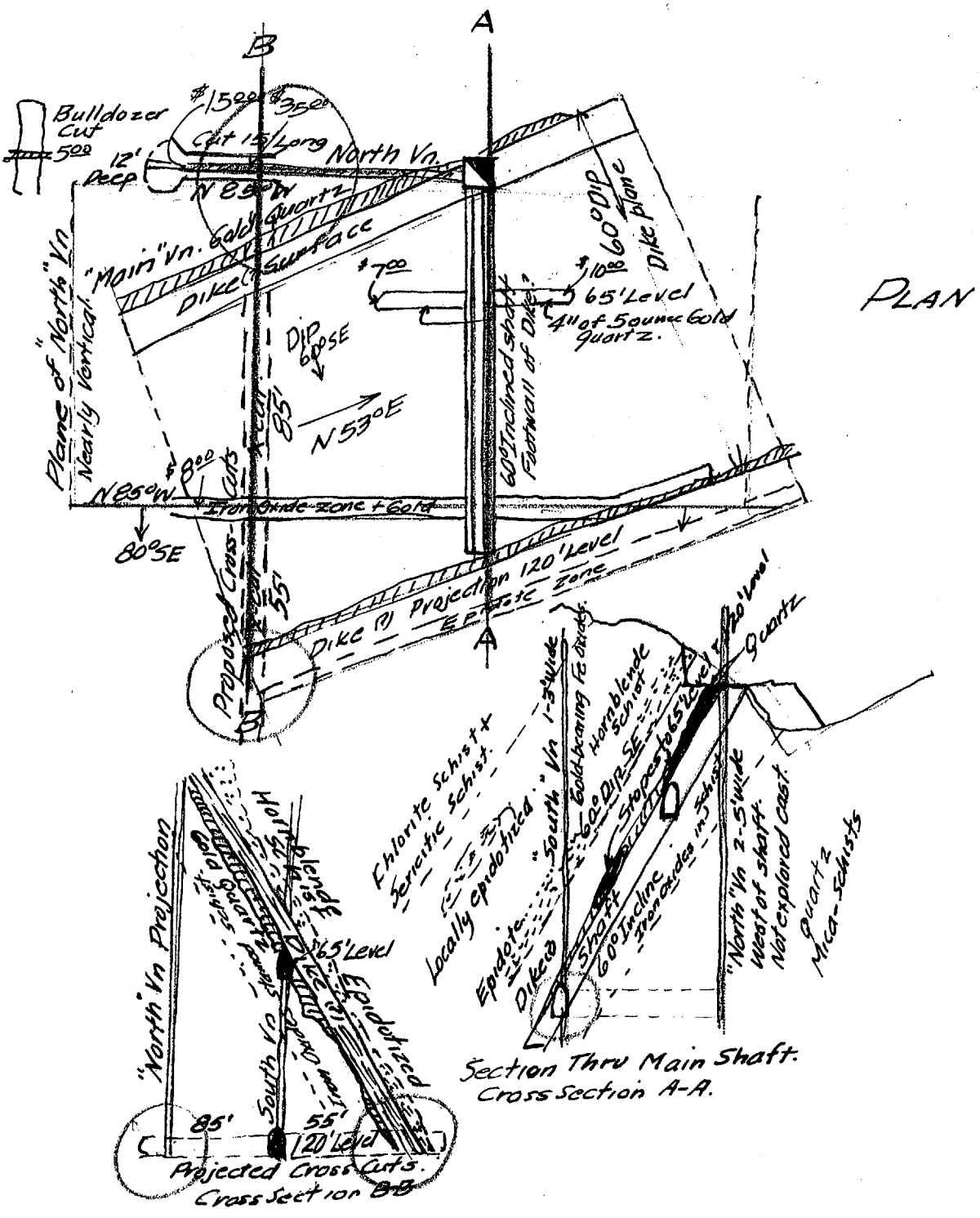
Mr. Weathers wants to drill the area around the cut next to the "dike" to see if the 3 veins are present in depth and whether they coalesce with the "dike" footwall vein, since he is convinced that the "dike" at least locally controls the gold distribution. The exposed ore is low grade as it must be mined ($6 to $8) per ton in the flat portions of the veins. Since at the shaft further west (2 hundred yards) the "dike" footwall dips 60 degress, the veins in the cut may change to this dip in depth. The footwall of the dike is also followed by a pinching and swelling quartz vein which also carries considerable calcite and siderite. It seems probable that

the locus created by the flat veins, the dike, and the intersecting lead-zinc veins would be a logical place for deeper prospecting. Within the area previously mentioned (150 x 200 feet) the schist is strongly iron stained by pyritic limonite, and the schist laminae commonly contains veinlets of quartz and limonite. Observation outside of the area shows much less alteration. The veinlets on placer also cross the laminae. A similar fracture locus occurs at the inclined shaft. A mineralized segment along the "dike" footwall contains quartz and calcite and is similar to that portion that was encountered in the shaft. The "dike" is intensely sheared parallel to the footwall. In the hangingwall of the suspected "dike" epidotization and some chloritization appear. The hangingwall does not appear to be as definite as the footwall. Near the fault the narrow shear fractures increase in intensity and are nearer to each other, as the fault is approached. These transverse shears are less evident in the center of the cut but appear to again increase toward the "dike."



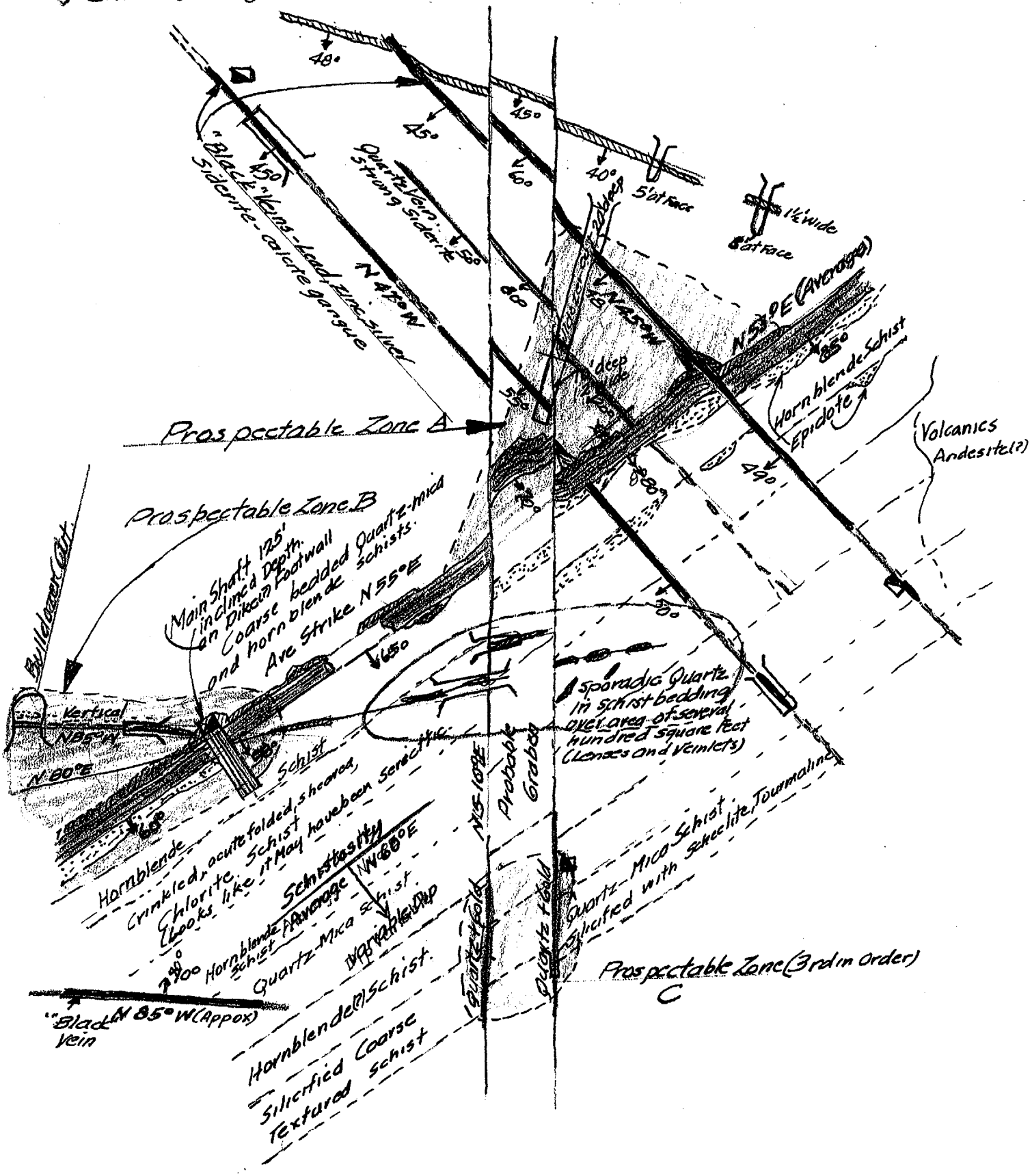
PORTION OF BALOY MTN, ARIZ QUAD
SHOWING LOCATIONS OF:
WHITE PEAK QUARTZ QUARRY
PRINCE MINE
WHITE PEAK MINE
CLEMENTINE MINE
ARRASTRE SHAFT
UNITED MINING COMPANY
TUNGSTEN OCCURENCE

SKETCHES AND CROSS-SECTION AT "MAIN" SHAFT AND PROPOSED CROSS-CUTS ON 120' LEVEL.



Suggested Prospectable Areas at Structural Intersections With Dike (?)

PLAN - Geological Sketch Map of Part of Charlotte Group.



DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEER'S REPORT

Mine: Charlotte Group Date: October 9, 1961

District: Pikes Peak Dist., Maricopa Co. Engineer: Lewis A. Smith

Subject: Mine visit with Gerald Weathers, Consulting Geologist, and Chas. Triphahn (owner).

Since the last visit considerable work has been done in the main shaft area and in an area 1200' northeast of the shaft. In the shaft two drifts were extended on the 120' level. The northeast drift was driven 65' to the footwall of the dike and the southeast drift was extended 75' along the "south" vein fracture. The northeast drift encountered low grade ($5-$9) at the dike (?) footwall, whereas the other drift followed a narrow mineralized area, or zone (south vein). It is now proposed to drive crosscuts north and south, the latter to intersect the dike (?) footwall which is calculated to be 55' in length, and the former to the north vein, a distance of about 85'. It was suggested that drill holes be bored first because of the expense of drifting. Should the two areas show good drill results, drifts could be driven later.

The second area, 1200' east of the shaft, is now being crosscut by a 20' deep bulldozer cut. This is being drilled and blasted and then excavated with a front loader by Gerald Denny of Yuma under a contract. The cut now has 120' which slopes from 0 to 20' deep and is 12 feet wide. An additional 70' is down 10'. Three narrow veins with a flat SE dip were encountered. One contains 1 foot of quartz which assayed about $53 in gold and an additional altered zone on the quartz footwall showed $15-$17 in gold per ton. The entire zone is 4' thick and is plunging into the dike (?). Weathers reasons that this intersection should prove good, since the quartz vein runs better in the bottom of the cut than it did higher upand it has doubled in thickness. This appears to be a sound conclusion. The schist laminae are impregnated with stringers of iron oxides and quartz for a considerable distance north of the dike as indicated by the red areas on the plan sketch. Two of the lead-zinc-silver veins contain calcite-siderate gangue with minor quartz. These offset the dike (?) within this area, but both are pre-mineral. Weathers favors drilling a few test holes over the area. Several hundred square feet of surface was stripped by bulldozer revealing the iron oxide and quartz stringers in the schist.

The Zone "B" prospective area is shown on the cross-sections. Good values, up to $35 were found at the surface in the quartz and iron stained schist at 100 to 150' southwest of the shaft. The quartz ranges from 2 to 4 feet thick whereas the iron-stained schist is several feet wide. The quartz is shattered and the schist under it is brecciated in places. Here the breccia fragments are cemented by quartz and iron oxides. This area has three intersecting fractures near the shaft. Two of these that apparently cross the dike (?) are nearly vertical and strike nearly EW whereas the dike (?) footwall vein dips 60 degrees southeast and at the shaft strikes N 53° E. The general strike of the dike is about N53-57° E, but the dip varies greatly according to which fault segment the readings are taken.

The "C" zone lies well to the south and consists of two nearly vertical and parallel fault zones which constitute a small graben structure. Quartz is present in variable thicknesses along these faults and some good surface assays were obtained in this quartz. A zone which follows the schist trend runs good in scheelite. Tourmelane is reported here.

Charlotte Group (continued)

Several shallow cuts show strong non-oxide mineralization west of the main for 1/2 mile or more. The iron stained zone is roughly 15' wide and is sporadically accompanied by quartz. The zone carries $3 to $15 in gold. The better values are close to transverse fractures which cross the zone. A 150' drill hole into this was unsatisfactory because of poor core recovery. However, it did reveal a zone near the bottom of better mineralized material. A 10' shaft was sunk in one place on the zone, where a cross fracture cut the zone. This showed fairly good values until it went out of the iron stained rock.

It appears probable that the best values should be expected in or around fracture intersection loci.

The Prince Group lies southwest, adjoining the Charlotte Group, and the work there appears to be on a faulted segment (moved north) of the same mineralized zone as in the Charlotte, next to an andesite dike.

CHARLOTTE GROUP

A small program of diamond drilling is underway at the CHARLOTTE GROUP of claims in the Pike's Peak district of Maricopa County, Arizona. Two holes to a depth of 125 and 100 feet, respectively, have been drilled and a third is in progress. In addition, cross-trenching of the vein is planned. Gerald Weathers, of Phoenix, is directing the program and the property is owned by C. W. Triphahn, of Phoenix.

Taken from MINING WORLD, April, 1961, p 28

See: WHITE PEAK SILICA MINE (file)

See: PRINCE OF ARIZONA MINE (file)

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEER'S REPORT

Mine: Charlotte Group Date: 9-25-61

District: Pikes Peak Dist., Maricopa Co. Engineer: Lewis A. Smith

Subject: Interview with Chas. W. Triphahn, 1210 So. Central

Mr. Triphahn stated that two drifts have been driven from the shaft to the S and N on the 125-Foot level. The west drift is in 50 feet and has encountered some fair ore ($10.00-$15.00 per ton in gold). The east drift is in 75 feet, but lost the hangwall for a time. It is now back to the hangwall, but showed only low grade (under $10.00 per ton). It is planned to probe ahead and into the footwall by drill from these openings. A bulldozer trench has been made across a fracture which, transversely, crosses the vein fracture at about 1000 feet east of the shaft. This cut is up to 30' deep and has uncovered 7 veins over a length of 150'. One vein, 1½ feet wide, assayed $52.00 per ton. The 7 veins dip and strike variably. Further bulldozer work is now in progress where other transverse fractures cross the main vein fracture. Mr. Withers, Geologist, is now sampling the uncovered area to see if he can come up with $12 to $15.00 over a wide area. The apparent intersection of several mineral bearing veins in a fracture locus, would appear to be an ideal situation for further prospecting. Some depth drill probing would also seem advisable.

METALLURGY INTERNATIONAL, INC.
12640 W. CEDAR DRIVE, LAKEWOOD, CO 80228, U.S.A.

TEL 303-969-8903
FAX 303-969-8905

East West Minerals

Clementine Project: Final Report

March 29, 1989

Summary

Gold production during the bulk test was accounted as follows:

			% Distribution
Gold in feed	133.18	ounces	100.0
Gold recovered by flotation	46.98	ounces *	35.28
Gold leached from concentrate	31.74	ounces	23.83
Gold loaded to carbon	28.42	ounces	21.33
Gold lost to solution	0.98	ounces	0.74
Gold refined	19.85	ounces	14.91
Gold lost with carbon fines	8.57	ounces	6.43
"Unaccounted" Gold	17.58	ounces	13.20

* Based on 24-hour shift composite assays

The bulk test of 641.2 dry tons demonstrated that the Clementine ore had a run-of-mine grade of 0.208 ounces per ton.

The metallurgical performance of the Clementine bulk test was disapponting, but closer study shows that a combination of several factors contributed to poorer than expected flotation recovery, to an over-estimation of gold recovered in flotation, and to gold losses in 'post flotation' operations. These factors were:

1) Low head grade - vs - constant tail:

The laboratory test work was done on high grade drill cuttings (1.51 opt), while the bulk test ore had a much lower grade (0.208 opt). The anticipated flotation recovery was not achieved because the feed grade processed was so dissimilar to that tested in the laboratory.

2) Erroneous Flotation Circuit Sampling

As the result of either poor training or a lack of diligence on the operators' part, flotation tail and flotation concentrate samples were not taken properly, and were not taken consistently. This led to sample assays which gave the impression that higher than actual concentrate tonnages were being acheived (19.2 tons vs 6.27).

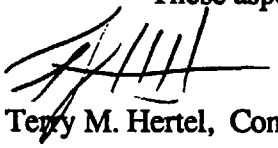
This, in turn, created the illusion that additional gold was being recovered. The problem was recognized, and proper sampling procedures were implemented. In addition, independent samples were taken to check mill operator sample composites.

3) Mill Circuit Disfunctions

Initially, constant mechanical problems with the flotation concentrate pump and with the filter system made it difficult to properly evaluate metallurgical performance of the flotation cicuit.

An inadequate carbon column configuration led to a deviation from the planned flowsheet, which caused a subsequent loss of loaded carbon (and gold) in the final phases of the operation.

These aspects are brought out in further detail in this report.



Terry M. Hertel, Consultant Metallurgist

Introduction

Laboratory testwork on high-grade drill core samples from East West Minerals' Clementine Project indicated that treatment by flotation and subsequent cyanidation was feasible. As a result, East West arranged to use the Redtail Mill near Congress, Arizona to conduct a commissioning trial and a bulk test on the Clementine ore.

Metallurgy International, Inc. inspected the mill, monitored the commissioning trial, and provided technical direction during the bulk test. The results of these programs are presented in this report.

Redtail Mill Flowsheet

The flowsheet (Figure 1) provided by the Redtail management showed the following capabilities:

1) Two stage crushing
2) Two stage grinding
3) Gravity recovery (jig) of coarse gold
4) Single stage rougher flotation with two scavenger stages
5) Cyanide treatment of flotation concentrate
6) Gold recovery from pregnant liquor using activated carbon
7) Zadra-style stripping of carbon and electrowinning of gold

From this flowsheet, it seemed that the mill would be capable of treating 85 tons per day assuming ore grindability of 15 Kw-hr per ton.

On this basis and that of stated practice by Redtail management of successful batch leaching with subsequent settling, decanting, and repulping, it was decided that utilization of the mill was viable.

Commissioning Trial: 11/7/88 through 11/9/88

In order to test the mechanical condition and the materials handling capability of the plant, a 5-day trial was proposed.

Ore for commissioning was selected from a low grade stockpile for the purpose of obtaining probable metallurgical performance.

Due to severe dilution of the mill feed, treatment was stopped on day 3, at which time, only 102 tons had been processed. During the trial, plant availability averaged 69.4 per cent as shown in Table 1.

Metallurgical performance was poor, primarily as a result of such a low head grade. The metallurgical balance was calculated from product assays by estimating weights of gravity concentrates and tailing, and by using the 2-product formula to calculate the balance around the flotation section (Table 2). Jig concentrate contained 8.35 per cent of the gold. At the end of the run, this concentrate was recleaned into a final gravity concentrate and a gravity tail.

The weighted grade of the flotation tailings from the test was similar to that achieved in original lab tests which had a much higher head grade.

Other observations during plant operation were:

1) Difficulty in achieving sufficient density in the Hardinge mill upon daily startup; prompted 24-hour processing

2) Crushing circuit could not be fully evaluated due to lack of coarse material in the ore, but no obvious problems

3) Fine ore bin/Feeder seemed to be satisfactory

4) Grinding throughput was limited to 2.7 tons per hour in order to maintain a grind of 80% passing 150 mesh

5) Flotation reagent feeders seemed to function properly

6) Filtering of flotation concentrate posed no obvious problems

7) Concentrate leaching and gold recovery circuits could not be tested due to early termination of the trial run

Bulk Test Run: 01/9/89 through 01/21/89

Laboratory Confirmation

Subsequent to the commissioning run, additional laboratory work was conducted to find flotation reagents that were more responsive to the Clementine ore.

Reagents which are more suited to flotation of metallic gold were evaluated, and laboratory recovery was improved from an average of 67.5 per cent to 87.0 per cent (Figure 2, Appendix 1).

Bottle roll tests were conducted on flotation concentrates, and it was found that leaching recoveries of 96 per cent were accomplished within 12 hours (Appendix 2).

The encouraging results from these laboratory tests prompted the decision to go ahead with the bulk test.

Plant Trial-Flotation

Plant performance was monitored by 24-hour composite samples of feed, concentrate, and tails. Metallurgy International check samples (composited hourly for 8-10 hours each day) showed variations in all cases with significant differences in concentrate and tailing assays. These had a major impact on the estimation of flotation recovery.

Overall operating results were:

Run Hours	248
Mill Availibility	93.94 %
Dry tons treated	641.2
Feed moisture	3.02 %

	24-hr Comp	MII Check
Number of days	11	7
Ave. feed assay (opt)	0.208	0.208
Gold in feed (oz tr)	133.18	133.18
Concentrate tons	19.2	6.27
Concentrate assay (opt)	2.44	2.44
Concentrate gold (oz tr)	46.85	15.3
Gold recovery (%)	33.8	11.49
Tailing assay (opt)	0.134	0.186

The flotation tailings assays were actually better than those achieved in the laboratory flotation tests (0.263 - 0.370 opt); again the poor gold recovery reflects the low feed grade and the difference between the laboratory feed sample and the ore supplied for the bulk run.

Daily material balances for the bulk run are found in Table 4 and Table 5.

Metallurgy International check samples of mill (belt) feed and flotation feed (conditioner discharge) showed reasonable agreement over the period of the trial, indicating that the mill feed sampling procedure was acceptable.

Check samples of flotation tailings assayed 20 % higher than shift composites.

The flotation concentrate samples also showed wide variations. This was apparently due to settling in the concentrate discharge line. This high grade accumulation would then report to the sample bucket when the valve was opened.

Because of the concern that shift operatores were not taking proper concentrate samples, Terry Hertel began collecting independent samples from the discharge line after the line had been cleared. During the plant trial, concentrate production was estimated at 3 per cent of mill feed by weighing timed samples.

The 2-product formula using the 24-hour shift assays and the MII check assays indicate 3.0 and 0.97 per cent (respectively) of feed reporting to concentrate.

On this basis gold recovery to concentrate was:

46.85 troy ounces - based on 24-hour composites
15.03 troy ounces - based on MII check composites

Plant Trial - Leaching

Concentrate leaching was deferred until milling and flotation was completed due to use of carbon columns and gold recovery circuits by Redtail management. During the interim, filtered concentrate was accumulated in the south leach tank.

The need for additional concentrate storage on day 9 necessitated the use of the north tank. Because of excessive water leakage from the vacuum pump cooling system into the north tank, the filter was taken out of circuit.

By this time it had also been determined that a mechanical scraper, which was frozen in position, was causing wear on the filter cloth, and was creating an unacceptable gold loss to tails. This was also contributing to tail sample contamination. Unfiltered concentrate slurry was directed to the north tank. On day 10 additional concentrate storage was needed, and half of the volume of solution in the north tank was pumped to a horizontal storage tank.

Leaching began on day 14. The concentrate in the south tank was slurried with previously stored unfiltered concentrate solution. Initially, 50 pounds of cyanide was added to both tanks, and caustic was added to achieve a pH of 10.5.

Agitation leaching contiued, with free cyanide determinations being made each morning. After the cyanide content of each tank had been determined, a volume of pregnant liquor was transferred to storage. More concentrate slurry was then added to each tank, and more cyanide was also added. This regime was followed until all concentrate slurry had been treated, and until the cyanide consumption finally ceased. Total reagent additions were:

Cyanide - 210 pounds
Caustic - 45 pounds

Leaching efficiency was 94.43 per cent, approaching that of laboratory results. The metallurgical performance can be seen in Table 5.

Once leaching was complete, operation of the carbon columns was initiated. Because of persistent suspended solids in the leach tank (even after 48 hours of settling time with flocculant additions), attempts to pump pregnant liquor through the carbon columns were unsuccessful.

Flow rates would drop from 10 gallons per minute to 1/2 gallon per minute within only a few minutes of operation.

Upon discussion with the plant operators, it was ascertained that operation of the columns was usually done with clarified pregnant liquors from the leaching of jig concentrates (which had virtually no slimes content). Even with those ideal conditions, flow rates of about 3 gallons per minute were typical. This would mean that, with washing cycles, approximately one week would be required to process the volumes of Clementine liquor on hand.

To avoid this delay, a modified CIP operation was suggested by Metallurgy International (with inherent shortcomings expressed by Robert Cuttriss) as the only expedient alternative to recover the gold from solution. Activated carbon was added to the south tank, and the loading was begun. The operating cycle was:

1) agitation for 8 hours
2) settling for 8 hours
3) sampling "barren" solution
4) decanting of "barren" to storage
5) introducing more pregnant liquor from storage; repeat cycle

Once the loading operation was completed, the carbon was retrieved by pumping with a diaphragm pump into a basket/screen. The carbon was then washed from remaining slimes and was put into barrels for shipment to G. D. Resources in Sparks, Nevada.

Upon refining, 19.85 ounces of gold were recovered. The metallurgical performance of the carbon loading operation is shown in Table 5.

Discussion

Situations leading to such poor gold recovery were many, and are as follows:

1) Flotation

a) Low head grade - vs - constant tail: As head grade decreases while tail grade remains fairly constant, recovery will decrease. As an example:

Head grade (opt)	Tail grade (opt)	% Recovery
1.51	0.134	91.13
0.50	0.134	73.20
0.20	0.134	33.00

The laboratory test work was done on high grade drill cuttings (first case), while the bulk test ore had a much lower grade (last case). The anticipated flotation recovery was not achieved, in part, because the feed grade processed was so dissimilar to that tested in the laboratory.

b) Retention time: Calculated retention time for the flotation circuit was found to be 10.4 minutes based on the average throughput of 2.58 tons per hour and a flotation feed density of 25 per cent solids. This was an improvement over initial conditions which were supposed to simulate laboratory desities of 33 per cent solids (providing even shorter times), but was still 35 per cent less than that of the laboratory work done on Clementine ore.

c) Clay content: The high clay content created a viscous pulp that hindered bubble formation and reagent/particle contact. The clays could also have absorbed reagents, further affecting performance. The Clementine material tested in the laboratory did not have such a high clay content.

d) Concentrate pumping / filtration: Intermittent leaks at the connection point of the concentrate pump bowl and the discharge pipe contributed to gold losses which cannot be quantified. Because maintenence was done only on day shift, leaks that developed on other shifts went unattended, and the concentrate was hosed through holes in the floor of the flotation circuit. The connection would be tightened on day shift, only to loosen up again. The situation deteriorated to the point that Terry Hertel requested that the connection be welded.

The filter cloths were also a point of loss due to Redtail policy of day shift maintenence. Wear holes would develop in the cloths, and concentrate would report to the filtrate discharge; another source of losses that cannot be quantified.

2) Carbon Recovery

Attrition of carbon occurred in the loading operation due to the vigorous motion of the agitator. When the carbon was washed, 159 pounds of carbon were lost to the cleaning screen undersize. This contributed to a gold loss of 8.7 ounces.

3) Gold Accumulation in Circuits

The primary accumulation points would have been in both ball mills. Redtail management stated that it was virtually impossible to open the mills for inspection or gold recovery.

4) Overestimation of Concentrate Production

Metallurgy International made the best estimation possible with the facilities at hand, and initially determined that concentrate production was 3 per cent of the mill feed weight.

A difference of 1 per cent of mill feed weight (from 3% to 2%) at a gold assay of 2.44 ounces per ton accounts for 15.2 ounces of gold "lost" between the flotation and leach circuits.

This would drop unaccounted gold losses to 2.3 ounces, and would help to close the mass balance.

In summary, although gold recovery was much less than expected, the metallurgical performance of the mill was consistent with results from the limited amount of laboratory work allowed prior to the bulk test.

Table 1 Commissioning Trial - Operating Summary

Date	Tons Milled	Hours Run	Hours Scheduled	% Availability	Comments
11/7/88	14.0	6	16	37.5	Retrofitting Jig Breakdown
11/8/88	41.4	14	16	87.5	Jig Repair
11/9/88	46.9	20	24	83.5	Pump Repair Ore Dilution

Table 2 Commissioning Trial- Metallurgical Balance

Description	Weight (tons)	Weighted Assay (opt)	% Distribution
Mill Feed	102.36	0.042	100.00
Gravity Con	0.10	2.936	6.81
Gravity Tail	0.92	0.072	1.54
(Bulk Grav Con	1.02	0.353	8.35)
(Flotation Feed	101.34	0.039	91.65)
Flotation Con	0.20	6.46	30.49
Flotation Tail	101.14	0.026	61.16
(Calculated Feed	102.36	0.042	100.00)

Two Product Formula: Weight of Concentrate, $C = F * (f-t)/(c-t)$ where:
F = Feed Weight, f = feed assay
c = concentrate assay, t = tail assay

Table 3 Flotation Samples: Shift Assays - vs - MII Check Assays

Sample Date	Shift Composite Assay		MII Sample Assay	
	Concentrate	Tails	Concentrate	Tails
Day 5	19.585	0.227	3.655	0.172
Day 6	7.496	0.196	2.101	0.219
Day 7	15.580	0.058	1.681	0.194
Day 10	7.737	0.132	2.451	0.219

Flowsheet for Estimated Throughput of 85 Tons per Day

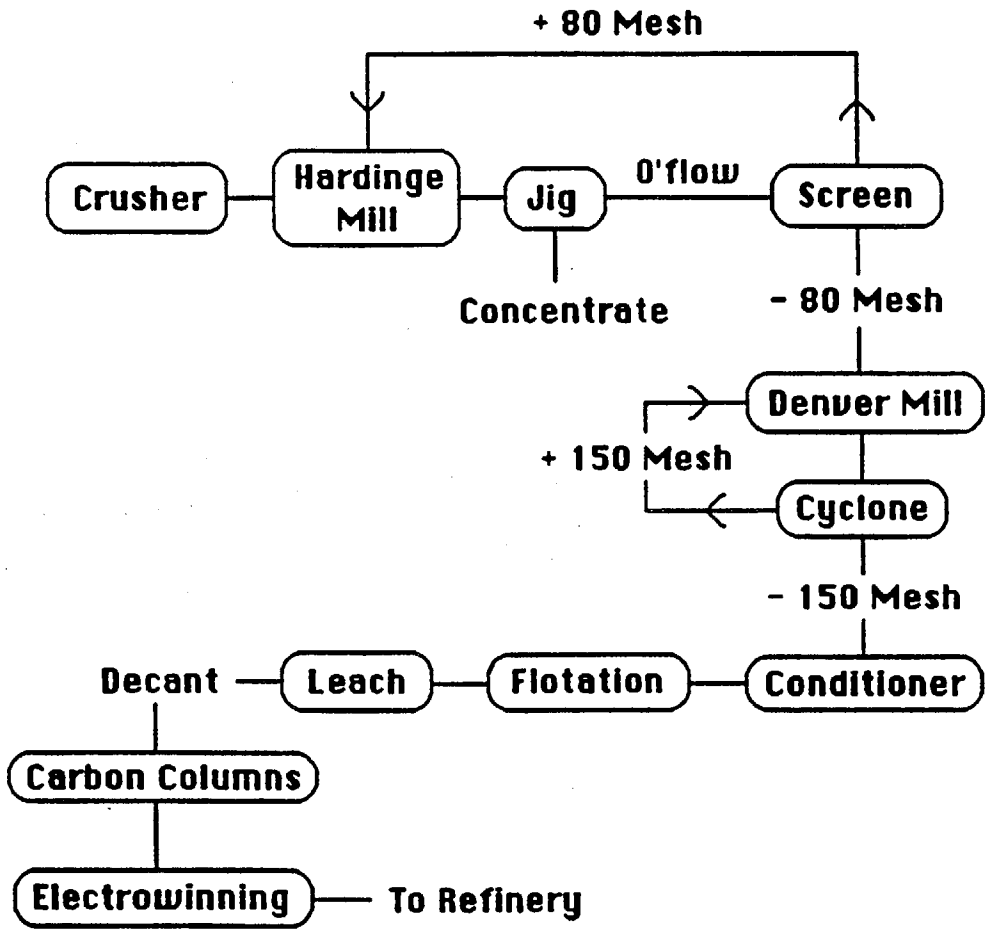


Figure 1

(1)

GEOLOGICAL ENGINEERING REPORT FOR THE CLEMENTINE GOLD-SILVER MINE

Maricopa County, Arizona

by

Brian Bond, Geological Engineer

February through May, 1981

(2)

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ILLUSTRATION

INTRODUCTION

During this report period at the Clementine property, heaping of the first pad was completed and leaching begun (Figures 1 and 2). The leach pad holds 84,319 tons of .05 oz./ton gold (4,216 oz. less the small amount which has been recovered--Table 2). Leaching is currently taking place and more gold is to be recovered from the pad.

Total reserves fall into three categories: proven, probable and possible, of which there are 329,352 tons, 538,627 tons, and 2,338,008 tons, respectively (see the Reserve Definitions). The proven (measured) and probable (indicated) reserves grade .06 oz./ton gold (see Tables 2, 3 and 4, Grade and Tonnage Calculation Summary).

A total of 196,630 tons have been removed from the pit area; 62,068 tons of this were overburden and used as land fill to the west of the pit. Approximately 134,562 tons of rock have been removed from the existing pit, of which, 84,319 tons went to the pad and 50,243 tons went to the dump (see Table 1 and Figures 1, 2, 6, 7, 8, 9, 10, 11 and 12).

Limited exploratory drilling took place at the Clementine property during March, but was halted after 1,513 feet due to mechanical difficulties (see Figure 12). Drilling services are currently being contracted.

Extensive surveying occurred from February through May, 1981 (see Figures 1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13a, 13b, 14, 15, 16 and 17). The pit outline was measured before and

after each stage of mining; the pad, pond, plant and dump positions were also determined, in addition to sample, drillhole and blasthole locations.

Blasthole, bulk, channel and drillhole sampling were also carried out during this period. Altogether, 2,000 feet of samples have been channelled in the pit; channel samples were also taken in the Charlotte Mine. Each pad load was bulk sampled, in addition to the dump and the latest blast heap. Drill and blastholes were also sampled.

Geologic reconnaissance and detailed pit mapping have also occurred. Drill cuttings are currently being examined; 5,685 feet of CR cuttings have been logged, through May 28, 1981. Cross-sections of the CCDH, CPDH and CR drillholes, plus ore blocks, were drawn during March and April, 1981 (see Figures A-A' through J-J' and 18).

An assay laboratory was established at the mine during March 1981 and is now operating. Plant solution monitoring and solid sample calibration have been done since then. Solid sample assaying is expected to resume by June. A crusher for sample preparation was installed May 28, 1981.

DRILLING

Both blasthole and exploratory drilling were done at the Clementine Mine during February, March and April, 1981. Drilling was done by Don Emert and Sons, under the direction of Joe Mager. Emert and Sons also did the road and drill site preparation prior to February. An airtrac percussion drill

was used; a cyclone was attached for exploratory drilling. Its maximum depth was 100 feet. The recovery was good.

Blastholes were drilled in both the pit and the pad sites under construction (see Figures 1 and 14).

There were two periods of pit blast hole drilling, corresponding to the second cut and last blast, respectively (see Figures 6 and 14). From February 16-23, 190 holes were drilled, 187 at 8 x 10 and four at 5 x 8 feet spacings. Nine holes at 8 x 10 and one hole at 8 x 5 feet spacings were not blasted (B-R1-HO through B-R1-H5 and B-R2-HO through B-R2-H3--see Figure 14). The holes averaged 22 feet and ranged from 20-25 feet in depth, a 20 foot stem and five foot bit). The holes were sampled and blown every 10 feet by a helper provided by Don Emert, under supervision of the writer. The last zero to five feet were also sampled. These holes were blasted February 24, 1981. Approximately, 28,243 tons were blasted and removed (see Appendix).

From February 25 through March 5, 184 holes were drilled, 179 at 8 x 10 and five at 8 x 5 feet spacings. Approximately, 29,466 tons were blasted March 19, 1981 and are heaped on the floor of the pit, awaiting removal. The sampling intervals and hole depths were as described above. Rows 9-12 were sampled by Emert's helper, rows 13, 14, A and B were sampled by Malcomb Alter, assistant geologist (see Figure 14). The hiatus between drilling and blasting, coupled with three days of heavy rain, may have resulted in wall collapse and shallower blastholes.

Blastholes were drilled during pad construction and were sporadically sampled at 10 foot intervals by the driller's helper (see Figure 1).

Fifteen exploratory drillholes were drilled between the pit and the Charlotte shaft (JP-1 through JP-15, see Figure 12). Drilling began March 24 and ended April 1, 1981, when the drill string stuck 93 feet into JP-15. An additional hole, entitled "No Good," was discontinued at 20 feet, due to landfill overburden. Holes JP-1 through JP-14 were each 100 feet in depth. The total footage was 1,513. Holes were sampled and blown every five feet. Sampling was done by the assistant geologist, under supervision of Brian Bond. Two samples were taken every interval. Little mineralization was encountered, due to faulting/offset of the vein system and to the shallowness of the drillholes, which failed to reach the southeasterly dipping structure.

Assessment drillholes were also drilled on the T-Bone and Prince of Arizona claims in the aforementioned manner. Drilling and sampling were done under the supervision of Carl Triphahn, who also has custody of the samples.

An estimated 124,000 feet of additional drilling are required to properly outline (prove) probable and possible shallow reserves (620 200 foot holes at a 50 x 50 foot spacing--see Appendix). Approximately, 31,000 feet of this are needed to determine the probable reserve boundaries (155 holes). A reversely circulating percussion drill with a cyclone offers

the best sample recovery at least expense. The writer recommends a 50,000 foot drilling program with the latter equipment (31,000 feet to outline probable reserves and 19,000 feet at the T-Bone, Sample City and Prince of Arizona prospects). Easily accessible and mineable areas of known mineralization should be drilled first. Several holes should also be placed in the new pad site area (Figure 1). Deeper drilling of enrichment and porphyry targets is not presently economically feasible. Drilling from the pit should be done after material from the latest blast is removed.

BLASTING

Pit blasts occurred February 24 and March 19, 1981. An average of 18 feet ammonium nitrate powder and four feet damping were used in each blast. Pentagel and Power primer ignited the respective blasts with zero to six millisecond delays. Ignition delay, by successive rows, results in heaping of the blasted rock into readily scraped piles. Rock from the March 19 blast remains heaped in the pit. The leach pad and mill site has been blasted several times for leveling. Loading and blasting were carried out by Don Emert and Sons.

A 12 x 12 foot hole pattern was used for overburden and pad blasting. The spacing was reduced to 8 x 10 feet in the pit, in lieu of crushing, and was tightened to 8 x 5 feet in extremely hard (silicified) areas as directed by the geologist. The blasts carry four to five feet into the schist on the

sides of a blasthole pattern (roughly perpendicular to the schistosity). Blasts also carry past the ends of blasthole patterns, along schistosity, one to two feet into the quartz-calcite veined, strongly silicified, schist of the ore zone, 8-12 feet in predominately hematitic schist, and 8-10 feet in unmineralized, weakly silicified schist (Figures 6 and 14). Several additional feet can usually be ripped from the blast walls and are usually left as ramps (Figures 7, 8, 9, 10 and 11). The 4 and 5 ft. blast influence projections were confirmed by measurements taken after the latest blast.

MINING METHOD

Five twin engine scrapers are in use at the Clementine Mine; one of these is loaded by a paddle wheel and is used to pick up material dropped by the other four. The scrapers generally operate in tandem, although they are occasionally pushed singly by a caterpillar D-8 bulldozer, which also rips loose material for scraping. Scraping is preceeded by blasting and ripping. Each scraper holds 20 cubic yards and is directed, by the geologist, to either the leach pad or the dump. The loads are deposited in thin (< 1-2 foot) layers by scrapers driving atop the pad and dump. Pad loading in this manner results in compaction and channeling (see the Permeability and Density Sections). All overburden removal, pit excavation, and pad construction has been done, as described, by Don Emert and Sons.

Greater ore selectivity and reduced compaction can be

obtained with shovel loading of trucks or scrapers, followed by pad heaping with front-end loaders. Overburden should continue to be removed by scrapers. The top of the ore heap should be ripped when loading is completed.

OVERBURDEN REMOVAL

The term overburden has been applied to unmineralized, uneconomically mineable rock and soil that must be removed in order to expose and mine ore. Prior to January 1981, approximately 62,068 tons of overburden were removed from the pit area and used as landfill to the west of the pit (see Figures 7, 8 and 9, plus the Appendix). Overburden removal was supervised by Gerald Weathers, consulting geologist. Before mining expands from the present pit, overburden will need to be outlined by drilling and removed.

PIT EXCAVATION

Pit excavation consists of ore and gangue removal to the leach pad and dump, respectively (see Figures 1, 2, 6, 7, 8, 9, 10, 11 and 12). During 1981, three periods of pit excavation occurred at the Clementine property: January 5-9, February 2-6, and February 24-27. The first period was supervised by Gerald Weathers; the second and third by Brian Bond. The first cut was made during the first two periods; the second cut was made during the third (and latest) period of pit excavation/pad loading. Approximately 875 tons (25

scraper loads) of the Charlotte Mine dump were included in the second period (see Geologic Notes--February 6, 1981).

Approximately 134,562 tons have been removed from the existing pit, 106,319 from the first cut and 28,243 from the second (see Table 1 and the Appendix). Of this tonnage, 84,319 were loaded on the leach pad and 50,243 were sent to the dump (48,563 from the first cut, 1,680 from the second).

The pit walls are benched 20 feet horizontally for every 15 feet vertically and generally range from 14 to 19 feet in height. With the exception of the recently blasted material (3/19/81), appreciable amounts of the ore on the floor of the pit cannot be removed without further benching. The exact position and composition of these benches must be decided by further drilling.

PAD AND MILL SITE CONSTRUCTION

Construction of a site for additional leach pads, plus a mill, has been started; approximately 50,000 cubic yards of material remain to be moved (Figure 1).

Sampling in the area is inadequate and should be completed before scraping of the area is resumed, especially since it is roughly on strike with the known deposits. The three CR series drillholes from the vicinity all reported trace amounts of gold, the highest reported values were .01 oz./ton, from CR44 (see the assays for CR44, 45 and 46, plus Figure 1). Gold was observed in interval 210-215 of hole

TABLE 1

PIT AREA EXCAVATION

Location	Average Grade (oz./ton)	Tonnage	Category	Excavation Period
Pit - Total Tonnage	.038	134,562 ± 7,406		Total 1/5-2/27/81
Pit - First Cut	.035	106,319 ± 7,406		1/5-2/6/81
Pit - Second Cut	.050	28,243 ± 1,197		2/24-27/81
Pad - Total Tonnage	.050	84,319 ± 3,444	Proven	1/5-2/27/81
Pad - First Loading	.052	54,613 ± 2,638	Proven	1/5-9, 1st Cut
Pad - Second Loading	.024	6,055 ± 519	Proven	2/2-6, 1st Cut
Pad - Third Loading	.051	26,563 ± 1,197	Proven	2/24-27, 2nd Cut
Dump - Total Tonnage	.018	50,243 ± 7,406		1/5-2/27/81
Dump - First Cut	.017	48,563 ± 7,406		1/5-2/6/81
Dump - Second Cut	.033	1,680 ± 144		2/24-27/81
Pit - Last Blast	.021	29,466 ± 2,282	Proven	Not Excavated
Overburden - W. of Pit	Undeterm.	62,068 ±22,535		Prior to 1/81
Pit Area - Total Removed	Undeterm.	196,630 ± 22,535		Prior to 2/27/8

CR44 in the characteristic mineralization of known ore (see drill log CR44). It is possible that other gold was missed by assay of the CR40-CR48 series by Arizona Testing Labs, especially since CR48 intercepted ore that was mined during the second cut (see the assays, Assay Section, Figure 17, and Table 6). The only blastholes from the area that were sampled have not yet been assayed due to contamination difficulties and plant solution monitoring (see the Assay Section, Table 6, and Figure 1). Pad and mill site construction should remain halted until further sampling and assaying are completed.

SURVEYING

Surveying at the Clementine Mine is currently being performed by the mine geologist and Advanced Engineering Co. Agreement between both parties has been quite good (typically within one or two feet for Brunton/Tape and .1 foot for Transit/Stadia surveys--see Figures 12, 13a and b, 14, 15, 16 and 17).*

Advanced Engineering, under the supervision of Bob Potts, has surveyed and prepared a map of the CR series drillholes and outer, upper, pit boundary (Figure 17). These points were tied into the section corners and regional coordinate system; the map has been used as a base for subsequent work (Figures 3, 4, 6, 7, 13a and b, 14, 15, 16, 17 and 18). They have

*Hole CR26 was mislocated on the original map (Figure 17) and has since been resurveyed and correctly plotted (Figure 12).

also surveyed and computed the volume of ore on the leach pad after the first and third pad loadings (26,383 and 38,813 cubic yards, respectively), in addition to pit elevations after the first cut (Figure 16). Advanced Engineering has recently prepared a map of the plant, pad, pit, pond and dump locations (Figure 1).

Extensive surveying has also been done at the Clementine Mine by the mine geologist. Brunton and tape work includes: the pit floor elevations and pit boundary after the first cut (Figures 14 and 15), all blasthole and channel sample locations (Figures 1, 13a, 13b and 14), plus pit floor elevations and boundaries after the second cut but before the last blast (Figures 6, 7, 8, 9, 10, 11 and 15). Transit and Stadia surveying of the present dump, JP series drillholes, Charlotte and Tobey shafts, plus the pit outline and elevations after the last blast were also carried out by Brian Bond and his assistant (Figure 12). Three reference points (Δ3, CH and BF) were also established with Transit and Stadia in the pit area (Figure 12).

The largest error in overburden and dump volume calculations is caused by inadequate topographic coverage of the area as it was before overburden stripping and dump loading began. For this reason, dump tonnage was calculated as the difference of the total tonnage removed from the pit and the pad tonnage, using the density rock in place. The pit floor is presently covered with detritus from the latest blast; the second cut floor is only exposed in four places (where sample

channels are visible, Figures 12 and 13a). All pit tonnage calculations by the author used the pit outline prior to the last blast and the density of rock in place (see the Density Section, Figures 7, 8, 9, 10 and 11). These calcuations are more accurate than any using the present pit outline and the expansion of blasted rock.

DENSITY/POROSITY

Yavapai Schist, the predominate rock type found on the Clementine property, has an average density of 2.30 tons/yd.^{3} (see Tables 7, IV, 13-1, 13-2, 13-3 and the Appendix). Its density is less than those given for schists in Table 13-3 due to mass loss through oxidation and weathering. The amounts of gold, silver and lead present in the Clementine ore do not significantly affect its density. Whenever possible, calculations were based on rock in place, thus avoiding errors in density caused by the expansion and subsequent compaction of broken material (see Table 7).

Blasting reduces the density to 1.50 tons/yd.^{3} (see Table 7, the Appendix). Column tests of unsorted, unconsolidated gravel and cobble-sized material by Mountain States, Advanced Engineering and Brian Bond yielded densities of 1.5, 1.45 and 1.53 tons/yd.^{3}, respectively. Schist densities can be calculated from their porosities, and vice-versa, by utilizing the relationship:

Broken Schist Density = Homogenous Schist Density - Homogenous Schist Density x Porosity

or

$$\rho = 2.30 - 2.30\ \phi$$

Scraping of broken rock results in compaction to 1.75 tons/yd.^{3}, the average density of material in each scraper load (see Table 7, the Appendix). This density is the quotient of the total second cut tonnage and the volume (by scraper load). Corroboration of these figures is offered by Figure 11.15 and Tables 6.1, 6.2 and 11.2. Blasted Clementine rock is angular, unsorted, gravel sized material, ranging from fine grains to cobbles in size. Gravels typically have intrinsic permeabilities that range from 10^3-10^5 darcy's (Table 6.1 and 6.2). Figure 11.15 gives average porosites of 34-35% for well sorted gravel, corresponding to densities of 1.52-1.50 tons/yd.^{3}. At intrinsic permeability and porosity values of this magnitude, specific yield approaches porosity. The calculated porosity for scraped Clementine rock, 24%, is supported by values for similar material from Figure 11.15 and Table 11.2; porosities of 24% and 25% correspond to densities of 1.75 and 1.73 tons/yd.^{3}, respectively.

Tightly compacted gravel, such as the ore on the pad, commonly has a porosity of approximately 10% (supported by Table 11.2). This figure, which corresponds to a density of 2.07 tons/yd.^{3}, was used for the first 26,383 cubic yards of ore loaded on the pad. Compaction was caused by scrapers

driving atop the pad during this and the following two pad loadings. Compaction is also caused by the weight of overlying material. The current density figure of 2.17 tons/yd.^{3} was obtained by dividing the total pad tonnage by the total pad volume (see the Appendix). The effect of compaction during each stage of mining is shown by Table 7.

TABLE 7

DENSITY AND POROSITY

Location	Density (tons/yd.^{3})	Porosity	Approximate Accuracy (tons/yd.^{3})
Uncompacted, blasted, rock	1.50	35%	.05
Rock in scraper load	1.75	24%	.15
Pad ore after 1st loading	2.07	10%	.1
Pad ore after last loading	2.17	6%	.1
Rock in place	2.30	0%	.09

PERMEABILITY

The permeability of ore on the pad has been decreased due to compaction (see the Density Section). Each load (20 yd.^{3}) was spread thinly (6 inches-2 feet) by scrapers driving atop the pad; therefore, the ore heap is composed of many differentially compacted layers. The resulting variations in permeability and fluid potential energy have caused channeling.

retrieved by other Copper Lake personnel before the repair could take place. A first aid kit, siphon hose and jumper cables have been purchased and are kept below the seat.

Expenses for the next few months depend upon the mining program instituted, although several items will be needed, irregardless. A 50-150X microscope is urgently required, while canvas bags are in demand for bulk sampling (50 bags x $.60/ bag = $30.00). If no surveying is contracted, a Transit and Stadia will need to be rented for several days each month ($36/week). A draftsman should be hired for a few days to ink mylar copies of existing drawings. Ear plugs, a splitter and sample bags will be needed if a drilling program is scheduled. Approximately 20,000 bags will be required, at a total cost of $4,000.00 (50,000 ft. x 2 samples/5 feet = 20,000 samples, 20,000 samples x 1 sample/bag x $.20/bag = $4,000). Equipment will also be needed for the geologic and engineering offices (see the April 1, I981 Memo).

TOTAL RESERVES

According to standard mining practice, total gold reserves at the Clementine Mine are placed in three categories: proven, probable and possible (Definitions and Calculations are in the Appendix). Proven gold reserves are 329,352 tons at .058 oz./ton, while probable gold reserves total 538,627 tons at .06 oz./ton (Tables 2 and 3). Total possible gold reserves are estimated at 2,338,008 tons, of which 906,575 tons are at

shallow (less than 200 foot) depths (see Table 4). These figures will change as new data is received; 3,815 feet of CR drilling remain to be assayed and additional drilling is planned.

The true potential of the Clementine property is much greater than is indicated by the possible (inferred) gold reserves, however, the existence and location of gold and silver enrichment or disseminated sulphide reserves, at depths of one to several thousand feet, can only be determined by an extensive drilling program.

RESERVE DEFINITIONS[1]

Proven (Measured) Ore: Proven ore is that for which tonnage is computed from dimensions revealed in outcrops, trenches, workings, or drillholes, and for which grade is computed from adequate sampling. The sites for inspection, sampling, and measurement are so closely spaced, on the basis of defined geological character, that the size, shape, and mineral content are well-established.

Probable (Indicated) Ore: Ore for which tonnage and grade are computed partly from specific measurement, samples, or production data, and partly from projection for a reasonable distance on geological evidence is considered probable ore.

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[1]USDA Forest Service, June 1977, General Technical Report INT-35, U.S. Department of Agriculture, Ogden, Utah 84001, "Anatomy of a mine from prospect to production."

The openings or exposures available for inspection, measurement, and sampling are too widely or inappropriately spaced to outline the ore completely or to establish its grade throughout.

Possible (Inferred) Ore: Quantitative estimates of possible ore are based largely on knowledge of the geological character of the deposit and few, if any, samples or measurements. Estimates are based on assumed continuity or repetition for which there is geological evidence; this evidence may include comparison with deposits of similar types. Bodies that are completely concealed, but for which there is some geological evidence, may be included.

GRADE AND TONNAGE CALCULATION SUMMARY

Grades and tonnages are calculated on a continual basis, using all blasthole, bulk, channel and drillhole sample assays, in addition to all geologic observations, to date. For these reasons, they are subject to change with the collection and interpretation of new data. The grade is also influenced by economic conditions (i.e., the price of gold, mining and extraction costs). Tonnages are a direct function of grade. All grades are averages, weighted by footage, of bulk, blasthole, drillhole, and channel sample assays. No grades are assigned to possible reserves (see the Reserve Definitions).

Assay values are extended one half of the distance from an ore grade interval to an unmineralized interval ($\leq$.017 oz./

ton) and two-thirds of the distance to a mineralized interval (> .017 oz./ton); .017 oz./ton is a subjective figure, which is supported by dump sample A-424111. The average ore grade is .061 oz./ton; no ore block grades less than .031 oz./ton. Few of the ore blocks are horizontal and all are roughly parallel to vein structures and intersections (see cross-sections A-A' through J-J'). In many cases, the boundaries are caused by post-mineralization faulting. The block volumes are the product of the horizontal polygonal areas and the vertical thickness. A compensating polar planimeter was used to measure the polygonal areas; the vertical thicknesses were determined from drillhole data, geologic cross-sections, and the Charlotte Mine workings. An average ore density of 2.3 tons/yd.^{3} was used (see the Density Section). The minimum mining width is 20 feet, the average ore block thickness is 38 feet.

No proven ore boundary was extended more than 25 feet in any direction, other than between mineralized sample intervals or along strike and down (or up) dip from points of known ore occurrence. No probable ore boundary was projected more than 50 feet from a point of known occurrence, other than along strike and down (or up) dip with supporting geologic and sampling evidence.

Fluids do not migrate perpendicular to foliation planes readily, hence, proven and probable reserve boundaries were not projected thus more than 25 feet, except along the principal northeasterly and cross-cutting northwesterly vein systems.

Possible (inferred) ore reserves were estimated by extending the gold bearing, northeasterly striking, vein structure from the southwestern most Prince of Arizona claim boundary N52E, 9,910 feet through the Prince and Charlotte shafts, to the northeastern most claim boundary with Rancher's Exploration. An average width of 100 feet and thickness of 38 feet were assumed. The proven and probable reserves, plus the tonnage removed from the Charlotte Mine, were subtracted from this total. The nonuniformity of gold occurrence was balanced against the possibility of parallel structures and concentration with depth. The total possible reserves (2,338,008 tons) were multiplied by 38/98 (38.78%) to give the shallow possible reserves ($\leq$ 200 feet); 38/98 is the ratio of assayed drillholes intercepting gold mineralization $\geq$ .04 oz./ton to total assayed drillholes from CCDH, CPDH and CR series drilling.

The following exceptions in proven and probable reserve tonnage calculations were noted:

Proven ore block R's and probable block Y's volumes were calculated by multiplying the average of the horizontal areas at the zero and 120 foot levels by the vertical thickness; the total volume mined was subtracted from block R (see Figure 21). The blocks were projected 20 feet down dip on the basis of drillhole data. Proven block J was projected down dip 70 feet from the surface on the basis of drillhole data; its volume is the product of the horizontal area and a thickness of 25 feet.

Table 2

Proven (Measured) Reserves*

Block	Sample Source	Thick, Depth (Ft.)	Ave. Grade (oz/ton)	Vol. (yd^3)	Tons	Oz (Gold)
I	CDH2, CR60, CPDH 25	50 (70-120)	.059	10,919	25,113	1492
J	CR27, CR35, SAM 3011	25' (0-70)	.061	4,074	9,370	570
14b	CR14, CC4	20 (20-40)	.099	462	1,063	46
CR13	CR13, B-R10-H10, CR17, CC4	20 (20-40)	.045	1,517	3,489	157
H22	B-R10-H22	20 (20-40)	.049	344	791	39
CC4	CPDH4, CC4	20 (20-40)	.076	1,659	3,816	290
CR12	CR12	20 (20-40)	.031	237	545	17
14a	CR14, CC4	25 (20-45)	.081	2,042	4,696	380
K	CR56	20 (50-70)	.046	1,375	3,162	145
L	CR22	65 (35-100)	.059	4,130	9,500	560
M	CR21	70 (65-135)	.062	8,006	18,414	1,142
N	CR5, CPDH3, CDH1	45 (35-80)	.064	6,747	15,517	983
O	CR13, CR17, CC4, B-R10-H10	20 (45-65)	.041	2,339	5,380	221
P	CR33	25 (30-55)	.044	2,459	5,656	249
Q	CR19	35 (30-65)	.060	2,406	5,534	332
R	Mine Channels, CPDH1, 2, 17, 18	120 (0-120)	.072	44,916	103,307	7,438
S	CR16	47 (28-75)	.072	1,977	4,548	327
T	CR23	40 (20-60)	.050	2,335	5,370	268
Pad	Mtn States, CLP-2, CLP-3		.050	38,813	84,319	4,216
		38' (30-68) average	.061 average	97,944** sum	309,590 sum	18,882 sum

704 tons .057 oz/ton Blasted 3/19/81

Proven reserves become 329,352 tons at .058 oz/ton, if the entire heap from the March 19th blast is included (29,466 tons at .021 oz/ton).

average grade = total oz./total tonnage

Brian Bond
May 16, 1981

* See Figure 3
** Pad volume not included in this sum.

Table 3

Probable (Indicated) Reserves

Block	Sample Source	Ave. Thick. (Ft.)	Volume (yd^3)	Tonnage	Ave. Grade (oz/ton)
V	CR12	30	2,346	5398	.06
W	CR1, CR43	30	26,632	61,253	.057
X	CR62, CR63, CR40	25	79,292	182,372	.055
Y	Mine Channels, CPDH18	120	42,596	97,970	.06
Z	SAM 3076, 78, 79, 80, 81, 82	25	83,319	191,634	.06
		46	234,186	538,627	.06

Block	Gold (Oz.)
V	324
W	3,491
X	10,030
Y	5,878
Z	11,498
	31,221

$38/98 = .39$
$4/5 = .8$

Table 4

Possible (Inferred) Reserves

Total (in Tons)	Shallow (≤ 200 Ft)
2,339,008	906,575

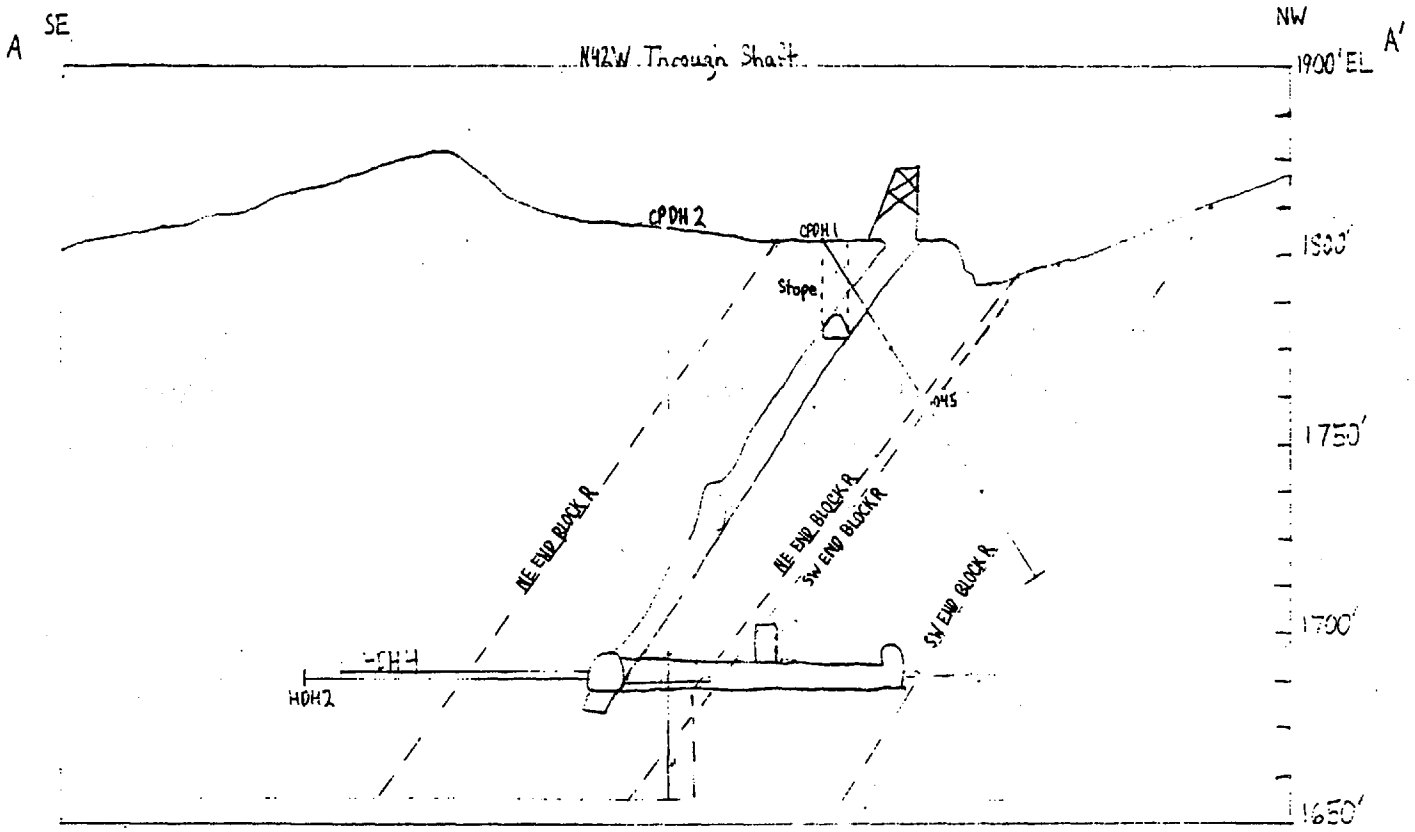
Total Inferred Reserves = Total Structure − Probable Reserves − Proven Reserves − [Charlotte Mine tonnage]

Total Structure = [9,910 Ft. × 100 Ft. × 38 Ft. × $Yd^3/27 Ft^3$ × 2.3 tons/yd^3] = 3,207,904 tons

3,207,904 − 538,627 − 329,352 − 1917 = 2,338,008 tons

2,338,008 × 38/98 = 906,575 tons

CROSS-SECTION ALONG OLD A-A', INCLUDING BLOCK R AND DRILLHOLE LOCATIONS



Volume of rock removed = $(42ft^2)\,21ft. + (42ft^2)\,32ft. + (32ft^2)\,34ft + (48ft^2)\,120ft + (48ft^2)\,47ft. + 320ft^3 + 20ft^3 - 180ft^3 + 364ft^3 - 95ft^3 + 595ft^3 + 150ft^3 + 280ft^3 + (90\,ft^3)\,316 = 22,145\,ft^3 = 857\,yds^3 = 1972$ tons @ 2.3 tons/yd^3

1000 tons from dump removed to pad
200 tons of dump left near shaft
Total Tonnage Mined = 1917 − 1000 − 200 = 772 tons or 335 yds^3

Probable ore block X's volume is the product of the horizontal area, a thickness of 38 feet, and 38/98.

GOLD RECOVERY

Gold on the pad is currently being leached with caustic cyanide solution and precipitated with a Merrill-Crowe zinc dust system; a small amount has been recovered. Silver recovery has been negligible and is retarded by the presence of manganese in the ore. Maximum recovery can be obtained by crushing the ore before leaching (see the Mountain States Conclusions, Figures I, II, V and VI). Recovery is currently reduced due to compaction and channeling (see Table 7, the Density and Permeability Sections). The recovery method determines ore grade, which should not presently be lowered.

> Very large volumes of low grade solutions, mainly containing gold, may be economically treated in carbon columns. Rich solutions in comparatively small volume, or solutions involving a large daily silver production, should be considered for zinc dust precipitation and compared with carbon and other systems on a cost/efficiency basis.[1]

---

[1]Potter, George M., 1981, Design Factors for Heap Leaching Operations, Mining Engineering, SME/AIME, Littleton, Colorado, March 1981, vol. 33, no. 3, p. 280.

FIGURE 22

(49) 40

mountain states

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Simulated laboratory heap leaching of Clementine ore has shown gold recovery to be a function of feed size. The lowest gold recovery, 17.5%, occurred on ±6 inch run of mine ore. The highest gold recovery, 47.7%, was on -1/4 inch crushed ore.

Subsequent testing using the fine grind agitation leach indicated the gold was probably locked with gangue minerals. Gold recovery again increased as feed size decreased. This is shown graphically on the feed size versus recovery curve. (See attached graph).

RECOMMENDATIONS

Mineralogical examination is required to verify gold locking with gangue at the fine size range.

CONCLUSIONS

Microscopic examination of the Clementine ore is urgently needed (see the January 1981 Geologic Report and Mountain State Recommendations). A 50X-150X microscope for drill-cutting and hand specimen examination should be purchased for use at the mine. Petrographic study of characteristic mineral assemblages is also a necessity and could be performed, relatively cheaply, by a commercial agency, such as: Warren Petrographic in Tucson, Arizona.

Approximately 31,000 feet of drilling are needed to properly outline (prove) probable reserve boundaries. Additional drilling is needed to expand the total reserves. The writer recommends a 50,000 foot drilling program, which should begin when assaying and logging of previously sampled intervals are completed (in roughly six weeks).

Mining should be postphoned until an extensive drilling program is carried out. When it resumes, a different method should be used. Mining with scrapers is not selective enough; loading with them causes compaction and channeling of ore on the pad (see Table 7). Shovel loading of trucks or scrapers and pad heaping by front-end loader are viable alternatives.

Construction at the pad and mill sites should be halted until adequate sampling of the area is completed. Gold has been logged in a drillhole from the vicinity (see Figure 1 and Drill Log CR44).

For maximum recovery, the ore should be crushed before

leaching and agitated during the process (see the Mountain State Conclusions and Figures I, II, V and VI). The economic feasibility of crushing and releaching the ore on the pad should be investigated.

Atomic absorbtion appears to be approximately .01 oz./ton more sensitive to gold than fire assay when carefully performed (see Table 6 and 6B, the Appendix). Gold was missed during assay of CR44 and was possibly missed in other holes of the CR40-CR48 series (see the Assay and Pad Construction Sections). Assays require constant monitoring and should be spot checked by independent assayers.

APPENDIX
DRILLING

The number of holes needed to prove the existence and location of the total shallow reserves is the sum of those for probable and possible shallow reserves. A 50 foot spacing of 200 foot holes was projected around existing drillholes. Drillhole positions will ultimately be dictated by the terrain and ease of drill site preparation.

Probable Reserves

TABLE 9

PROBABLE BLACK DRILLHOLES

Block	Number of Drillholes	
V	4	(includes exploratory holes
W	9	from the pit floor)
X	72	
Y	18	
Z	52	
Total	155	

Footage = 155 holes x 200 ft./hole = 31,000 feet

REPORT

ON THE

CLEMENTINE PROPERTY

FOR

VALLEY VIEW GOLD MINES LTD.

Toronto, Canada
September 3, 1987

Watts, Griffis and McOuat Limited
Consulting Geologists and Engineers

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1. INTRODUCTION

1.1 GENERAL

Valley View Gold Mines Ltd. is the Lessee, (from the Clementine Mine Grubstake), of a group of overlapping, unpatented lode and placer claims, which include the Clementine Mine. The mine is located approximately 32 miles northwest of Phoenix, Arizona.

The property contains a small open pit, a stockpile of mined material, and a complete heap leach/surface plant, not currently in operation.

Watts, Griffis and McOuat (WGM) was retained by Valley View Gold Mines Ltd. (Valley View) to prepare an independent evaluation of the Clementine Mine property.

1.2 LOCATION AND PROPERTY

1.2.1 Location

The Clementine property is located in Township 5 North, Range 1 West of the Gila and Salt River Base and Meridian, in Maricopa County, Arizona. The property is also described as being White Peak Mining District and/or the Pikes Peak Mining District, approximately 32 miles north-northwest of the city of Phoenix. Lying at the east end of the Hieroglyphic Mountains, the property is near the Agua Fria River (Figure 1).

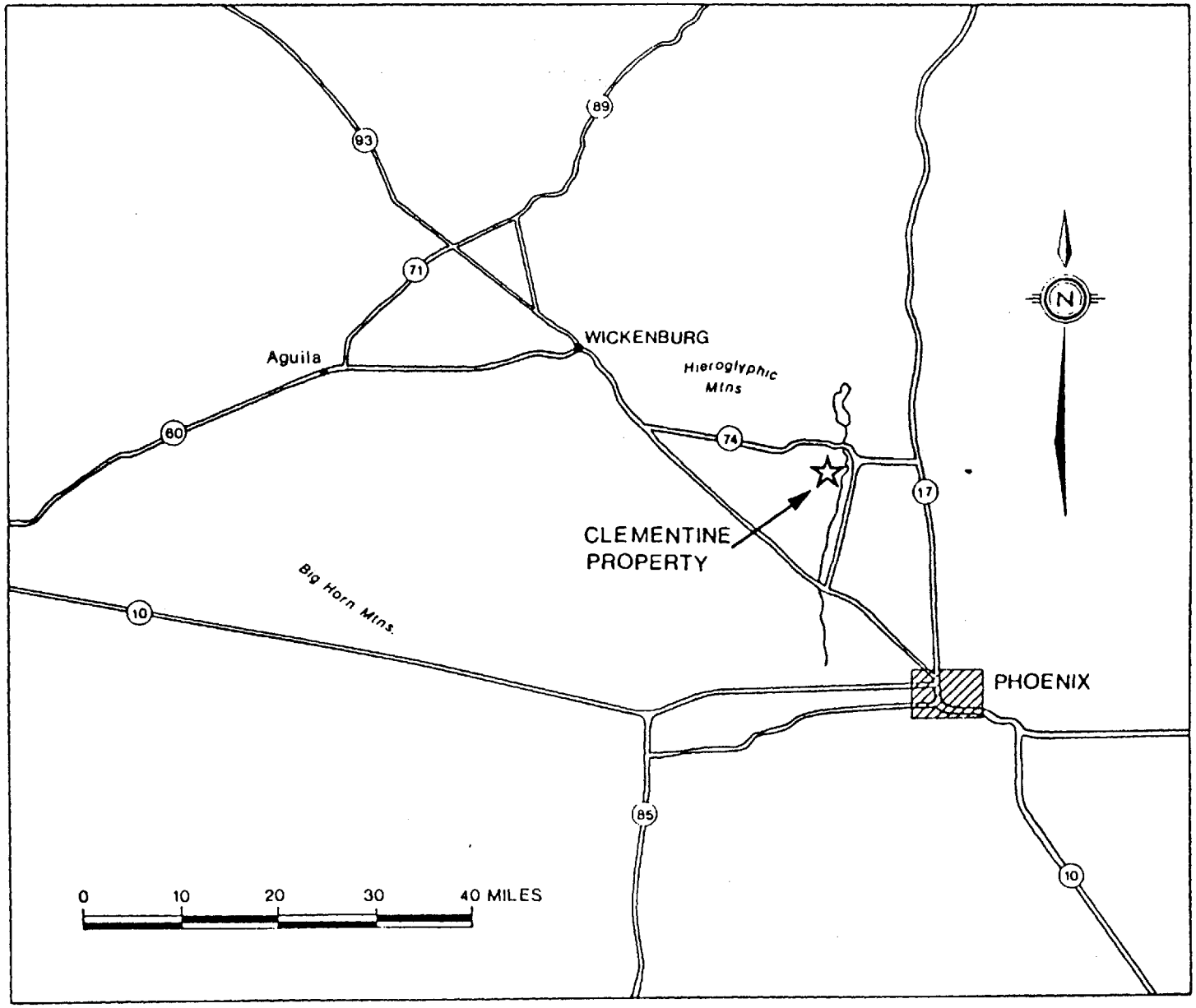

FIGURE 1: Location map.

1.2.2 Property

The following description of the claims is derived from information provided to us by Valley View. WGM has not independently verified title to the property.

The property consists of 76 contiguous, unpatented, lode claims, 19 overlying unpatented placer claims and one millsite claim, which appear on the U.S.G.S. Baldy Mountain and Hieroglyphic Mountains SW, Arizona, quadrangle sheets (1981). The lode claims are each 600 feet wide by 1,350 feet long, for a total land area of approximately 1,444 acres. Each placer claim is 160 acres, however the placer claims overlie all but a small portion of the lode claims. The millsite claim, which is located south of the main claim block, is 300 feet by 650 feet in size. All claims are on federal land and are administered by the Bureau of Land Management of the Department of the Interior. The list of claims is as follows:

Lode Mining Claims:	Charlotte #1-15 inclusive
	Charlotte #22
	Charlotte Mining Group #21
	White Mountain #1-7 inclusive
	Tee Bone #1-4 inclusive
	Plumbers Lode #1-10 inclusive
	Plumbers Lode #12-20 inclusive
	Clementine #1-21 inclusive
	Clementine #25-32 inclusive

Association Placer Claims	Sno-White #1-12 inclusive
	Sno-White #15-18 inclusive
	Piedmont #1-3 inclusive
and the	Charlotte Millsite Claim

1.3 ACCESS, CLIMATE AND LOCAL RESOURCES

1.3.1 Access

The property can be reached from the city of Phoenix by travelling northwest on U.S. Highway 60 and thence northerly approximately 12 miles on well-maintained gravel roads, a distance of approximately 45 road miles. The property is accessible throughout the year.

1.3.2 Climate

The elevation of the property is around 1,800 feet and the climate is desert-type with high daytime temperatures and cool nights. Daytime high temperatures range from 70 degrees Fahrenheit in winter to 120 degrees Fahrenheit during the summer. The mean low temperature reached is about 30 degrees Fahrenheit. The climate is suitable for a year-round heap leach operation.

Vegetation is sparse and precipitation minimal, typical of a desert climate.

1.3.3 Local Resources

Water for the property is obtained from an 1,100 foot well located on the millsite claim. The pump has a rated capacity of 400 gallons per minute, which was more than sufficient to supply the needs of the former mining operation. A diesel generator has been used to provide power for the operation. There is a power line located approximately six miles to the south which could provide power for a larger mining operation.

Suburban Phoenix is a half hour drive from the property, meaning that all the amenities, housing and facilities of a large urban centre are within a short distance of the property. There is a limited amount of housing located approximately 15 miles from the property.

2. HISTORY

Placer gold was first removed from Morgan Wash in the Pike's Peak District in 1939-41 and again in 1948. No figures are available as to the amount of gold recovered. Little is known about gold exploration in the area during the 1930's when the Charlotte Mine (now the Clementine Mine) was established. The Charlotte Mine appears to have consisted of a production shaft to 120 feet and an on-site mill. The four other shafts located on the property may have been constructed at this time.

The property has been explored intermittently since the early 1960's by the United Mining Co. Inc. (UMC) of Phoenix. In August 1980, Copper Lake Explorations Ltd. (CLE) of Vancouver obtained a 20 year lease from UMC in return for 150,000 shares, 50% net profits interest from production and 27,500 ounces of gold, to give CLE a 65% interest and UMC to retain a 35% interest in the property. CLE then performed development drilling (274 blastholes), 1,513 feet of exploration drilling, some assessment drilling, and constructed a heap leach pad and a recovery plant able to process 5,000 tons of solution per day. They also constructed a complete surface plant for the Merrill-Crowe processing of ore and an assay lab.

Drilling results included the results from 24 rotary holes which yielded an average assay value of 0.228 oz. Au/ton over a width of 12.7 feet. These holes were drilled on a north-northwest trend which extended approximately 1,580 feet.

Processing began early in 1981 when diamond drilling and assaying results led Michael J. Bruder, in his November 13, 1981 report to estimate a mineral tory of 1,002,943 tons at 0.054 ounces of gold per ton. A second estimate by Brian Bond, also in 1981, was 329,352 tons at 0.06 oz. Au/ton, and an additional 2,876,635 tons at an unspecified grade, for a total of 3,205,987 tons at a cut-off grade of 0.01 oz. Au/T. Leaching of 55,000 - 80,000 tons of uncrushed, mined material yielded 109.6 ounces of gold recovered and left an estimated 150 ounces of gold still in solution.

In 1981, attempts were made to arrange financing to acquire crushing and pelletizing equipment to improve the recovery of gold. The mine was closed due to a legal dispute over the terms of the lease and production was halted. The dispute was resolved in 1983. CLE was suspended from trading on the VSE in 1985 pending clarification of its financial affairs.

Valley View (formerly Cornucopia Gold Mines, Inc.) acquired the lease for the Clementine Mine property in 1987. The terms of the lease were: the cash payment of $32,000 U.S.; expenditure of $75,000 U.S. on exploration, development, etc. of the property between July 1 and December 31, 1987; a commitment by Dec. 31, 1987 to undertake the full feasibility project or make a $150,000 U.S. payment towards development or purchase; and royalty payments of $75,000 U.S. per month, starting January 1, 1988, which are deductible from a scale of production royalities payable.

Our geologist made a site visit in June 1987 and took large (1,500 pound) samples from three key areas of the property to verify reported grades and determine the amenability of the material on the leach pad to heap leach processing.

3. GEOLOGY AND MINERALIZATION

3.1 REGIONAL GEOLOGY

While WGM did visit the site, our geologist did not carry out any detailed geological mapping of the property. The description below is based on a number of reports by government and others listed in the Sources of Information, and observations made on site.

The Clementine project is situated at the eastern end of the Hieroglyphic Mountains in central Arizona. The area is within the southeastern part of the Basin and Range province, along a broad east-west lineament known as the Walker Lane - Texas Zone, at the southern edge of the Colorado Plateau. The main geological units in the area are Precambrian schists and crystalline rocks, Cretaceous andesites and Tertiary volcanic flows, all partially covered by Quaternary sediments.

During the Laramide Orogeny (80 - 40 million years ago) the area was subjected to thrust faulting, extensive Tertiary volcanism and finally the block faulting which resulted in the mountain ranges and deep infilled valleys which are characteristic of the Basin and Range province. The Cretaceous and older rocks south of the Colorado Plateau were strongly deformed and intruded by plutonic rocks.

3.2 LOCAL GEOLOGY

The Clementine property is primarily underlain by a thick unit of Precambrian schist known as the Yavapai Schist, which strikes northeast and dips 85 degrees to vertical. White Peak, in the southwest corner of the property, is a Precambrian granitoid plug.

Overlying the Precambrian crystalline and metamorphic rocks are extrusive basalts; lithic, usually poorly welded, tuffs; and porphyritic latite flows (Hells Gate unit) of Tertiary age. These rocks are more restricted in their surface exposure than the Precambrian schists, and they occupy a northwest-trending band running from the central-eastern boundary to the central-northern boundary of the property.

Since the Laramide Orogeny, the area has remained relatively tectonically stable with few major faults. The faulting observed is oriented in either a northwest or northeast direction.

The main host of mineralization is the Yavapai schist, which has been intruded by Cretaceous andesite dikes. Two sets of quartz-calcite vein structures at attitudes of N 50° E, dipping southeast and N 30° - 70° W, dipping southwest, occur on the property. The latter vein set is argentiferous and manganiferous. Both sets were emplaced along shear zones, with the consequence that their intersections are intensely fractured. The veins are thought to be of Tertiary age. Pervasive alteration of biotite to hematite is associated with the veins and sericite is also present. Silicification and chloritization increases toward the periphery of the vein structures. Epidote occurs as a result of both regional metamorphism and mineralizing

fluids. Sparse magnetite is found in the quartz veins, but no pyrite has been observed. The oxidized zone extends down to ground water level at approximately 400 - 800 feet below surface.

3.3 MINERALIZATION

Very fine gold has been observed in the vuggy, sucrosic quartz veins and accompanying hematite. It also occurs along foliation planes in the surrounding schists. Pale amethyst is occasionally found in the quartz and its frequency increases in the mineralized zones. Gold appears to occur preferentially with limonite, where it and limonite are both present. Hematite is not always an indicator of gold mineralization.

Wire silver is present in vugs of the manganiferous veins, especially with psilomelane in the pit area. Argentiferous galena also occurs in the manganiferous veins, but none has been observed in the pit. Sparse scheelite, mimetite, molybdenum and copper oxides are also found on the property. Gold and silver appear to occur in the same intervals.

Mineralization is most extensive at the intersections of the shear zones containing the quartz veins. The major mineralized zones trend N 80 degrees E to S 80 degrees E and dip southeast. The cross-cutting nature of these veins as well as rehealed fractures in the quartz in the quartz grains, suggest remobilization took place along the northeast-trending structures. The occurrence of manganese dioxide as vug coatings and fillings is further evidence that the structures could be pulses from the same system. The existence of parallel structures suggests the possibility of additional mineralized intersections.

4. PROCESSING

4.1 GENERAL

Gold has been recovered at the Clementine Mine by a process of heap leaching and Merrill-Crowe zinc precipitation, where run of mine material was stacked on the leach pad and sprinkled with cyanide in solution. This has not been found to be an effective method of gold recovery for this particular property. Metallurgical testing indicates that "conventional" cyanide processing may be required to treat the Clementine mineralization.

4.2 PREVIOUS METALLURGICAL TEST WORK

In 1981, 1,200 pounds of Clementine mineralized sample was delivered by CLE to Mountain States Research and Development in Tucson, Arizona. The material underwent four column leach tests, two agitation leach tests and assay analysis. Later, additional agitation leach tests were requested. Clementine well water was also supplied for use in the leach tests and for a complete water analysis.

The leach test procedure consisted of mixing and splitting, crushing, grinding, cyanide leaching and assay analysis. The purpose of the test program was to determine the leach rate, extraction, reagent consumption and the effects of feed size.

Column heap this testing indicated that the highest gold recovery, 47.7%, was achieved when the finest crushed material, -1/4", was used as feed. Recovery dropped off dramatically as the size of the feed increased, to a low of 17.5% gold recovered from a run of mine sample (±6 inch).

Fine grind agitation leaching was done at -1/4", -10 mesh, -65 mesh and -100 mesh size. All samples were equally conditioned and agitation leached for 70 hours. Equivalent samples were leached using Clementine and Vail water, with no appreciable difference in the results. The results of the agitation leach tests showed the best liberation of gold at the finest size feed, or -100 mesh. The gold was apparently locked with gangue until -65 mesh size crushing. The extraction of gold was 93% using Clementine well water and -100 mesh size feed.

4.3 RECENT METALLURGICAL TEST WORK

Preliminary test work on a 1,500 lb. sample from the heap leach pad (reported to be 90,000 tons) was done at Bateman Metallurgical Laboratories in Reno, Nevada. The sample was taken in an attempt to represent average grade material, assumed to be in the range of 0.05 - 0.10 oz. Au/ton, and deliberately eliminated any obviously unmineralized material. It is believed that little or no control was exercised over the grade of material mined or stacked on the leach pad.

The sample was homogenized and a representative sub-sample was taken for fire assay. The sample underwent a series of bottle roll cyanidation tests using material crushed to -1", -1/2", -1/4" and -10 mesh size.

The bottle roll test of the -10 mesh leach pad sample gave a preliminary recovery of 44% gold over a 72 hour period.

4.4 RECENT ASSAYING

Three 1,500 pound samples were taken from the property by WGM during June 14 - 20, 1987. The sampling attempted to be representative, except in the case of the heap leach pad (as described above). The other two samples were taken from the 50,000 ton stockpile of mined material and the toe of the northwest face of the pit. Bateman also conducted the fire assaying of these samples.

The assay results were: 0.07 oz. Au/ton for the heap leach pad; 0.044 oz. Au/ton for the mined material stockpile; and 0.55 oz. Au/ton for the northwest face of the pit.

In addition, a metallic screening assay procedure was carried out on the pit sample to determine if large gold particles could have resulted in the high assay; in other words a "nugget effect". The results of this procedure indicated that the gold is quite fine, as the +150 mesh "metallics" had a lower assay than the -150 mesh pulp.

4.5 DISCUSSION

The results of the recent metallurgical testing indicate that material gathered from the leach pad may not be amenable to heap leaching due to the fine grinding needed for reasonable recovery. Screen tests on the sample taken from the pit indicate that a gravity circuit in a processing plant would not be effective in gold recovery. From the results of tests to date, it would appear that ore grade mineralization would have to be treated by a "conventional" cyanide processing method. Further tests on selected low grade (<0.10 oz. Au/ton) material may indicate that some of the Clementine mineralization may be recovered using heap leach procedures.

5. CONCLUSIONS AND RECOMMENDATIONS

The mineralization discovered to date on the property is encouraging enough to meritadditional work in the form of confirmation of grades and gold recovery by reverse circulation drilling and metallurgical test work.

A significant strike length of mineralization, 1,580 feet, is indicated from previous drilling. An inventory of low-grade mineralization has been estimated by several workers on the property. The mineral inventory is estimated by Bond to be 3.2 million tons at a cut-off grade of 0.01 oz. Au/ton. WGM feels that unless additional mineralization of this grade is found with improved metallurgical recovery, initial work should be oriented towards increasing the mineral inventory of the higher grade mineralization.

Phase I of a recommended program has been completed and WGM believes that the property merits an initial modest exploration program due to the encouraging assays of samples taken from the pit and leach pad. The indication of significant high grade mineralization outlined by previous drilling supports this suggestion.

A Phase II program is recommended which is subdivided in order of priority. The program would attempt to determine the structural and stratigraphic controls of mineral deposition and outline areas for drilling. Additionally, areas in which previous drilling has indicated significant high grade mineralization would be tested to confirm the grade and width of the intersections. Finally, step-out drilling would be undertaken to define the extent of the mineralization along strike and, to a lesser extent, down dip.

The Phase II exploration program is outlined below:

PHASE II

A:

1) Locate a 2,000' by 1,000' grid on 50' centres with 50' stations.
2) Map the geology and structure underlying the grid.

B:

1) Drill the area south of the pit to confirm the grade and continuity of the high grade mineralization in this vicinity.

C:

1) Drill step-out holes along strike to determine the continuity of the mineralization.
2) Drill targets based on mapping and structural analyses.

The estimated budget for the program is:

PHASE II BUDGET

	(US $)
A: Grid and Geological mapping	
Professional fees.....	8,300
Expenses.....	5,000
B: Drilling - 10 holes @ 200' @ $12/ft.....	24,000
Professional fees.....	8,300
Expenses.....	6,250
C: Drilling - 10 holes @ 200' @ $12/ft.....	24,000
Professional fees.....	8,400
Expenses.....	6,250
D: Contingency.....	9,500
	=====
TOTAL PHASE II.....	$100,000

A Phase III budget cannot be determined at this time as phase will depend upon the results of Phase II and upon the economic analyses of processing the pad material. Phase III would consist of the following:

* Additional drilling to upgrade the mineral inventory to the proven and probable categories.

* Metallurgical testing of drill samples to determine optimum extraction method.

* Bulk sampling and crushing of pad material to determine amenability of agglomeration and heap leaching of -10 mesh size material.

6. SOURCES OF INFORMATION

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Bruder, Michael J. 1981	Report on Clementine Ore Reserves, Maricopa County, Arizona.
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Weathers, Gerald 1983	The 1983 Assessment Work Performed on United Mining Co.'s Clementine Group of Contiguous Mining Claims, Maricopa County, Arizona.
Poliquin, J.Duane (?)	Property Evaluation Charlotte Gold-Silver Prospect, Maricopa County, Arizona.

REPORT

on the

CLEMENTINE PROPERTY

PIKES PEAK MINING DISTRICT

ARIZONA

Sections 3, 4, 9, 10, 11, 14, and 15
Township 5 North, Range 1 West, G&SRB&M

Baldy Mountain quadrangle, Arizona

for

JW 88

EAST WEST RESOURCES, INC.

3 Harbor Drive
Sausalito, California
94965

by

Kenneth T. Bondurant
Consulting Geologist

SUMMARY

The Clementine gold property is located in the Pikes Peak mining district, about 30 miles northwest of Phoenix, Arizona. The property consists of 26 unpatented placer claims, 86 unpatented lode mining claims, and one millsite.

These claims cover the strike of a quartz-carbonate vein that hosts gold mineralization. The vein was discovered in the 1930's, and a small shaft was driven to about 120' depth. Minor lateral workings were developed, and the deposit produced only a few hundred tons of ore before activity ceased. Free gold occurs in the vein which is hosted in the Precambrian Yavapai schist. The vein crops out in several portions of the property, is known to extend along strike for over 1200 feet, and ranges in thickness from 10' to over 100'. The average thickness is about 35'. Portions of the vein contain high-grades of gold; some drill sections average 0.404 oz/ton gold over 45'. Drilling of the vein has shown that a significant, open-pittable deposit containing 278,800 tons of ore averaging 0.22 oz/ton gold occurs at and near the surface. Waste/ore stripping ratios will not exceed 3.5/1. Additionally, another 290,000 tons of open-pittable ore averaging 0.20 oz/ton gold are inferred. The deposit is open on three sides.

Metallurgical testing indicates that the ore must be ground to -65 mesh in order to achieve recoveries of greater than 85%. Milling of the ore will be required during processing.

No problems are anticipated obtaining permits for mining and processing of the ore. The property was operated briefly during 1981 as a heap-leach operation. Permits will be easily renewed for milling and cyanide-extraction operations.

Additional drilling of the property should be done to close off the high-grade portion of the deposit, determine the mineable tonnage and its grade, and provide data for mine planning.

INTRODUCTION

The writer was asked by Dr. Thomas L. Robyn, Exploration Manager for East West Resources, Inc. to prepare a report describing the acquisition of and an appropriate program and budget to define the recoverable reserves at the Clementine property. The property is held by Valley View Mines, Ltd. of Toronto, through a lease on the claims.

The writer has visited the property, collected samples for assay, and examined in his office the data made available to him by East West Resources.

LOCATION AND ACCESS

The Clementine property is located 30 miles northwest of Phoenix, Arizona, in sections 3, 4, 9, 10, 11, 14, and 15, T.5N., R.1W., Gila and Salt River Base and Meridian, Maricopa County, Arizona, on the Baldy Mountain quadrangle map (Figure 1). The property is at an elevation ranging between 1600' and 1700', and lies at the east end of the Hieroglyphic Mountains adjacent to the Agua Fria river. The area is referred to as the Pikes Peak mining district.

Access to the property is accomplished by taking Highway 10 north from Phoenix to Bell Road, then west to 99th Street, north on 99th to Jomac Road, west on Jomac to a dry wash, then by dirt roads to the property.

PHYSIOGRAPHY AND VEGETATION

The area around Phoenix is typical of the Basin and Range province of the western United States. Fault-block mountain ranges and ridges are common in the region. Phoenix sits in the low desert portion of the province. Low ridges adjacent to a large alluvial plain characterize the Clementine property.

The area is characterized by very hot summers and cool winters. The site is serviced by the infrastructure developed for the heap-leach operation. The nearest facilities are about 15 miles to the south, in Sun City.

Clementine lies in the Lower Sonoran life zone. Vegetation is sparse, with low sagebrush, cactus, creosote bushes, mesquite, palo verde, and occasional tufts of grass being present.

PROPERTY

The property consists of 86 contiguous, unpatented lode claims, 26 overlying unpatented placer claims and one millsite claim. The property covers a total of approximately 1,444 acres. The placer claims overlie all but a small portion of the lode claims.

The Clementine property is held under different claim groups. These are:

A. Charlotte #s 1-15, and 22	Lode
B. Charlotte Group 21	Lode
C. Charlotte Milling	Mill
D. Clementine #s 1-32	Lode
E. Pegmillite	Lode
F. Piedmont #s 1-3	Placer
G. Plumbers Lode #s 1-20	Lode
H. Sno-White #s 1-23	Placer
I. Snow White #s 1-8	Lode
J. Tee Bone #s 1-4	Lode
K. White Mountain #s 1-7	Lode

All claims are on Federal land and are administered by the Bureau of Land Management of the U. S. Department of the Interior.

HISTORY

Little is known about gold exploration in the area during the 1930's when the Charlotte Mine (now the Clementine Mine) was established. The Charlotte Mine consisted of an inclined production shaft and an on-site mill. The four other shafts located on the property may have been constructed at this time.

Placer gold was first discovered in the Pikes Peak district in 1939-1941 and again in 1948. No figures are available as to the amount of gold recovered.

The Clementine property has been explored intermittently since the early 1960's by the United Mining Company, Inc. of Phoenix. In August, 1980, Copper Lake Explorations Ltd. of Vancouver obtained a 20-year lease from United Mining. Copper Lake then performed development drilling (274 blastholes), 1,513' of exploration drilling, some assessment drilling, and constructed a heap-leach pad and a recovery plant able to process 5,000 tons of solution per day. They also constructed an assay lab and a complete surface plant for the Merrill-Crowe processing of ore.

Drilling results included the results from 24 rotary holes which yielded an average assay value of 0.228 oz/ton of gold over a width of 12.7 feet. These holes were drilled on a trend which extended approximately 1,580 feet.

Processing began early in 1981 when diamond drilling and assay results indicated a mineral inventory of 1,002,943 tons averaging 0.054 oz/ton gold. A second estimate, also done in 1981, indicated 329,352 tons at 0.06 oz/ton gold, with an additional 2,876,635 tons at an unspecified grade. Leaching of 80,000 tons of uncrushed, mined material recovered 109.6 ounces of gold, for a recovered grade of 0.001 oz/ton.

In 1981, attempts were made to arrange financing to acquire crushing and pelletizing equipment to improve the recovery of gold. The mine was closed due to a legal dispute over the terms of the lease, and production was halted. The dispute was resolved in 1983.

In 1985, Copper Lake was suspended from trading on the Vancouver Stock Exchange pending clarification of Copper Lake's financial affairs.

Valley View Gold Mines, Ltd. (formerly Cornucopia Gold Mines, Inc.) acquired the lease for the Clementine Mine property in 1987. Subsequently, East West Resources entered into a joint venture on the property with Valley View.

DESCRIPTION OF PROPERTY

The Clementine property is situated at the eastern end of the Hieroglyphic Mountains in central Arizona. The area is within the southeastern part of the Basin and Range province, along a broad east-west trending lineament known as the Texas lineament, at the southern edge of the Colorado Plateau. The main geological units in the area are Precambian schists and crystalline rocks, Cretaceous andesites and Tertiary volcanic flows, all partially covered by Quaternary sediments.

During the Laramide Orogeny (80-40 million years ago), the area was subjected to thrust faulting, extensive Tertiary volcanism, and finally the block faulting which resulted in the mountain ranges and deep, infilled valleys which are characteristic of the Basin and Range province. The Cretaceous and older rocks south of the Colorado Plateau were strongly deformed and intruded by plutonic rocks.

The Clementine property is underlain by a thick unit of Precambrian schist designated the Yavapai schist, which strikes northeast and dips 85 degrees to vertical. White Peak, in the southwestern corner of the property, is a Precambrian granitoid plug.

Overlying the Precambrian metamorphic and crystalline rocks are: extrusive basalts; lithic, usually poorly-welded tuffs; and porphyritic latite flows (Hell's Gate unit) of Tertiary age. These rocks are more restricted in their exposure than the Precambrian schists, and they occupy a northwest-trending band running from the central-eastern boundary to the central-northern boundary of the property.

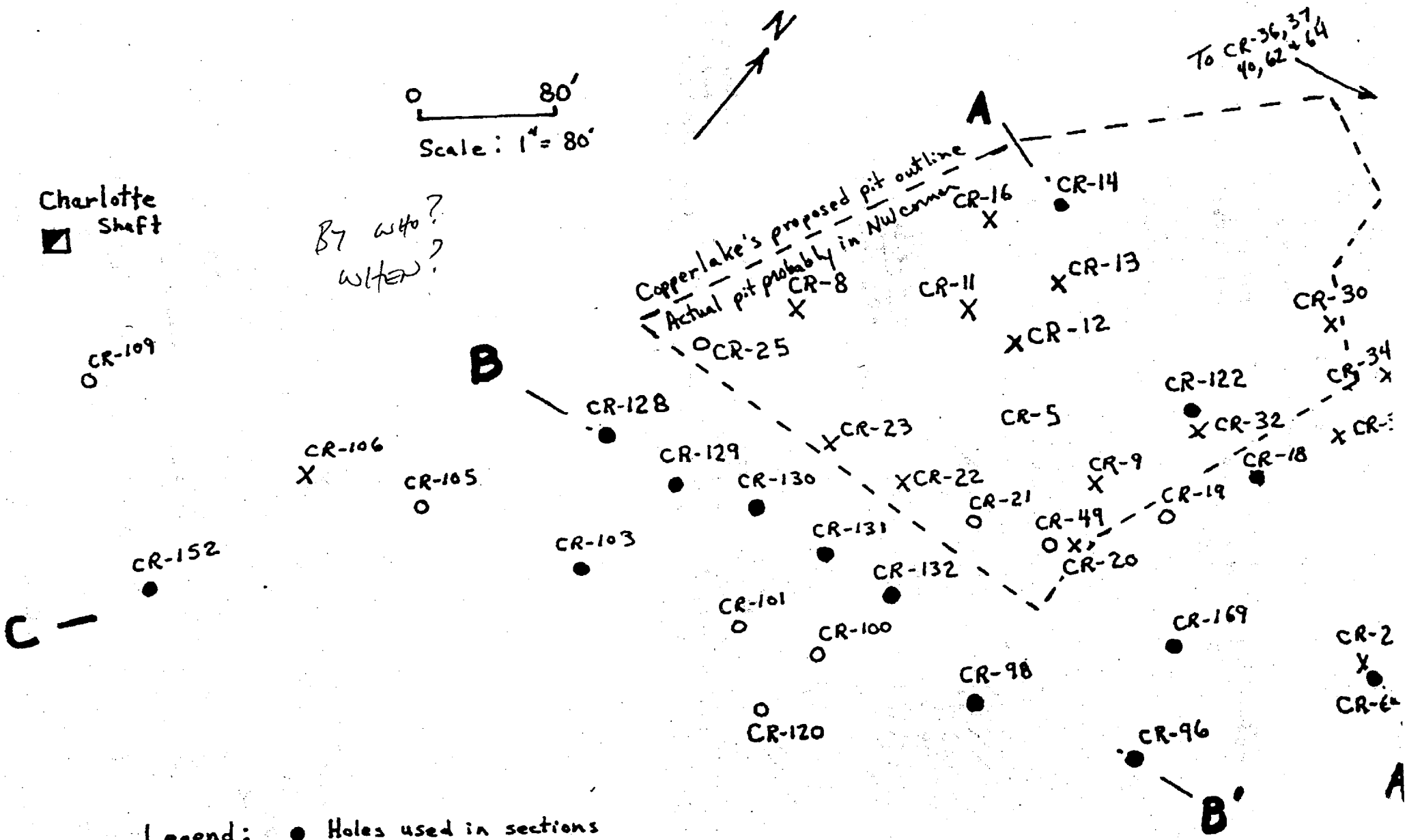
Since the Laramide Orogeny, the area has remained relatively stable tectonically, with few episodes of major faulting. The faulting observed is oriented in either a northwest or northeast direction.

PREVIOUS WORK

Exploration to date on the property includes drilling of 172 rotary drill holes, mainly on the Charlotte #2 claim, but also on the Charlotte #s 1 & 3. Significant intercepts of gold mineralization were made in 50 of these holes, in true thicknesses of 10-80' with 20-35' being the most common thickness. Of these, 38 holes had high-grade intercepts of 0.1 oz/ton gold or better over 5' or more. For example, CR-14 penetrated 0.404 oz/ton gold from the surface to a depth of 45'.

MINERALIZATION AND RESERVES

The main host of mineralization is the Yavapai schist, which has been intruded by Cretaceous andesitic dikes. Two sets of quartz-carbonate vein structures occur on the property. These strike N 50 degrees E,



Legend:

- ● Holes used in sections
- o Holes with assay results which appear reproducible
- x Holes with anomalous assay results, but assaying appears questionable. Inferred to be ore or near-ore holes.

Fig. 2

dipping southeast, and N 30-70 degrees W, dipping southwest. The latter vein set is argentiferous and manganiferous. Both sets were emplaced along shear zones, with the consequence that their intersections are intensely fractured. The veins are thought to be of Tertiary age.

Pervasive alteration of biotite to hematite is associated with the veins, and sericite is also present. Silicification and chloritization increase toward the periphery of the vein structures. Epidote occurs as a result of the effects of both regional metamorphism and mineralizing fluids. Sparse magnetite is found in the quartz veins, but no pyrite has been seen. The oxidized zone extends down to ground-water level at approximately 400-800 below the surface.

Gold has been observed in the vuggy, sucrosic quartz veins and accompanying hematite. It also occurs along foliation planes in the surrounding schists. Pale amethyst is occasionaly found in the quartz, and its frequency increases in the mineralized zones. Gold appears to occur preferentially with limonite, where it and limonite are both present. Hematite is not always an indicator of gold mineralization.

Wire silver is present in vugs of the manganiferous veins, especially with psilomelane in the pit area. Argentiferous galena aso occurs in the manganiferous veins, but none has been observed in the pit. Sparse scheelite, mimetite, molybdenum and copper oxides are also found on the property. Gold and silver appear to occur in the same intervals.

Mineralization is most extensive at the intersections of the shear zones containing the quartz veins. The major mineralized zones trend N 80 degrees E to S 80 degrees E and dip southeast. The cross-cutting nature of these veins as well as rehealed fractures in the quartz grains, suggest remobilization took place along the northeast-trending structures. The occurrence of manganese dioxide as vug coatings and fillings is further evidence that the two vein systems could represent pulses from the same system. The existence of parallel structures suggests the possibility of additional mineralized intersections.

Five studies of reserves have been done on the property. The first, done in May, 1981 by Brian Bond, Consulting Geological Engineer, reports proven gold reserves of 329,352 tons @ 0.058 oz/ton and probable reserves of 538,627 tons @ 0.06 oz/ton (using a 0.02 oz/ton gold cutoff grade). Possible reserves were estimated at 2,338,008 tons, of which 906,575 tons are at depths of less than 200'. Bond stated that additional mineralization could occur at greater depths.

The second study, done in November, 1981 by Michael J. Bruder, reports proven gold reserves of 1,002,943 tons @ 0.054 oz/ton, using a 0.02 oz/ton gold cutoff grade.. His proven reserves were measured directly from drill hole assays, and no information was interpreted more than 100' in any direction.

ENVIRONMENT AND PERMITTING

In 1981, the Clementine mine was permitted and operated as a heap-leach operation. The recovery of gold was poor, as had been indicated by Mountain States' tests. Poor recovery led to attempts to refinance the operation in order to obtain crushing and grinding equipment, and the operation was shut down because of investigations regarding clarification of financial affairs.

The mine still has sufficient reserves to justify reopening it. Recovery of gold would be by agitation-leach method.

There are no known problems which would delay or prevent re-permitting the operation.

RECOMMENDATIONS FOR FURTHER WORK

Data available indicate that the Clementine deposit contains a high-grade gold zone which can be mined by open-pit method. The data used to reach this conclusion are from drill holes spaced widely-enough that only 60,780 tons of ore can be termed proven. There is no geologic map of the property, or even a topographic map. Additional surface sampling and drilling should be done to define more proven reserves, and allow mine planning. The limits of the high-grade gold mineralization are not known, and before operations buildings are constructed these limits should be defined.

The following actions are recommended:

Action	Estimated Cost
Surveying/Base Map	$ 8,000
Geologic Mapping	7,500
Bulk Sampling	16,000
Sample Shipment	3,000
Assays	1,200
Drilling, 30 RC holes, 4500'	45,000
Drill Supervision	6,500
Sample Shipment	1,000
Assay of Drill Cuttings	13,500
Reporting	2,400
Travel, Food & Lodging	2,500
Total	$106,600

These actions can be completed within six months. The greatest delay will be obtaining survey control and air photographs for an ortho-photo base map.

CERTIFICATE OF QUALIFICATIONS

I, Kenneth T. Bondurant, do certify that:

1) I am a consulting geologist with offices at 13564 Sirus Drive, Littleton, Colorado.

2) I am a graduate of the University of Montana with a degree in geology.

3) I am a member in good standing with the Society of Mining Engineers and the American Institute of Professional Geologists.

4) I have practiced my profession continuously since 1959.

5) This report is based on my personal examination of the property, as well as reports written for Copper Lake Exploration, Ltd., Valley View Gold Mines, Ltd., Energy Reserves Group, Inc., and East West Resources, Inc. Conversations with East West Resources staff provided additional information.

6) I have no interest in the property or shares of East West Resources, Inc., or any of its related companies, or in any of the companies that may have contiguous property to the Clementine property.

Kenneth T. Bondurant
January 11, 1988

Certified Professional Geologist # 2279

April 7, 1989

Mr. Tony D.S. Wicks
East West Minerals, Inc
3 Harbor Drive. Suite 103
Sausalito, CA 94965
415- 331- 8850
Dear Sir:

I tried to call you at your office several times on Thursday, April 6 but apparently you are to busy or you do not want to discuss the East West milling operation of the Clementine ore at the Redtail mill and the problems that resulted. I believe that the data you have received from your consultants indicate it was the mill's fault your recovery of the gold from the Clementine ore was poor. I believe additional information may be helpful in your evaluation of this project and future projects your company is contemplating.

As you know Mr. Robyn approached the management of the Redtail mill in November, 1988 in regard to milling of some gold ore from the Clementine mine near Phoenix, AZ. I told Mr. Robyn that I was familiar with this mine and believed it had some high grade gold ore that may be amenable for processing at the Redtail mill. I was also adamant with Mr. Robyn that a major condition in any contract would be that East West Minerals furnish all the necessary metallurgical personnel and complete all laboratory work on the ore previous to any mill run. I also emphasized that it had been my previous milling experience that any project that did not have adequate preparation resulted in failure and it was ALWAYS the mill's fault and not the supervisors of the project. Mr. Robyn assured me that professional metallurgical consultants would supervise all aspect of the milling and that the complete mill facility and personnel would be under the direct supervision of the metallurgical consultant.

John O. Rud *Geological Consultant*

In November, the mill was inspected by your metallurgical consultants on at least two occasions prior to the 700 ton mill run. In fact a test run was completed in November, 1988 which was supervised by Terry Hertel and Tom Robyn with the results evaluated and further test work completed in Denver. I was assured by Mr. Hertel and Mr. Robyn that the lab work had increased the gold recovery into the mid to high 80% range.

Mr. Robyn contacted me on completion of the test run and requested milling time at the end of November, 1988. I agreed to block out a 2 week period and made plans accordingly. On December 1, Mr. Robyn called and cancelled this arrangement and moved it to December 12th. On December 10th Mr. Robyn cancelled this arrangement and moved it to January 3rd - 5th. By this time we had all the modifications to the mill completed which were suggested by Mr. Hertel and therefore, had to lay the men off until the East West mill run was to be undertaken in January. My impression at this time was that East West was being run by a bunch of flakes and told my accountant to get a $10,000.00 deposit prior to any milling operations.

I believe the silting problem was also brought up in your FAX to Mr. Rune Kraft and I would like to clarify this situation at this time. The silting of the recirculating water was discussed in a breakfast meeting with Mr. Hertel and Mr. Robyn. Mr. Hertel stated that the solids in the water would not affect the recovery of the gold but was concerned about the excessive wear on the pumps. I assured him that we would stand the wear on the pumps for the short time remaining on this mill run so they could complete the mill run on a timely basis. I traveled to Phoenix and rented a mud pump which removed substantial amount of silt from the tailing pond and the recirculating water proceeded to clear up within the next three hours of operations.

In regard to the electrical breakdown it has been my past experience a mill cannot lose any gold if its not processing the material.

At this time I would like to give my critique of the East West Minerals, Inc. operation of the Clementine mine.

1. The operation began in one of the infrequent rain storms in Arizona. The storms seldom last more than one or two days and suggestions were made to postpone operations until the weather cleared. The recommendations were rejected and material with 10 to 20% clay was

transported to the Redtail mill. Due to the enthusiasm for the success of the project a attempt was made to crush the material with no success. The operation was put on standby and mixed by a loader over the weekend to accelerate the drying process (No Charge to East West Minerals)

RECOMMENDATIONS: Materials dry at the same rate and at less expense in the mine area and should not be transport until it is known that processing can occur upon delivery to the mill site.

2. The Clementine gold ore hauled to the Redtail mill contain oversized material exceeding 5 feet in diameter. The mill is not equipment to handle material of this size and therefore, additional personnel was hired and equipment rented to reduce the material to minus six inches in size.

RECOMMENDATIONS: The Clementine material should have been sized at the mine which would have reduced trucking costs, and the expense of hiring additional personnel at the mill. This could have been accomplished by renting a grizzly to screen off the oversize and when sufficient oversize was stockpiled a contract crushing company would be retained to reduce the oversize to mill size material.

3. Reuber Trucking of Phoenix Arizona was retained to grade and maintain the haulroad, load the material, and transport to the Redtail Mill. Mr. Reuber was guaranteed by Mr. Robyn that a minimum of 2,000 tons would be transported to the Redtail mill. Mr. Robyn also assured me that a minimum of 2,000 tons of material would be processed no matter what the results were in the beginning of the mill run.

RECOMMENDATIONS: Do not guarantee minimum tonnage contracts until metallurgical work has been completed and results proven by complete laboratory workups and preliminary mill runs completed.

4. In my opinion the reasons why East West Minerals did not recover the gold from the Clementine gold ore is as follows:

a. During the mill run no attempt was made to vary the reagents feed rate and therefore, determine if the recovery rate would increase or decrease by the new flotation conditions created.

b. Defoculent was used when recommendations were made not to use this chemical reagent due to unsuccessful gold recovery when processing the Redtail mine ore.

c. Due to sliming characteristic of the Clementine ore a Carbon-in-Leach method was utilized. No preabrading of carbon was completed and therefore, a minimum of 15% of the carbon was lost due to its fine nature, and gold with it?

In Conclusion, a mill consists of a number of inanimate objects that man has designed and hopefully can control. Only the most inexperienced place the failure of the project on the equipment and not on the lack of preparation prior to the processing of the ore. The most objections aspect is the failure to comprehend and evaluate the data obtain during the milling of the material so a good mine cannot achieve a production status which it deserves.

If you would like to discuss this subject further I would be available for consultation at a mutual agreeable time.

Sincerely,

John O. Rud
Geologist, M. Sc.

MIDLAND MINING N.L.

Incorporated in New South Wales
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Telephone: (02) 906-6336 Facsimile: (02) 906-6236
Postal Address: PO Box 548, St. Leonards, NSW. 2065

24 August 1990

Mr. J. Robert Hicks
C/- Hale C. Tognoni
3200 N. Central, Suite 670
Phoenix AZ 85012
USA

Tony 1-415-924 9403
1-702 789 1861
1-415 331 8880

Dear Sir

CLEMENTINE MINE GRUB STAKE

We refer to the Mining Lease dated 1 February 1990 between J. Robert Hicks and ST Group Inc. and to the subsequent assignment of that lease dated 14 March 1990 by ST Group Inc. to Midland Mining NL.

We received yesterday the final report from our geological consultant, Dr. Ken Howard, in relation to his exploration and metallurgical testwork on the above property. A copy of this report is being forwarded to you by Dr. Howard.

You will see from the report that it did not prove possible to define a minimum of 300,000 tons of ore averaging 0.1-0.15 ounces of gold per ton but a smaller and potentially economically viable resource was defined.

In view of the fact that we only received the final report yesterday we would like to have until 30 September 1990 to further evaluate this report and decide if we are willing to proceed to mining and gold production. Under these circumstances we would appreciate cancellation of all royalty provisions in the Mining Lease and an option until 30 September 1990 during which period we would hope to be able to make new proposals to you in relation to mining and production of gold.

We look forward to your early response.

Yours faithfully
MIDLAND MINING NL

N. M. EWART
Director

cc: ST Group Inc.
C/- Martin D. Elsbach
530 South 41st Street
Boulder CO 80303
USA

Mr. T. D. S. Wicks
29 Escalle Lane
Larkspur CA 94939
USA

Mr. L. Williams
Daar & Newman
11500 W. Olympic Boulevard
Suite 600
Los Angeles CA 90064-1530
USA

656ML/1f

FROM : J A KEILY PHONE NO. : 715 837 1021 DEC. 13 1995

This report is a private report done for Lindsay Semple - it is not to be used other than for the private use of Jack Alter & the Bankart family.

December 13, 1995

Jan 3, 1995

TO: Lindsay Semple

FROM: John Keily

RE: Clementine Gold Property

Since our visit to the above property on December 9, 1995, I have reviewed the information provided to myself by yourself and Gerald Weathers. In brief, this property has significant problems to place into production and to be a successful and economic project. The problem areas as I see them are:

1. Permitting
2. Ore Reserves
3. Gold Recovery
4. Plan of Operations
5. Economics of Project
6. Closure Cost
7. Residual Real Estate Value
8. Long Term Monitoring

PERMITTING

Permitting in the USA, and specifically on Government land is a long, frustrating, and costly process. This project will require approval from the State of Arizona, Bureau of Land Management, Corp of Engineers, and possibly County and Local Government bodies. In addition, other agencies with interest in historical preservation and the anti or "Green" groups will be active.

It will be a requirement to do some baseline environmental work and file a Plan of Operations and an Environment Assessment of this project. The agencies will, after public input decide if the EA is sufficient or if a more detailed and exhaustive study is required, a Environmental Impact Statement. I would tend to believe a EIS will be the decision based upon these decisions in the past few years across the USA. It is worth noting that the US Secretary of the Interior, Mr. Babbitt is from Arizona and is all environmental, and will have some impact into the process. Permitting will be costly and long.

ORE RESERVES

Reserves are not well defined, as has been the comment in the previous reports. There apparently does not exist a plan map of the previous drilling or location of drill holes. There are indications of good grade, but this may be overstated due to the coarse gold in the reported samples, "nugget effect". The property is a good potential for additional reserves with a proper exploration drilling program. At present there are several estimates of reserves, more like resources, their economics are in question.

GOLD RECOVERY

Past metallurgical work done and selected samples from this property indicated that heap leach recovery was not a viable option. Recoveries ranged from 17% to 47% with a fine feed sample. Additional work has been done on ground pulps and flotation tests were also done. The results with a fine (-10 mesh) material gave acceptable leach recoveries, (this indicates a milling and vat leach process is required to treat this ore.) Flotation test were successful on a very high grade sample and not representative of the property. It would appear that with sufficient ore reserves this property would need a mill treatment facility.

PLAN OF OPERATIONS

It would appear that the plan is to build a new pad that would hold 100,000 tons or more. This material would be the 80,000 tons on the present pad, plus 20,000 tons broken in the open pit. The contained ounces in the 100,000 tons is estimated to be:

	80,000 tons of 0.04	OPT or	3,200 ounces
	20,000 tons of 0.12	OPT or	2,400 ounces
Total	100,000 tons of 0.056	OPT or	5,600 ounces

Recoverable at 50% 2,800 ounces

Gross value at $400 gold $1,120,000

ECONOMICS

I have estimated, based upon a recent heap leach I was involved with in Nevada and factores for the Clementine Project, below:

Permitting	$ 250,000
Pad Construction	200,000
Process Ponds	175,000
Process Plant	600,000
Power Generation	100,000
Contingency	200,000
TOTAL	$1,525,000

Operating Costs

Mine Ore	$	0.90 per ton
Mine Waste 4:1 ratio		3.20 per ton ore
Crush and Stack		2.25 per ton
Process Cost		1.00 per ton
Administrative Cost		0.50 per ton
Environmental		0.10 per ton
Reclamation Cost		0.20 per ton
Contingency		1.00 per ton
TOTAL	$	9.05 per ton

Cash cost per ounce $325.00

CLOSURE COST

There will be required a closure plan after mining is completed, and this amount must be bonded, usually estimated to be $2,500 to $5,000 per acre of disturbed land. This bond, generally not available to small mining Company from Surety Insurers, therefore it must be funded by cash, letter of credit, or certificates of deposit. These funds are released once the work has been completed to the satisfaction of the regulatory body.

RESIDUAL REAL ESTATE VALUE

It is not possible to patent claims in the USA anymore, unless you are grandfathered and have completed the first half of the old patenting process.

LONG TERM MONITORING

There will be a requirement to monitor the property and groundwater systems after the mine is closed. The period of time can not be defined, it is dependent on the results of the monitoring. At some properties this is a significant item.

SUMMARY AND CONCLUSION

The Clementine property is a good exploration property and possibly could become a small high grade gold producer. At the present time this property is not ready for production and I would not make an investment in it except as a exploration potential.

Thomas L. Robyn, Ph.D.

PROPOSAL FOR CLEMENTINE GOLD MINE
Maricopa County, Arizona
Oct 89

The Clementine gold mine is located 45 miles northwest of Phoenix, Arizona, in the Pikes Peak mining district. The gold deposit was discovered sometime during the 1930's, and an inclined shaft and lateral workings developed along a narrow, extremely-high grade stringer of gold ore. There is no record of production.

During 1982-85, Copperlake Exploration of Vancouver, B.C., explored and developed the property as an open-pit, heap-leach operation. Although the leach pad was operated for a brief time, no production record exists. The mine was closed when the Vancouver Stock Exchange stopped trading of Copperlake's shares in order to investigate "accounting irregularities".

During 1988-89, the property was leased by East West Minerals (Sydney) and Valley View Mines (Toronto); East West was operator of the joint venture. After drilling the property, East West conducted a bulk sampling program which showed high grades of gold in a vein exposed at the surface in the old Copperlake pit. East West subsequently dropped the property because it was not felt that a deposit could be located which would meet their corporate criteria, namely, production of 40,000 ounces of gold per year.

East West's work shows that a high-grade vein is exposed over a length of 120' and a width of about 30-35'. The lower portion of the vein has been sampled and drilled, and assays range as high as fifteen ounces of gold per ton. The average grade is 0.25 ounces per ton. The attached map and cross-section show the known relations of the vein and gold mineralization.

The property is available and represents an attractive small mining venture, with upside potential for becoming a significant deposit. There are 8,000 tons of ore containing 2,000 ounces of gold available in the pit, with no overburden of waste rock. The pit vein could be mined to a depth of only 40' and produce 20,000 tons of ore containing 5,000 ounces of gold, with a waste/ore stripping ratio of 1.8/1.0. Mining to a depth of 120' would produce a total of 50,000 tons of ore containing 12,500 ounces of gold, with an average waste/ore stripping ratio of 5/1.

Mining of the 50,000 tons could be completed within 18 months after production starts, and net about $2,000,000.

From the time the pit drilling is commenced, about eight months are required to obtain permits for the mining operation. Therefore, the total length of time from initiation of the project to mining and processing the 50,000 tons will be about 28 months. It should be emphasized that the ore shoot probably continues to significant depths, and considerably more than 50,000 tons could be mined.

Work on the property would start with a limited shallow drilling program which would provide blast holes as well as assay information on the upper portion of the vein. Simple metallurgical testing should be done to confirm existing data. With this work completed, a permit for use of cyanide on the property would be obtained. The approval process for a cyanide permit requires six months.

During the permitting process, a contractor will be located who would be willing to bring the property into production for a percentage of profits.

Once the property is permitted, the contractor would complete site development, provide the necessary equipment and personnel, and begin operations. Construction of a small leach pad (100' x 150') would be done, the 8,000 tons of material in the upper portion of the pit would be blasted, mined, crushed to -1/4" and agglomerated, and stacked on the pad. Leaching would be done by conventional heap-leach methods. At least 30% of the contained gold (600 ounces) would be recovered in this step. About four months will be required for this step.

Using the revenue from the first 600 ounces (about $215,000, based on gold at $360/oz) plus additional funds provided by the contractor, a small crushing plant, ball mill and agitation tanks would be installed to grind the material to -100 mesh and leach the remaining gold (1200 ounces). This step will require about four months.

The revenue from the latter step (about $600,000) would finance stripping of overburden and mining the next 13,000 tons which would be crushed, milled and fed to the agitation tanks. About 3,500 ounces of gold would be recovered in this stage, which would take about six months. Gross revenue would be about $1,000,000.

From this point, mining and stripping would be a continuous effort. This would allow mining a total of 50,000 tons containing 12,500 ounces of gold over a two year period, at a final waste/ore stripping ratio averaging 5/1. Gross revenues would be about $4,200,000. Note that with the high grades of gold in the Pit Shoot, a waste/ore stripping ratio of 20/1 can be achieved.

The revenue required to initiate the project is:

Phase 1: Drilling and Metallurgical Testing

Survey control:	$ 500
Drilling:	3,000
Assays, 150 samples:	1,500
Metallurgical testing:	2,500
Geologic supervision:	6,100
Travel costs:	2,500
Contingency, 10%:	1,610
Subtotal:	17,710

At this point, a decision can be made. If the results of the testing indicate a non-economic or marginally-economic project, it can be aborted at this point. Thus the maximum risk money is about $18,000.

Phase 2: Permitting and Mine Planning:

Cyanide permit appl'n:	1,500	
Geologic supervision:	1,250	
Permit preparations:	2,000	(drafting, telephone, etc.)
Travel:	500	
BLM Plan of Operations:	1,500	
Reports and feasibility:	1,800	
Contingency, 20%:	1,710	
Subtotal:	10,260	
TOTAL:	$27,970	

The expenditure of about $30,000 yields a fully-permitted and designed mine operation. At this point, a mining contractor would be willing to bring the deposit into production, and be paid out of future revenues. Thus, the project will be carried by a third party in its capital-intensive phase, production of gold.

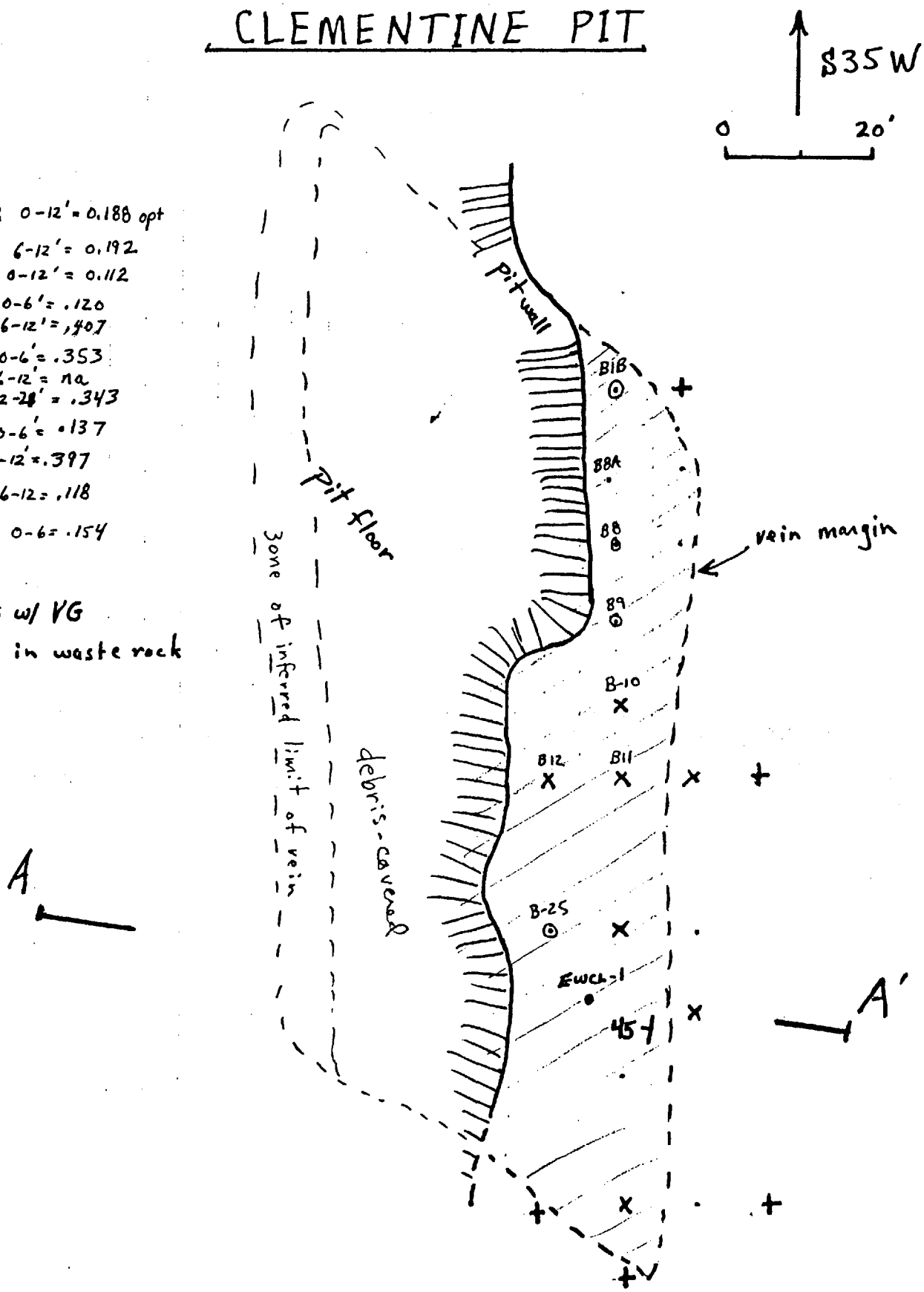
The projected costs and revenues are shown on the attached flow charts, and reflect the worst-case capital cost of operating the mine. Other scenarios will be evaluated which would lower the overall cost of the project, and increase profits. These possible scenarios can be discussed with interested parties.

Thomas L. Robyn, Ph.D.
303/770-4646
October 6, 1989

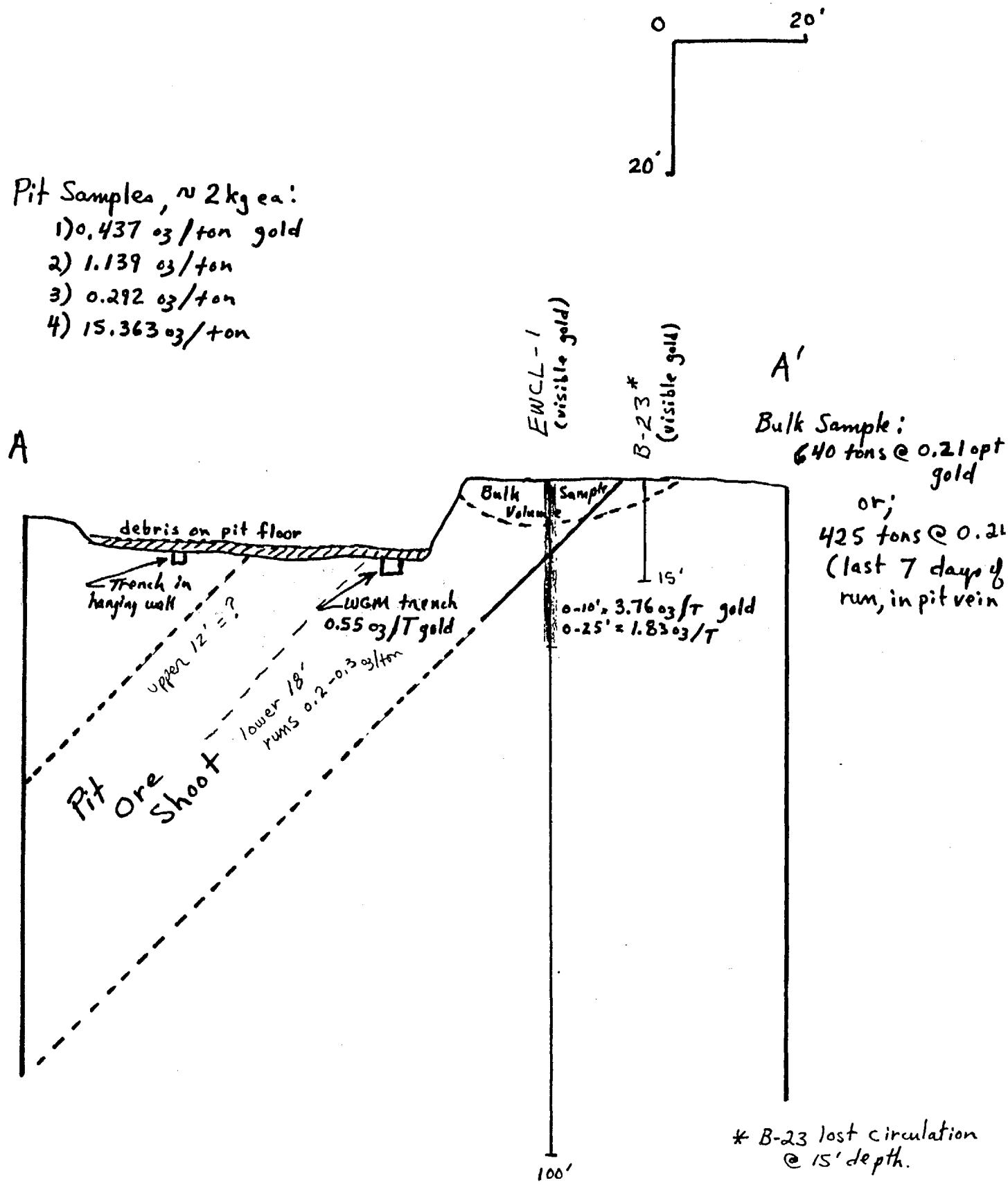
CLEMENTINE PIT

B1B: 0-12' = 0.188 opt
B8: 6-12' = 0.192
B8A: 0-12' = 0.112
B9: 0-6' = .120
6-12' = .407
B10: 0-6' = .353
6-12' = na
12-28' = .343
B11: 0-6' = .137
6-12' = .397
B12: 6-12' = .118
B25: 0-6' = .154

X = holes w/ VG
+ = holes in waste rock



SECTION A-A'


0
20'
20'
Pit Samples, ~2kg ea:
1) 0.437 oz/ton gold
2) 1.139 oz/ton
3) 0.292 oz/ton
4) 15.363 oz/ton
EWCL-1 (visible gold)
B-23* (visible gold)
A'
A
Bulk Sample:
640 tons @ 0.21 opt gold
or;
425 tons @ 0.21
(last 7 days of run, in pit vein
Bulk Sample Volume
debris on pit floor
Trench in hanging wall
WGM trench 0.55 oz/T gold
upper 12' = ?
lower 18' runs 0.2-0.3 g/ton
Pit Ore Shoot
15'
0-10' = 3.76 oz/T gold
0-25' = 1.83 oz/T
100'
* B-23 lost circulation @ 15' depth.

LARKSPUR HOLDINGS, INC.

1460 River View Dr. **Fallon, NV 89406**

Robert Hicks, Agent
Clementine Grubstake
6441 E. McDonald
Scottsdale, AZ 85253
602/948-7823

May 16, 1989

Dear Mr. Hicks:

This letter is an expansion to my letter of April 16th, which confirmed earlier conversations between you, me and Tony Wicks concerning Larkspur Holdings, Inc.'s (Larkspur) interest in obtaining a mining lease on the Clementine Property. This lease would not include the White Mountain #3 and #4 claims, which are being withheld for mining of industrial stone.

The intent of this expanded letter is to provide additional details on our proposed work program.

The Clementine Property (Clementine) was explored and developed by Copperlake of Vancouver, B. C., and then abandoned. There is essentially no information available to us concerning the results of Copperlake's work, even though they constructed many access roads, drilled several hundred holes, developed a small open pit, constructed a leach pad and associated ponds, and constructed operational facilities.

Subsequently, Cornucopia of Toronto (subsequently re-named Valley View Mines, Ltd.) entered into a mining lease with Clementine Grubstake. East West Minerals, Inc., Sausalito, California, became operator of the joint venture formed between Valley View and East West. East West drilled ten holes, and conducted a bulk sampling program. East West subsequently withdrew from the joint venture.

To date, there are no defined reserves on the Clementine ground. While gold has been found in the pit, the underground workings, and various other locations on the property, there is no mineable reserve known on the property.

Additionally, because of Copperlake's activities, the Bureau of Land Management (BLM) considers the property to be in violation of the agency's mining regulations. Tom Robyn was assured that any renewed processing activity on the property will immediately trigger a Notice of Non-Compliance to Clementine Grubstake from the BLM.

Larkspur has concluded an agreement with Vaughan Construction of Fernley, Nevada, to act as our mining, processing and financial partner on the property. Vaughan's activities would be directed by our expertise which is well known to you, while mining,

development and operations activities will be controlled by Vaughan's staff. Vaughan has been a successful mining contractor on several large mining operations in Nevada. At the present time, Vaughan is mining contractor on Coral Resources' open-pit gold mining operation in Crescent Valley, Nevada. During a 21-day period during the month of March, 1989, Vaughan mined and hauled 37,730 tons of ore and 139,685 tons of waste, for a total of 177,415 tons of material. Vaughan is also the mining and processing operator for two bulk-tonnage, gold-mining joint-venture operations scheduled to start production during June and July of this year.

The combined expertise of Larkspur and Vaughan will be applied to bringing the Clementine mine into production as soon as possible.

We are willing to engage in a focused program designed to provide a rapid and definitive evaluation of the property. At the same time, because of the lack of reserves, we are not prepared to make up-front payments or advanced minimum royalty payments. We prefer instead to put our money into the ground with the intent of bringing the property into production as soon as possible, and upon success you, too, will benefit.

We propose the following work program:

- Upon signing of the mining lease, Larkspur will write a Mine Plan of Operations for the property which will be submitted in the name of Clementine Grubstake. This will "legalize" the prior work done on the property. The Mine Plan will include maps which show the existing roads, pit, and structures installed by Copperlake. Mr. Fred Potter of the BLM has assured Tom Robyn that the application will be approved rapidly.

- Concurrently with the writing of the mine plan, Larkspur will conduct a detailed drilling program in the vicinity of the pit. The intent of this program is to define the extent of the gold-bearing shoot which is now exposed in the floor of the pit. Drilling will be done with an AirTrack drill with a 2.5" bit, and holes will be spaced at 5' intervals. The holes will be drilled to depths of 25-50', depending on the depth to the vein's footwall. These holes will also be used as blast holes.

- Cuttings from the drilling program will be assayed by fire-assay method, and a gold concentration pattern determined. The pattern will allow determination of the portions of the vein to be blasted, and where waste occurs. Splits from the cuttings will also be composited for metallurgical testing. Bottle-roll tests on various size fractions will determine the optimal grinding or crushing conditions in order to obtain maximum, economic recovery of gold. Following the bottle-roll tests, column-leach tests will be performed in order to determine the practicality of crushing and agglomerating the ore for recovery by heap-leach method. The intent is to confirm the Mountain States test data which show that the Clementine ore cannot be

treated by heap-leach methods and yield economic recoveries. If the data are confirmed, then the ore will have to be milled in processing.

- Larkspur will write an amendment to the Mine Plan to allow bulk metallurgical testing of up to 20,000 tons of ore at the mine site and submit it to the BLM for approval. If the ore is to be treated by heap-leach method, the test pad will be placed within the existing pad area, where the cyanide operations site is fenced. If the ore is to be milled, the milling circuits will be placed near the existing buildings so that the Merrill-Crowe unit is close to the milling and CIP circuits.

- Upon approval of the amendment, Larkspur will immediately bulk sample and process up to 20,000 tons of ore at a rate to be determined by the metallurgical testing. In any event, the rate of bulk sampling will be not less than 200 tons per day. If the ore is treated by heap-leach method,the pad will be stacked in 10-15 working days. Recovery of gold will be by cyanide recovery methods, either heap leach or agitation leach. Clementine Grubstake will be paid its agreed-upon royalty on production of gold from this program.

Depending on delays in approvals from the BLM (which are expected to be minimal) and delays in approval from the state of Arizona regarding use of cyanide on site (which could be significant), Larkspur will begin the bulk sampling program within six months of signing the mining lease. Delays in obtaining the necessary permits caused by action or inaction of permitting agencies will be Force Majeure.

- Upon completion of the bulk sampling program, expected to take not less than two months nor more than four months, Larkspur will evaluate the results of their work. Should results be such that in its sole discretion Larkspur decides to develop the deposit for full-scale production, development will begin within three months of the end of the bulk sampling program. Development will be done consistent with the timing of issuance of permits. Production will be designed to optimize the economic status of the property. That is, if processing is to be done by heap-leach method, production will be about 2,000 tons per day. If done by milling and CIP treatment, production will be at about 200 tons per day.

- Clementine Grubstake may choose one of two alternatives regarding its share of revenue from the project. These are:

1) Larkspur will pay to Clementine Grubstake a Net Smelter Royalty based on the following formula:

Royalty = (price of gold paid by smelter or refinery/100)%, rounded to the nearest 0.01%.

That is, if the price of gold quoted in the refinery or

smelter settlements is $654.85, the royalty paid to Clementine Grubstake will be 6.55%.

In no event will the royalty paid to Clementine Grubstake be less than 5.00%.

In no event will the royalty paid to Clementine Grubstake be greater than 15.00%

2) Clementine Grubstake will have a 30%, carried, net-profits interest in the project.

Clementine must choose which option it wishes to have prior to completion of any agreement on the property.

- Upon deciding to bring the mine into full production, Larkspur, through Vaughan Construction, will accept the responsibility and cost of reclamation of the property, including reclamation related to Copperlake's activities.

- Larkspur may, at any time, decide not to proceed with further work. In this event, Larkspur may withdraw from the lease without penalty.

- In the event of Larkspur's withdrawal, all factual data generated as a result of its efforts will be given to Clementine Grubstake, at no cost to the Grubstake.

- During the third quarter of each year, a summary report will be sent to the Grubstake's designated representative which describes the previous twelve months' activities and significant results, and will provide a summary of expenses for that year. These results will not be released to a third party without Larkspur's written permission. Notwithstanding the foregoing, Clementine Grubstake may use the information to file the required reports regarding annual assessment work.

- It will be Larkspur's sole decision as to whether exploration and metallurgical testing will be continued, and whether mine development and production will commence.

- Larkspur may assign its rights under this agreement.

This is a summary of the program which we, Larkspur and with the full cooperation and experience of Vaughan Construction, propose to conduct at Clementine. The intent and objective of the program is clear: bring Clementine into full production as soon as possible.

We am looking forward to working with you, and hope we can reach a mutually-satisfactory agreement.

In the interests of both parties, it is best that each of us knows within thirty days if there is mutual interest in concluding an agreement.

Best Regards,

Thomas L. Robyn
Director

cc: Hale Tognoni

LARKSPUR HOLDINGS, INC.

1460 River View Dr. **Fallon, NV 89406**

Robert Hicks, Agent
Clementine Grubstake
6441 E. McDonald
Scottsdale, AZ 85253
602/948-7823

April 18, 1989

Dear Mr. Hicks:

This letter is to confirm earlier conversations between you, me and Tony Wicks concerning Larkspur Holdings, Inc.'s (Larkspur) interest in obtaining a mining lease on the Clementine Property. This lease would not include the White Mountain #3 and #4 claims, which are being withheld for mining of industrial stone.

The Clementine Property (Clementine) was explored and developed by Copperlake of Vancouver, B. C., and then abandoned. There is essentially no information available to us concerning the results of Copperlake's work, even though they constructed many access roads, drilled several hundred holes, developed a small open pit, constructed a leach pad and associated ponds, and constructed operational facilities.

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Larkspur has concluded an agreement with Vaughan Construction of Fernley, Nevada, to act as our mining, processing and financial partner on the property. Vaughan's activities would be directed by our expertise which is well known to you, while mining, development and operations activities will be controlled by Vaughan's staff. Vaughan has been a successful mining contractor on several large mining operations in Nevada. At the present

time, Vaughan is mining contractor on Coral Resources' open-pit gold mining operation in Crescent Valley, Nevada. During a 21-day period during the month of March, 1989, Vaughan mined and hauled 37,730 tons of ore and 139,685 tons of waste, for a total of 177,415 tons of material. Vaughan is also the mining and processing operator for two bulk-tonnage, gold-mining joint-venture operations scheduled to start production during June and July of this year.

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- Concurrently with the writing of the mine plan, Larkspur will conduct a detailed drilling program in the vicinity of the pit. The intent of this program is to define the extent of the gold-bearing shoot which is now exposed in the floor of the pit.

- Cuttings from the drilling program will be assayed, and a gold concentration pattern determined. Splits from the cuttings will also be composited for metallurgical testing. The intent is to confirm the Mountain States test data which show that the Clementine ore cannot be treated by heap-leach methods and yield economic recoveries. If the data are confirmed, then the ore will have to be milled in processing.

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Depending on delays in approvals from the BLM (which are expected to be minimal), Larkspur will begin the bulk sampling program within six months of signing the mining lease.

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We am looking forward to working with you, and hope we can reach a mutually-satisfactory agreement.

In the interests of both parties, it is best that each of us knows within thirty days if there is mutual interest in concluding an agreement.

Best Regards,

Thomas L. Robyn
Director

cc: Hale Tognoni

PROJECT SUMMARY
CLEMENTINE MINE, ARIZONA
MARCH 99

Introduction: The Clementine project was brought to East West's attention by a Toronto firm which first used the name Cornucopia in correspondence. The project then was transferred to Jefferson Valley Mines, Ltd., and then to Valley View Mines, Ltd. Valley View held the lease with Clementine Grubstake, Mr. Robert Hicks, Agent, and offered East West the opportunity to earn 50% of the property by expending $250,000.

I visited the Clementine property during October, 1987, and reviewed what little data were available. The property had been drilled and developed between 1981 and 1984 by Copperlake Mining Company of Vancouver. Copperlake's work included drilling of over 270 RC holes, development of an open pit, and construction of a leach pad, ponds, support buildings, and stripping facilities. Leaching was stopped a short time after operations commenced.

An interesting fact is that Copperlake's own data show that the ore is not heap-leachable. The ore must be ground to -80 mesh in order to achieve decent recoveries (see Appendix 7, Mountain States Metallurgical Test Data). A summary report on the property is in Appendix 2.

In 1985, the Vancouver Stock Exchange stopped trading of Copperlake stock while investigations of "accounting irregularities" were made.

In December, 1987, Mr. Hicks called to inform me that he had located additional data of Copperlake's. I returned to Phoenix and evaluated the data, and concluded that although there was a high degree of uncertainty regarding the validity and reproducibility of the data, a small, high-grade, open-pittable resource might be present at the site which had been overlooked by Copperlake in their rush to develop a large operation. The results of my evaluation are given in the report "Potential for High-Grade Reserves, Clementine Mine, Arizona" which is in Appendix 1.

As a result of this concept, Tony Wicks and I re-negotiated the lease agreement between Clementine Grubstake and Valley View in order to provide more flexibility in the operation. These negotiations were concluded during January, 1988.

During late June, 1988, I supervised a 10 hole RC drilling program which was designed to test the concept of open-pittable, high-grade ore occurring in the vicinity of the pit. The drill logs and assay results are in Appendix 4, RC Drilling Results. The drilling clearly showed that there is no potential for open-pittable ore in the vicinity of the pit. However, one hole, EWCL-1, encountered very high grade ore from the surface to 25' depth (1.83 oz/ton gold). This raised the possibility of being able to process a large-tonnage bulk sample of several thousand tons in order to accomplish two goals: 1)

determine an average grade of the material around EWCL-1, and 2) cover our costs while doing so.

A search was conducted to locate a suitable custom mill for the test. The result was that only one mill was available, the Redtail Mill near Congress, Arizona. A disadvantage being that the mill is a flotation mill, tests were conducted on the EWCL-1 material to determine the Clementine ore's suitability for flotation. Recoveries ranged from 55-78% (see Appendix 6, East West Metallurgical Test Data). An attempt to direct-ship the ore to a smelter was not successful because of the "dirty" nature of the ore (see Appendix 3, Assay Results).

An area around EWCL-1 was drilled and blasted, and about 700 tons of material hauled to the mill. Average mill-feed grade was in the range 0.20-0.32 oz/ton gold, and recovery averaged about 10 %. Most of the gold in the mill run material was in the -200 mesh fraction, too fine to recover by flotation. Thus, the test material (1.83 oz/ton gold) was not representative of the mill run material (0.20-0.32 oz/ton gold) because it contained coarse gold which could be recovered by flotation, while the mill run material contained very little. The drill results are in Appendix 5, and the results of the Mill Test Run in Appendix 8.

The work in the pit exposed the vein by clearing debris from the bottom of the pit. It appears that the material mined from the pit occurs in a large shoot within the Charlotte vein. The shoot could be as large as 25' wide and 180' long. Our bulk sample came from the northeastern tip of the shoot and for the last seven days of the run averaged 0.26 oz/ton gold. If the shoot averages this grade throughout its length, there is the potential for an underground-mineable deposit of 200,000-300,000 tons.

This potential must be explored by drilling and/or trenching the top of the shoot. If successful, a program of detailed drilling designed to follow the shoot to depth would be required in order to develop sufficient reserves to justify development of the deposit and construction of a mill on site.

The Clementine mine represents an attractive exploration target. High grades of gold occur along the Charlotte vein system, and the ore is amenable to CIP processing. The nature of the ore is such that heap leaching is not a viable method of processing the ore, so exploration must be directed at locating millable ore. This requires discovery of open-pittable reserves of over 200,000 tons with grades of 0.12 oz/ton or greater, or underground reserves of at least 250,000 tons with grades of 0.30 oz/ton or greater.

Thomas L. Robyn
March 6, 1989

STATUS REPORT
CLEMENTINE MINE

January 25, 1989
T. L. Robyn

The bulk sampling test of the pit material was delayed by inclement weather, equipment breakdowns, ore that was too wet to put through the crusher, and mill breakdowns.

Approximately 660 tons of ore was processed between January 10th and 21st. Processing was at an average rate of 65 tons/day, with about 25% downtime in the mill.

Head grades during the final days of the run averaged 0.3 oz/ton gold. Assays on heads, tails and cons indicate recoveries ranged between 30 and 70%. Selected samples are being sent to another lab for check assays. The tails assays seem high, given the absence of visible gold in the tails.

Leaching of the flotation concentrates is in progress. Decanting of the first pregnant liquor is scheduled for today. Two leach tanks are being used, and one contains more clays than the other so that settling is taking longer than anticipated. Cyanide consumption continues to be high, so there is still more gold to be taken into solution. Assays on the pregnant liquors will be available in about two days.

The first shipment of sludge is now expected to be done next week.

Excavation of the vein in the pit shows that it dips 45 degrees to the southeast and is approximately on trend with the Charlotte vein. The floor of the pit was cleaned to allow loading of trucks, and this further exposed the vein. The material being tested is from an ore shoot which is probably within the Charlotte vein. The shoot appears to have a true width of about 25', and is exposed in the pit over a distance of 180' and is covered at both ends. The rake of the shoot is not yet known.

Many pieces of muck with visible gold were seen during the program. There is a strong nugget effect in the shoot, with some samples from the muck pile assaying over 15 ounces/ton gold. Bulk sampling is the only effective way to determine the average grade of the material.

It appears <u>at this time</u> that the shoot will average +0.3 oz/ton gold. Given the dimensions of the shoot seen in the pit, if the shoot extends for 500' down rake, it will contain +187,500 tons of ore containing +56,250 ounces of gold. This shoot does not appear in the Charlotte vein as exposed in the shaft, and its limits and grade are purely speculative at this time.

However, the large extent of the shoot seen in the pit indicates that additional bulk sampling should be done in order to determine if the shoot averages +0.3 oz/ton gold throughout its exposed portion. Also, the possibility of a +100,000 ounce deposit should be considered.

STATUS REPORT
CLEMENTINE MINE

November 29, 1988
T. L. Robyn

Assay results have been received for the samples collected during blast-hole drilling and from various sampling sites about the property. The following points are pertinent:

- Approximately 2,000 tons of ore will be trucked to a custom mill and processed. The accompanying assay sheet shows the results of assays from the holes (samples B-), and the notation "VG" indicates if visible gold was seen in the cuttings. The combination of mineralogy, presence of VG, and assay results indicate that 2,000 tons can be processed as a bulk sample.

- There is no potential for processing the 80,000 tons of material on the leach pad. Trenches were cut in the pad to allow channel sampling of the pad's thickness. Sample numbers are CLLP- .

- Sampling from the underground workings (samples CLUGV- and CLUGM-) resulted in very low assay results. No clear target has been defined in the underground.

The mill test run showed that the low-grade dump contains too low a grade to be worth processing.

The test ore has been blasted and is ready for loading. The road to the mine must be graded to improve haulage capacities and provide access for loading and this work is scheduled for the week of December 5th.

The mill run has been delayed until mid-December to allow for possible acquisition and installation of CIP columns. Using the CIP method will result in much higher recoveries of gold than the flotation method will. The columns will be acquired and installed at the mill owner's expense.

Upon completion of the mill test run, a serious review of the Clementine property must be done. If no clear target can be defined within the next 4-6 weeks, the property may be too expensive (in terms of holding costs of security and advance royalties) to retain.

STATUS REPORT
CLEMENTINE MINE

November 15, 1988
T. L. Robyn

Work at the Clementine Mine has focused on obtaining access to a custom mill to process a small amount of ore. The following results have been obtained:

- An agreement has been reached to utilize a custom mill near Congress, Arizona, to treat ore from Clementine. The mill is capable of processing between 75 and 120 tons/day, depending on grind size required. It has a jig in-circuit to recover coarse, free gold, and the jig tails can be fed to a flotation recovery system or to an agglomerator. Output of the flotation cells is fed to agitation tanks for cyanide extraction.

- A 200-ton test of Clementine low-grade ore, taken from a stockpile at the mine site, was attempted during November 7-10. The test run was aborted after about 100 tons was processed because the trucker had mistakenly hauled about 130 tons of waste which underlies the stockpile. As a result, the mill circuits became clogged with clay.

The mill run did show, however, that the jig and flotation circuits yielded high concentration ratios.

- A contract mining firm was hired to drill a blast pattern on the edge of the pit where the ore will be mined. Visible gold was observed in cuttings from several of the holes. Assay results should be returned within ten days. The blast pattern was completed on Friday, November 11th, and loading of charges was started on Saturday.

- The pilot mining run is scheduled to begin December 1st. Ore will be hauled, starting November 28th, and stockpiled ahead of processing. The run is planned for +2,000 tons of ore. The amount to be processed will be a function of assay results.

- From information gained to date, it appears that there is very limited potential for open-pittable, millable ore at Clementine. While high grades of gold occur in discrete shoots within the vein(s), too little is known of the extent and controls on the vein(s) to determine their potential. The drilling of June, 1988, showed that much of the volume of the veins is barren of gold.

If any further work is done at Clementine, it will almost certainly be dominated by expensive core drilling as an exploration tool to locate economic shoots of ore in the veins. A careful evaluation of the costs and anticipated returns must be done before committing to such a program.

REDTAIL MILL

The Redtail Mill is located approximately 50 miles northwest of Phoenix and 6 miles south of Congress, Arizona at mile 262.7 on Highway 89. The mill is 55 miles by highway from the Clementine mine.

The mill has just recently been constructed. John Rud has leased the mill from Redtail Mines in order to process ore from his George Washington mine, which is located about 16 miles north of Wickenburg, and about 18 miles east of Congress. Rud cannot produce enough ore to keep the mill fed, and is eager to take custom ore.

The mill is presently capable of processing 50 tons/day. Rud is expanding the mill to 75-100 tons/day capacity and adding gravity circuits, and will re-start it on Wednesday, October 5th. The mill currently produces flotation concentrates which are fed to agitation tanks and leached with cyanide. Recovery on the George Washington ore averaged 88-92%.

Power: Provided by rental Caterpillar generator rated at 180 Kw.

Crushing: Crushing is done by a Cedarapids Pitmaster powered by a Caterpillar D318 generator. The crusher can handle 30-35 tons/hour, has a 10"x20" jaw crusher with roller crusher to reduce oversize. A magnet removes metallic trash. Output is - 5/16" material which is fed to a 75 ton ore bin with a Syntron feeder. Soda ash is added on the feed conveyor to the ball mill.

Milling: Utilizes a Hardinge 6'x22" ball mill with a 60 HP motor. Output goes to a 6" Krebs hydrocone, and oversize is fed back to the mill. According to John Rud, the mill's output is 90% passing -150 mesh. He is planning to connect in circuit the Denver Equipment Co. 4'x4' ball mill which is mounted above the flotation tanks, and use it for re-grinding in order to increase the mill's capacity.

Output from the ball mill goes to a 4'x6' conditioner tank, then to a flotation circuit of a set of 6 Gallagher cells. Two cells are used as a finisher set, and the other four connected as two rougher sets. The Gallagher cells have a capacity of 75 tons/hour.

The flotation cons are fed to two 4' disc filters, then to two 10'x10' agitation tanks for a 24 hour leach with cyanide. The pregnant solution is fed to the first of three tanks, and over a three day period the solution is fed to the other tanks with decreasing cyanide concentration. The last tank is the barren tank.

The pregnant solution is fed to three 5'x18" carbon columns, each containing 200 pounds of carbon. The carbon is moved to a desorption unit and heated to 140 degrees F with alcohol-cyanide solution. This solution is fed to a Zadra cell and electroplated on steel wool.

Presently, the steel wool is taken to Congress and burned in a furnace to produce dore. The furnace will eventually be moved to the mill site.

However, to begin mining and processing 1,000 tons would cost us:

Mining: 1,000 tons x $10/ton	$10,000
Transport: @ $10/ton	10,000
Processing: @ $40/ton	40,000
Refining: @ $4/ton	4,000
Metallurgist: @$375/day	5,625
T. L. Robyn expenses: $150/day	2,250
Total	$71,875

That is, we may spend $71,875 on mining and processing 1,000 tons before we know if the mill is suitable and as represented.

Therefore, I suggest that we conduct a test milling program prior to the mining program.

If the mill works well, and we average 85% recovery on 1,000 tons of ore averaging 0.5 oz/ton gold, we can expect revenues as:

Value/ton of ore: 0.5 oz/ton x .85 x $400/oz = $170/ton

Production: $72/ton

Gross: $98/ton

1,000 tons x $98/ton =	$98,000
Less royalty:	(8,500)
Total net:	$89,500

The net is split with Valley View Mines, and East West's net is $44,750.

Given that the grade could be greater than 0.5 oz/ton, and that more than 1,000 tons is worth mining (5,000-6,000?), this figure represents the minimum that East West could expect from this project.

Bob Cuttriss and I are scheduled to visit the Redtail mill on Friday, October 7th, to determine the mill's suitability. This is the best time to finalize a contract with John Rud.

I request authority to negotiate a contract and commit East West to the test program while on the October 7th visit.

If approved, this means that Joe needs to have at least $5,000 in cash ready to spend by October 16th, and have the remainder in cash by the end of October.

Please let me know your thoughts with respect to the program.

To: Tony Wicks
From: Tom Robyn

October 2, 1988

RE: Clementine ore and the Redtail Mill

I met with John Rud at the Redtail Mill, Congress, Arizona, on Thursday, September 29th. He has control of the mill through a one-year lease, with an option for a two-year renewal. He is feeding ore from one of his mines, the George Washington (see attached sheet), and cannot keep the mill fed. He is willing to toll ore from Clementine in order to keep the mill nearer capacity.

He could start processing Clementine ore sometime between October 16th and 30th. He would like to charge us on a cost plus basis. This is not unreasonable because we can determine his costs prior to agreement, and with our contract metallurgist on site we can control costs.

The mill is 55 miles from Clementine, mostly on an excellent, paved two-lane state highway.

Costs will probably be:

Transport to mill:	$8-10/ton of ore
Processing:	35-40/ton of ore
Refining:	2-4/ton of ore

I recommend that we start the program by processing 200 tons of the low-grade stockpile material available at the mine as a test of the mill. We will then avoid mining and associated mobilization costs before we determine the feasibility of utilizing the Redtail mill. From our sampling, the stockpile will grade about 0.08 oz of gold/ton. The test program will cost:

Loading:	200 tons @ $2/ton	$ 400
Transport:	@ $10/ton	2,000
Processing:	@ $40/ton	8,000
Refining:	@ $4/ton	800
Metallurgist:	ca. $375/day	2,250
T. Robyn expenses:		1,200
	Total	$14,650

Revenues:
200 tons x 0.08 oz/ton = 16 ounces of gold
16 ounces of gold x 85% recovery = 13.6 ounces of gold
13.6 ounces x $400/ounce = $5,440

Net: $5,440 - 14,650 = ($9,210)

We can therefore expect to lose $9,210 on testing the plant.


N
Clementine Project
Drill Hole Locations
7
10
0
200'

45 S. 10th AVE.

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

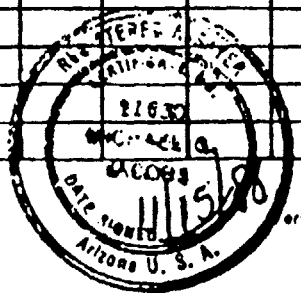
Certificate No. .....

TUCSON, ARIZONA 85713 ..... 11/15/88

Sample Submitted By Mr. EAST WEST

SAMPLE MARKED	GOLD Ozs per ton ore	GOLD Value per ton ore	SILVER Ozs per ton ore	LEAD Per cent Wet Assay	COPPER Per cent Wet Assay	Per cent Wet Assay	Per cent Wet Assay
CLLP-1 1	TRACE	$	0.25				
2	TRACE		0.30				
3	0.011		0.25				
CLLP-2 1	0.008		0.20				
2	0.005		0.25				
3	0.005		0.15				
B-1B 0-12	0.188						
B-66 0-12	0.017						
B-6A 0-12	0.013						
B-6B 0-12	0.038						
B-7A 0-12	pending						
B-7B 0-12	0.053						
B-8A 0-12	0.112						
B-8B 0-12	0.059						
B-8C 0-12	0.027						
B-15A 0-12	0.009						
B-15B 0-12	0.010						
B-24 0-12	0.021						
12-18	0.013						
B-25 0-6	0.154						
6-12	0.030						

FIRE ASSAY
1 ASSAY TO



Yours very respectfully.

Charges $ 17400

. 10th AVE.

Jacobs Assay Office
Registered Assayers

PHONE 622-0813

Certificate No .....

TUCSON, ARIZONA 85713 11/14/88 19 ...

Sample Submitted By Mr. EAST WEST

SAMPLE MARKED	GOLD OZ. PER TON		SILVER OZ. PER TON		SAMPLE MARKED	GOLD OZ. PER TON		SILVER OZ. PER TON	
CLTP-1	0.017		VG		B-13 0-6	pending			
2	0.004				12-24	0.027			
GLTH-1 5-10	TRACE				B-14 0-6	0.002			
10-15	TRACE		VG		B-15 0-6	0.019			
-2 6-12	TRACE				6-12	0.013			
12-18	0.005				12-24	0.009			
18-24	0.004				B-16 0-6	0.017			
CLUGV-1	0.013		<0.05		6-12	0.017			
2	0.006		<0.05		12-18	0.011			
3	0.060		<0.05		18-24	0.006			
5	0.073		<0.05		B-17 0-6	0.015			
6	0.021		<0.05		6-12	0.005			
B1-0-6	0.011				B-20 0-6	TRACE			
6-12	0.009				6-12	TRACE			
			VG		B-21 0-6	TRACE			
CLSV-1	0.048				6-12	TRACE			
					12-18	0.011			
CVUGM-4	0.031		VG		B-23 0-6	0.005			
7	0.048				6-12	TRACE			
					B-24 0-6	0.005			
B-4 0-6	0.025				18-24	TRACE			
B-5 0-6	0.025								
6-12	0.054								
B-6 0-6	0.017								
B-7 0-6	0.031								
VG B-8 0-6	0.015								
6-12	0.192								
12-18	0.052								
VG B-9 0-6	0.120								
6-12	0.407								
12-24	0.058								
VG B-10 0-6	0.353								
6-12	pending								
12-21	0.343								
VG B-11 0-6	0.137								
6-12	0.397								
VG B-12 0-6	0.011								
6-12	0.118								

FIRE ASSAY
1 ASSAY TON
less than

Charges $ 45.00

Respectfully,

POTENTIAL FOR HIGH-GRADE RESERVES
CLEMENTINE MINE, ARIZONA

December 19, 1987
T. L. Robyn

INTRODUCTION: The possibility of a high-grade ore zone within the quartz-carbonate vein that hosts the Clementine deposit has been discussed frequently because of observations that I made during my initial data review and visit to the deposit in June, 1987. The concept was not documented during the early review because of the lack of data. New data were recently located by the owner, so on December 18, 1987, I visited the owner's office to review the data in order to test the possibility that open-pittable, high-grade gold ore occurs in Clementine. The results are more favorable than expected.

METHODS: It must be noted that because of the manner of operation by the previous leaseholders, their data are suspect. We do not know if the data are entirely-fabricated, partially-fabricated, or valid. It is my opinion that the data are valid, but unprofessionally presented.

The limited data available were examined as follows. The drill logs were checked for assay results, and holes with significant intercepts of >0.1 oz/ton gold were plotted on a summary base map (Figure 1). These data were used to draw two cross sections (Figure 2) and a long section (Figure 3). Grid paper with 100 squares per square inch was used to determine the area of ore zones drawn on the cross sections, and a bulking factor of 12 cubic feet/ston was used to calculate the number of standard tons/lateral foot within the section. A possible pit configuration was sketched in by assuming pit walls with angles of 45 degrees. A waste/ore ratio for one of the sections was then calculated.

UNCERTAINTIES: The data available for the Clementine deposit are poorly-organized, and large amounts of data are missing. Also, some of the work was not well-planned. The greatest uncertainties are:

- Drill Logs: There were at least two major phases of drilling at Clementine. The drill logs from the first phase are difficult to read because the originals were apparently written lightly with pencil. As a result, copies of the logs are almost undecipherable. It is not possible to interpret the logs and determine the geology of the holes. The logs from the second phase of drilling don't even have descriptions of the cuttings.

- Assay Methods: The method of assaying is not given in the logs. However, a summary report on the first phase of drilling states that 5 gram splits were taken from 5-foot intervals of cuttings. The 5 gram splits were assayed on site with an AA system. This type of sampling is totally inappropriate because such a small sample is unrepresentative. I have observed coarse grains of gold in the ore, with grains up to 1 mm in maximum diameter. There will be an extreme nugget effect, and because of the unrepresentative nature of the

samples it is likely that most of the AA determinations are inaccurate.

Most of the logs for the second round of drilling don't show assay results, let alone the method.

- Assay Comparisons: Some of the samples assayed on site were split again, and samples sent to outside labs for assay. These results are reported in oz/ton, but the method is not reported. However, it was probably fire-assay. In the drill logs from the first phase of drilling, gold assay results are listed under a "ppm" heading. There is a gross discrepancy between the logs and later check assays. An example of the discrepancy is seen in CR-14:

Interval	Log Assay	Check Assay
5-10'	0.426 ppm	0.59 oz/ton
10-15'	0.326 ppm	0.33 oz/ton
15-20'	0.232 ppm	0.28 oz/ton
20-25'	0.297 ppm	0.22 oz/ton
25-30'	not assayed	0.42 oz/ton
30-35'	not assayed	0.56 oz/ton
35-40'	0.404 ppm	0.25 oz/ton
40-45'	not assayed	0.42 oz/ton

The numbers are in reasonable agreement, but the units are not. Therefore, the logger may have recorded gold values in oz/ton, but did not change the heading from "ppm" to "oz/ton".

An alternative explanation is that the AA assaying grossly understated the gold values. This interpretation is supported by data from other holes. If so, then holes CR-1, CR-2, CR-5, CR-8, CR-9, CR-11, CR-12, CR-13, CR-15, CR-16, CR-18, CR-19, CR-20, CR-21, CR-22, CR-23, CR-30, CR-32, CR-33, CR-34, CR-35, CR-36, CR-37, CR-40, CR-41 and CR-43 have significant (>30') thicknesses of 0.1 oz/ton gold or better.

Only holes up to CR-55 have data in their logs which allow inferences to be drawn about their gold content. Holes from the second phase of drilling have very poor logs.

- Inferred Ore: Based on the geochemical anomalies seen in the drill logs listed above, it is possible to infer additional ore in the vicinity of the existing pit. The zone of inferred ore is adjacent to ore determined from better data, an observation which supports the concept that poor-quality sampling, assaying and reporting have obscured the existence of a high-grade ore body at Clementine. Some fire assays from these anomalous intervals show high values of gold.

The existing pit is not plotted on the available map. The distance from the Charlotte shaft to the pit is about 600' but its exact location is unknown.

What is important about the pit's location is that section C-C' shows that the high-grade zone should crop out at the surface where the existing pit may lie. Watts, Griffith & McOuat took a 1500-pound bulk sample from the pit; the sample assayed 0.55 oz/ton gold. This assay supports the concept that a high-grade zone lies within the Clementine vein. Also, during my visit to the site I took a random, 1 kg sample from the dump at the Charlotte shaft, which assayed 0.193 oz/ton gold. Another sample collected in the pit assayed 0.112 oz/ton gold.

- Lack of Maps: Within the data, there is a list of assays done on surface samples. Some of these assays indicate high-grade ore on the surface. However, there is no sample location map, so no use can be made of the data.

There are no geologic maps, and no combined survey map showing the pit, the topography, or any easily-located landmark.

GEOLOGY: The quartz-carbonate vein that hosts the Clementine ore occurs in the Yavapi schist, a fine-grained mafic Precambrian rock. Some veinlets are reported to cut the schist, so that the contact between the two units is diffuse in places. The vein is strongly manganiferous in the pit. Earlier workers have interpreted that the vein was emplaced along shear zones, and that there are several veins on the property. However, no-one has made a map of the property.

Cross sections A-A' and B-B' drawn along lines of maximum available data show that the vein is shaped like an inverted 'V'. The long section C-C' shows that the high-grade zone plunges to the southwest. The sections also show that the vein may continue near the surface to the northwest, to the southwest with possibly increasing depth, and near the surface to the northeast.

There are too few drill holes with data available to the southwest to allow any statements to be made about the zone.

The vein was not tested to the northwest because previous workers had assumed that it dipped to the southeast and was eroded to the northwest. However, CR-14 (section A-A') drilled high-grade ore from the surface to a depth of 45' (which is the limit of data; the high-grade ore may continue to greater depth). This hole should be offset to the northwest.

There are too few holes to the northeast to define the zone, but Figure 1 shows that the area east of CR-14 is untested. The area north of CR-36, CR-37, CR-40, CR-62 and CR- 64 is also untested. Both of these areas should be drilled.

The vein(s) may have been emplaced within the sheared nose of an antiform. If so, the vein(s) may roll over and dip to the northwest past CR-14. This would enlarge open-pittable reserves significantly.

RESERVES: The tops and bottoms of the mineralized drill intercepts were projected between holes. A cutoff grade of 0.1 oz/ton gold was used. The data used to calculate the reserves are listed in

Appendix A. The area within the mineralized intercepts was then determined using the methods described above. The result allowed calculation of the number of tons contained within one lateral foot of vein. The results are shown on the sections.

It is important to note that not all of the drill samples were analyzed by fire-assay method. As a result, the higher-grade portions of the drill intervals which have been determined by fire assay represent minimum intervals. The actual extent of the high-grade intervals could be greater. CR-131 is a good example.

Section C-C' (Figure 3) shows the lateral projection from the plane of the section. For proven ore, the volume was projected for a distance of 25' each side of the section. For probable ore, an additional projection of 50' was made on each side of the "proven" block. Possible ore is what remains between the sections, and in the vicinity of CR-103 which was treated as a point instead of a plane, because there are no data from nearby holes except CR-105 and CR-106's geochemical anomalies. Inferred ore was determined on the basis of geochemical anomalies which resulted from the AA assaying.

The results are:

Reserves	Tons	Oz/ton	Ounces
Proven			
Section A-A'	32,310	0.25	8,077
Section B-B'	28,470	0.22	6,263
Probable			
Section A-A'	51,696	0.25	12,924
Section B-B'	56,940	0.22	12,527
Possible	109,384	0.21	22,971
Subtotal	278,800	0.22	62,762
Inferred	290,076	0.20	58,015
Total	568,876	0.21	120,777

Additional reserves may be discovered, especially to the northwest of the drilled area. The area to the northeast is also open.

In effect, the high-grade zone is open on three sides. There is a significant possibility that these reserves could be doubled.

Data used to calculate these reserves are from drill holes spaced widely-enough that only 60,780 tons of ore can be termed proven. There is no geologic map, or even a topographic map available. Additional surface sampling followed by drilling should be done to define more proven reserves, locate the ore zone's boundaries, and allow mine planning.

RECOMMENDATION: Based on the limited data presented in this summary, I recommend that the Clementine project be continued. Steps to be taken include:

1) Conduct an intensive program of surveying, geologic mapping, bulk sampling and drilling to confirm the concepts presented above. This could be completed with the required $150,000 escrow money due on January 1, 1988.

2) If the results are favorable, acquire Valley View's share of the property.

PROPOSED GEOLOGIC PROGRAM: The sorry state of the data now available on the Clementine property necessitates the generation of some basic data. The first step to be taken would be to contract for a base map to be made which will provide good survey control and provide a base for geologic mapping.

The property should be mapped in order to locate all of the vein outcrops, many of which occur on the property but which are not accurately placed. Mapping should also be used to determine if the vein (or veins) occurs within a fold nose, a shear zone, or some other type of structural control. This will provide a guide for bulk sampling and drilling.

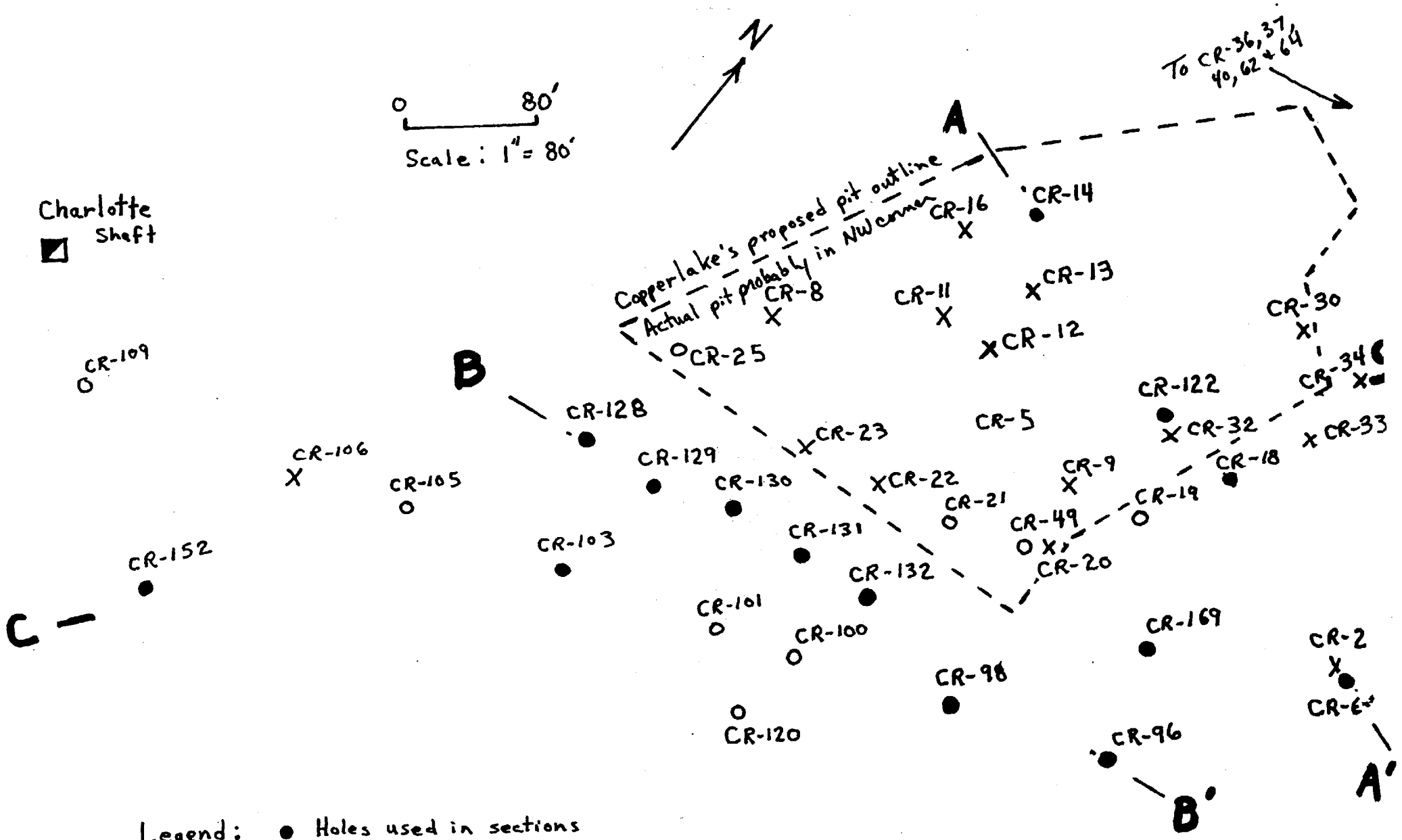
Bulk sampling should be done to locate high-grade portions of the vein. The samples should be shipped to a reliable lab.

These preliminary steps would allow selection of drill sites for holes which would be intended to track the thickened portion of the vein's high-grade zone.

BUDGET: The above work can be done for the following cost:

Surveying/Base Map	$ 8,000
Geologic Mapping	7,500
Bulk Sampling	16,000
Sample Shipment	3,000
Assays	1,200
Drilling, 30 RC holes, 4500'	45,000
Drill Supervision	6,500
Sample Shipment	1,000
Assay of drill cuttings	13,500
Reporting	2,400
Travel	2,500
Total	$106,600

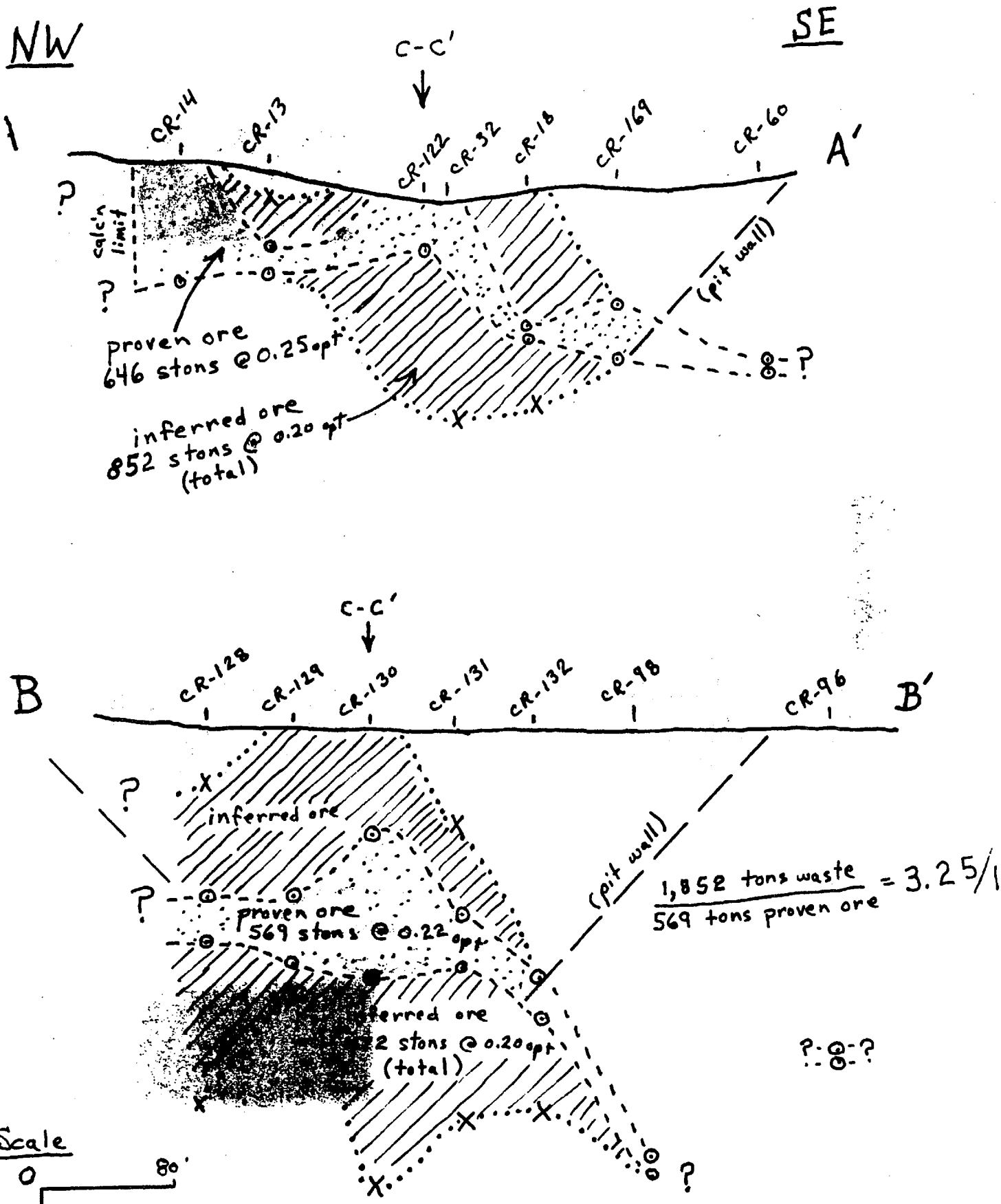
If the survey work is ordered in early January, the program can be completed by late July.



Legend:

- ● Holes used in sections
- o Holes with assay results which appear reproducible
- x Holes with anomalous assay results, but assaying appears questionable. Inferred to be ore or near-ore holes.

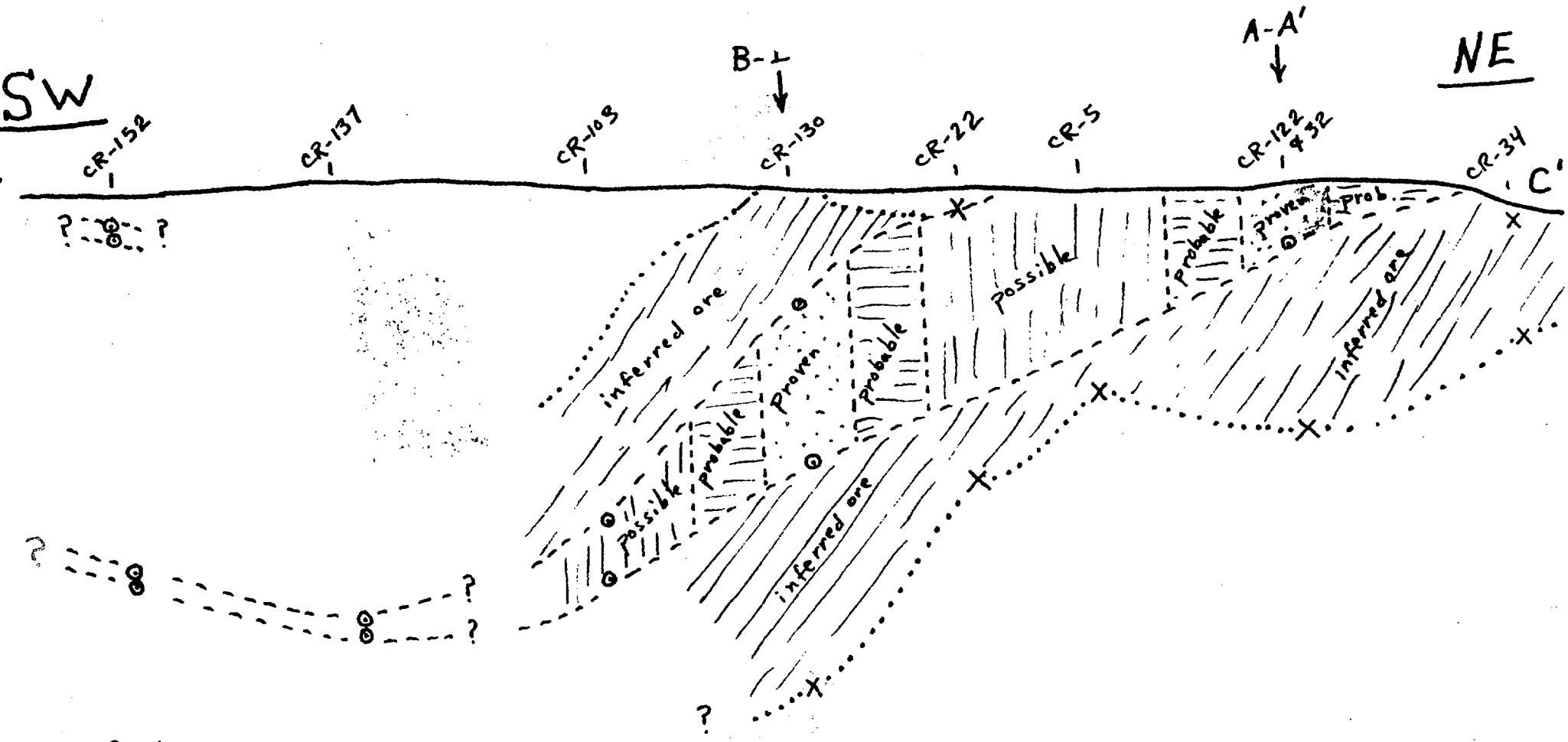
Figure



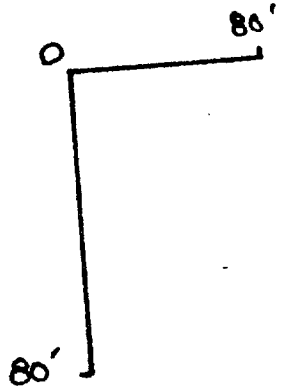
Legend: 8} intervals of ≥0.1 opt gold, based on assay results which appear reproducible.

x} intervals of anomalous gold based on AA method.
x} inferred to be ore or near ore. see text for details.

Figure 2



Scale



Legend: Symbols as in sections A-A' and B-B'

Figure 3.

APPENDIX A

Compiliation of Data Used in Report

Hole	Interval	oz/ton gold	
CR-1	60-70'	0.078	
CR-5	0-80'	0.076	
	0-5'	0.108	
	35-60'	0.135	
	35-75'	0.106	
CR-13	30-40'	0.100	
CR-14	0-45'	0.404	
CR-15	5-10'	0.345	location not shown on map
CR-18	50-55'	0.335	
CR-19	45-50'	0.233	
CR-20	180-185'	0.117	
CR-21	75-85'	0.195	
CR-22	60-80'	0.148	
CR-43	40-45'	0.150	
CR-49	85-110'	0.302	
CR-56	55-60'	0.154	
CR-60	70-75'	0.102	
CR-62	25-30'	0.348	
CR-63	45-65'(TD)	0.259	
CR-80	40-45'	0.113	
CR-96	125-130'	0.101	
CR-98	165-170'	0.107	
CR-100	130-145'	0.413	
	125-150'	0.270	
CR-101	140-145'	0.247	
CR-102	135-140'	0.107	
CR-103	115-130'	0.101	
	130-135'	0.115	
CR-104	115-120'	0.151	
	115-135'	0.094	
CR-105	95-110'	0.109	
CR-107	70-85'	0.072	
CR-108	60-75'	0.070	
	95-110'	0.085	
	130-145'	0.115	
CR-109	0-10'	0.178	
CR-114	45-50'	0.127	
CR-117	175-185'	0.120	
CR-118	150-160	0.265	
CR-120	175-185'	0.206	
CR-121	0-30'	0.135	
CR-122	0-20'	0.105	
CR-123	20-30'	0.149	
CR-128	65-75'	0.179	
	65-80'	0.142	
CR-129	65-90'	0.098	
CR-130	40-95'	0.136	
CR-131	70-90'	0.458	

	75-80'	1.374
	45-110'	0.178
CR-132	95-110'	0.481
	95-100'	1.243
	95-120	0.309
CR-137	150-155'	0.203
	145-170'	0.097
CR-140	150-155'	0.102
CR-152	10-15'	0.116
	130-135'	0.242
CR-169	45-65'	0.202
	50-60'	0.337

Holes with geochemical anomalies. See text for details.

CR-1	0-65'
CR-5	0-70'
CR-8	15-40'
CR-9	55-80'
CR-11	0-50'
CR-12	10-30'
CR-13	10-30'
CR-15	5-15'
CR-16	0-20'
CR-18	0-80'
CR-19	5-85'
CR-20	5-130'
CR-21	5-135'
CR-22	5-100'
CR-23	5-60'
CR-30	5-45' (TD)
CR-32	0-85' (TD)
CR-33	5-55'
CR-34	5-45' (TD)
CR-35	0-30'
CR-37	35-65' (TD)
CR-40	0-165'(TD)
CR-41	25-90'
CR-43	40-55
CR-105	30-145'
CR-106	40-95'
CR-128	20-145'
CR-129	0-100'
CR-130	0-175'
CR-131	35-150'
CR-132	95-145'

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MINERAL EXPLORATION

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Telephone
(602) 567-4779

A PROGRESS REPORT ON COPPER LAKE'S CLEMENTINE PROPERTY, MARICOPA COUNTY, ARIZONA SUMMARIZING CALCULATED MINEABLE GOLD RESERVES

January 1982

By

Gerald Weathers

INTRODUCTION

The writer has been associated with the development of the Clementine Property since 1961. During this time the gold reserves have by means of intermittent drilling programs been consistently expanded from the gold mineralization occurring in a shallow shaft and numerous scattered prospect pits to the tonnages and grades outlined in this report, and also delineated on the enclosed maps.

GEOLOGIC CONCEPTS

Gold mineralization was observed to occur principally within a north-easterly trending-southeasterly dipping structure stained by red hematite and containing white subparallel to ramifying quartz veins; presenting a sharp contrast to the surrounding dark gray pre-Cambrian Yavapai schist host rock.

Exposures of this structure were sampled along its northeasterly trend for approximately a mile where it is covered by younger volcanic flows. (Refer to Map, Fig. III). Sample assays revealed the greatest surface concentration of gold to occur at the intersection of the quartz-hematite structure with a northwesterly trending, southwesterly dipping manganiferous-calcite structure, forming on ore shoot.

The majority of the gold within these intersecting structures was found to be submicroscopic in size and thus invisible when searched for through the usual field lenses, placing heavy reliance on sample assays for exploration guidance.

Subsequently, this ore shoot has been mined by open pit methods and followed for 700 feet downdip by drilling, toward the south. The continuously mineralized zone is interpreted via these methods to be at least 700' wide and to dip to the south and rake to the east resulting in an apparent 30 degrees dip to the southeast. Pending drill hole sample assays and future drilling programs should expand the volume of known gold reserves within this zone. (Refer to Property Map, Fig. III and Plan Map, Fig. I, plus sections).

Recent brief studies by independent and company geologists have disclosed additional structures radiating from the open pit area and also other apparently unrelated (?) mineralized structures, particularly to the south of the present development. (Refer to Fig. III).

RESERVES DEVELOPED AS A RESULT OF FORMER DRILL PROGRAMS

1973

4,228 feet of shallow percussion holes were drilled along the strike of the main structure ending in July, 1973. As a result of this program, calculated measured reserves were 112,500 tons averaging .06 oz. gold/ton and 0.3 oz. silver/ton. Indicated gold reserves were estimated to be 594,700 tons and inferred reserves 5,000,000 tons.

1981

Seventy-nine 4½" diameter precussion holes totalling 9,025 feet were drilled at 50' intervals along the strike and in the present pit area beginning Dec. 1980 and ending April 1981.

Mr. Brian Bond, a Geological Engineer, was employed to on site supervise the last portion of this program. In his May 1981 report, Mr. Bond, calculated:

Proven Reserves - 329,352 tons grading .06 oz. gold/ton

Probable Reserves - 538,627 tons grading .06 oz. gold/ton

Possible Reserves - 2,338,008 tons.

These near surface reserves were calculated from data received from blast-hole, bulk, channel and drill hole sample assays.

Samples were assayed by a registered Assayer, who installed an Atomic Absorption Spectophotometer in a laboratory constructed on the property. Assays of check samples were obtained from independent assay laboratories, who used both atomic absorption and fire assay methods. Mr. Bon calculated the average deviation between the two methods to be .01 oz/ton.

During this drilling program, 84,319 tons of material were open pit mined, using scraper loaders, and dumped on a leach pad. Representative bulk samples from each load dumped were consolidated, prepared as composite samples and submitted to Mountain States Engineering for assaying and feasibility tests. The mined material averaged .05 oz. gold/ton.

CURRENT DRILL PROGRAM

25,825 feet of 5 inch diameter percussion holes were drilled starting with CR 80 in August 1981 and ending with CR 169 in the latter part of December 1981. The drill hole locations are shown on Fig. I - Gold Interval Intercepts; grade and hole depths are shown on the enclosed tables and sections.

CURRENT GOLD RESERVES

Mr. M. J. Bruder, a Mining Engineer, was employed to supervise the balance of the drill program, to calculate gold reserves, and to propose the plan for an open pit mining operation designed to mine the proven mineable reserves.

Based on the information developed to date, Mr. Bruder has calculated the mineable proven gold reserves to be 737,063 tons averaging .051 oz.gold per ton with a stripping ration of 1.4: 1 (Refer to Exhibit No. 1 and Fig. I).

In addition to the above reserves, 84,319 tons of material averaging .05 oz. gold per ton has been placed on the leach pad, and muck selectively removed from the open pit using an end loader has been stockpiled as follows:

	Est. Tons	Est. Grade (Assays Pending)
	50,000	.07 oz. Au/T
	10,000	.03 oz. Au/T
	20,000	.047 oz. Au/T
Total	80,000	.06 oz. Au/T

Thus, the proven mineable, plus stockpiled gold reserves are presently judged to be 901,382 tons averaging .052 oz. gold/ton.

It is expected that pending assays of sampled drill hole intervals multiplied by their calculated areas of influence will result in mineable proven gold reserves in excess of 1 million tons.

Assay comparisons of check samples sent to independent assayers are tabulated in Bruder's report, Exhibit 2).

Bruder has estimated probable gold reserves to be 5.52 million tons grading 0.055 oz. gold/ton and possible reserves to be 17.7 million tons grading .05 oz Au/Ton, based on a study of the available data and the occurrence of favorable geologic structures.

COMMENTS

A large percentage of Bruder's mineable gold reserve polygon areas and calculations were closely checked and found to be reliable.

The proven reserves in the areas adjacent to the mineable reserves will have to be expanded or shown to continue into the mineable reserves by future development exploration before they can be seriously considered for mining.

Geologic investigations have been confined to a northeasterly trending structure and principally to the intersecting structure in the open pit area. It is expected that future geologic work will reveal the occurrence of a mineralized structural pattern along these and other structures.

There is no drill hole information below 300 feet on the down dip projection of the known ore shoot; however, it is reported (news release) that Ranchers' Exploration, who have recently drilled around the Gunbolt Prospect immediately to the east (Fig. III), have encountered high grade drill hole intercepts near the 800 foot depth.

There is no known subsurface geologic information available pertaining to the areas overlain by alluvium or by younger volcanic flows. (Fig. III)

Based upon the above enumerated observations as well as the fact that the explored portion of this property is confined to a 20 acre tract encompassed by about 2,100 acres within the property boundary, it is apparent that only a small fraction of the underlying gold bearing potential of this property has been explored.

RECOMMENDATIONS

It is recommended that the base map being prepared for this property be completed.

The geologic field investigations should continue and results obtained plotted on the base map.

Information derived from the drilling program should be evaluated and another drilling program planned designed to expand the proven gold reserves.

January 1, 1982

REGISTERED GEOLOGIST
CERTIFICATE EXPIRES
GERALD
Gerald Weathers
Gerald Weathers, Inc.
ARIZONA, U.S.A.

SUPPLEMENT

Mr. M. J. Bruder has submitted revised drill hole gold reserve figures totalling 1,110,272 tons, based on additional drill hole sample assays just received. The writer has enclosed them as Exhibit 3 subject to change, dependent upon check calculations.

FIG. II, a Plan Map showing drill hole locations and the planned open pit boundary is also enclosed.

January 1, 1982

REGISTERED GEOLOGIST
CERTIFICATE EXPIRES
GERALD
WEATHERS

Gerald Weathers
GEREX, INC.

RE BLOCK CALC'S.

ASSAY COMPARISONS

Hole #	Interval	Copper Lake Lab	Independent* Assayer
94	100-105	.057	.058
	150-155	.066	.058
95	70-75	.040	.052
	135-140	.080	.064
96	135-140	.046	.054
98	140-145	.036	.042
	145-150	.094	.088
100	130-135	.717	.556
	135-140	.295	.158
101	135-140	.247	.296
	140-145	.072	.116
102	135-140	.107	.090
	140-145	.082	.062

*Iron King Assay Office (Fire Assay)

Assays in oz/ton Gold

ASSAY COMPARISONS

Hole	Interval	Copper Lake Lab	Independent* Assayer
80	15-20	.004	.01
	50-55	.006	.01
81	30-35	.006	.01
	55-60	.005	TR
82	30-35	Nil	TR
	85-90	.011	TR
83	55-60	.007	TR
	75-80	.006	TR
84	30-35	.008	TR
	45-50	.011	TR
85	80-85	.003	.01
	85-90	.002	.01
86	80-85	.008	.01
	70-75	.008	TR
87	50-55	.010	.01
	75-80	.007	.01
88	50-55	.009	.01
	60-65	.017	.01
89	80-85	.012	.01
	130-135	.011	.01
90	95-100	.007	.01
	165-170	.008	.02
91	195-200	.008	.01
	220-225	.008	.01
92	10-15	.016	.02
	80-85	.009	.02
93	70-75	.013	.01
	120-125	.015	.01
94	105-110	.053	.04
	155-160	.026	.03
95	5-10	.006	TR
	25-30	.012	.01
96	375-380	.008	.01
	380-385	.015	.01
97	130-135	.004	.01
	85-90	.028	.03
98	20-25	.004	.01
	105-110	.006	.01

*Arizona Testing Laboratories (Atomic Absorption)

Assays in oz/ton Gold

'RON KING ASSAY OFFICE

ASSAY CERTIFICATE

BOX 247 — PHONE 632-7410
HUMBOLDT, ARIZONA 86329

REGISTERED ASSAYER CERTIFICATE NO. 2978 WALTER G. STATE OF ARIZONA U.S.A.

ASSAY MADE FOR: Copper Lake Mining Co
Box 2001
Sun City, Az. 85372

Sept. 22, 1951

REF. NO..	DESCRIPTION	oz/ton Au	oz/ton Ag		% Fe	% Pb	% Zn	% Cu
18-1	CR 94 A 100-105	0.058	0.20					
-2	" 94A 150-155	0.058	0.18					
-3	" 95 A 70-75	0.052	0.09					
-4	" 95A 135-140	0.064	0.26					
-5	" 96 A 135-140	0.054	0.05					
-6	" 98 A 140-145	0.042	Tr					
-7	" 98 A 145-150	0.088	0.35					
-8	CR 100 A 130-135	0.556	0.46					
-9	" 100 A 135-140	0.158	0.29					
-10	" 101 A 135-140	0.296	0.38					
-11	" 101 A 140-145	0.116	0.30					
-12	" 102 A 135-140	0.090	0.29					
-13	" 102 A 140-145	0.062	0.06					

CHARGES $107.25

ASSAYER _____

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Copper Lake Exploration
Post Office Box 2001
Sun City, Arizona 85372

Date September 9, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
3211	CR 90 A 95-100	0.02					
	CR 90 A 165-170	0.02					
	CR 91 A 195-200	0.01					
	CR 91 A 220-225	0.01					
	CR 92 A 10-15	0.02					
	CR 92 A 80-85	0.02					
	CR 93 A 70-75	0.01					
	CR 93 A 120-125	0.01					
	CR 94 A 105-110	0.04					
	CR 94 A 155-160	0.03					
	CR 95 A 5-10	Trace					
	CR 95 A 25-30	0.01					
	CR 96 A 375-380	0.01					
	CR 96 A 380-385	0.01					
	CR 97 A 85-90	0.01					
	CR 97 A 130-135	0.03					
	CR 98 A 20-25	0.01					
	CR 98 A 105-110	0.01					
	CR 80 A-A 15-20	0.01					
	CR 80 A-A 50-55	0.01					
	CR 81 A-A 30-35	0.01					
	CR 81 A-A 55-60	Trace					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO
6258
CLAUDE EUGENE
McLEAN, JR
Date Signed 9/9/81
ARIZONA, U.S.A.

Arizona Testing Laboratories

817 West Madison • Phoenix, Arizona 85007 • Telephone 254-6181

For Copper Lake Exploration
Post Office Box 2001
Sun City, Arizona 85372

Date September 9, 1981

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
3211	CR 82 A-A 30-35	Trace					
	CR 82 A-A 85-90	Trace					
	CR 83 A-A 55-60	Trace					
	CR 83 A-A 75-80	Trace					
	CR 84 A-A 30-35	Trace					
	CR 84 A-A 45-50	0.01					
	CR 85 A-A 80-85	0.01					
	CR 85 A-A 85-90	0.01					
	CR 86 A-A 70-75	0.01					
	CR 86 A-A 80-85	Trace					
	CR 87 A-A 50-55	0.01					
	CR 87 A-A 75-80	0.01					
	CR 88 A-A 50-55	0.01					
	CR 88 A-A 60-65	0.01					
	CR 89 A-A 80-85	0.01					
	CR 89 A-A 130-135	0.01					

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO
6258
CLAUDE EUGENE
McLEAN, JR
Signed
ARIZONA, U.S.

MILL REPORT

EAST WEST MINERAL INC.

Clementine mine gold ore

During November, 1988 Mr. Thomas L. Robyn, Ph.D. , Exploration Manager for East West Minerals, Inc. of Sausalito, CA contacted the management of the Redtail mill and requested a trial mill run on the Clementine mine gold ore. Arrangements were made to complete a preliminary test run in December, 1988. The mill run was completed on December 12th and was supervised by a Mr. Terry Hertel, a metallurgist from Boulder Gold, N.L. of Lakewood, CO. Data from the mill run was evaluated and further laboratory work was completed in December at Boulder Gold's facility in Lakewood, Co.

On January 10, 1989 the Redtail mill circuit was changed to include the 4' x 4' ball mill. This ball mill was used as a regrind mill which allowed the mill to grind to 80% minus 150 mesh without reducing its capacity. Mr. Terry Hertel was again the metallurgist and supervised all milling operations during the East West Mineral, Inc. mill run. The mill run was completed on January 26, 1989. The following data represents the East West Minerals, Inc mill run:

MINE	Clementine Gold Mine Phoenix, AZ
ORE	Epithermal vein containing quartz, calcite and heavy mn & Fe staining. Gold occurs as native with minor sulphides.

TONNAGE	715 Tons
ORE GRADE	.28 oz/ton (Verbal from Mr. Hertel)
ORE HAULAGE	Reuber Trucking Phoenix, AZ
MILL CAPACITY	3 tons per hour
GRINDING	Hardinge ---- 68 - 71 Pulp Density Regrind ---- 48 - 60 Pulp Density
REAGENTS	Aero 65 100% strength, 3.5 ml/min rate. Aero 208 100% strength 6.12 ml/min rate Aero 317 15% strength 6.8 ml/min rate
RECOVERY	60 to 78% range (Verbal from Mr. Hertel)

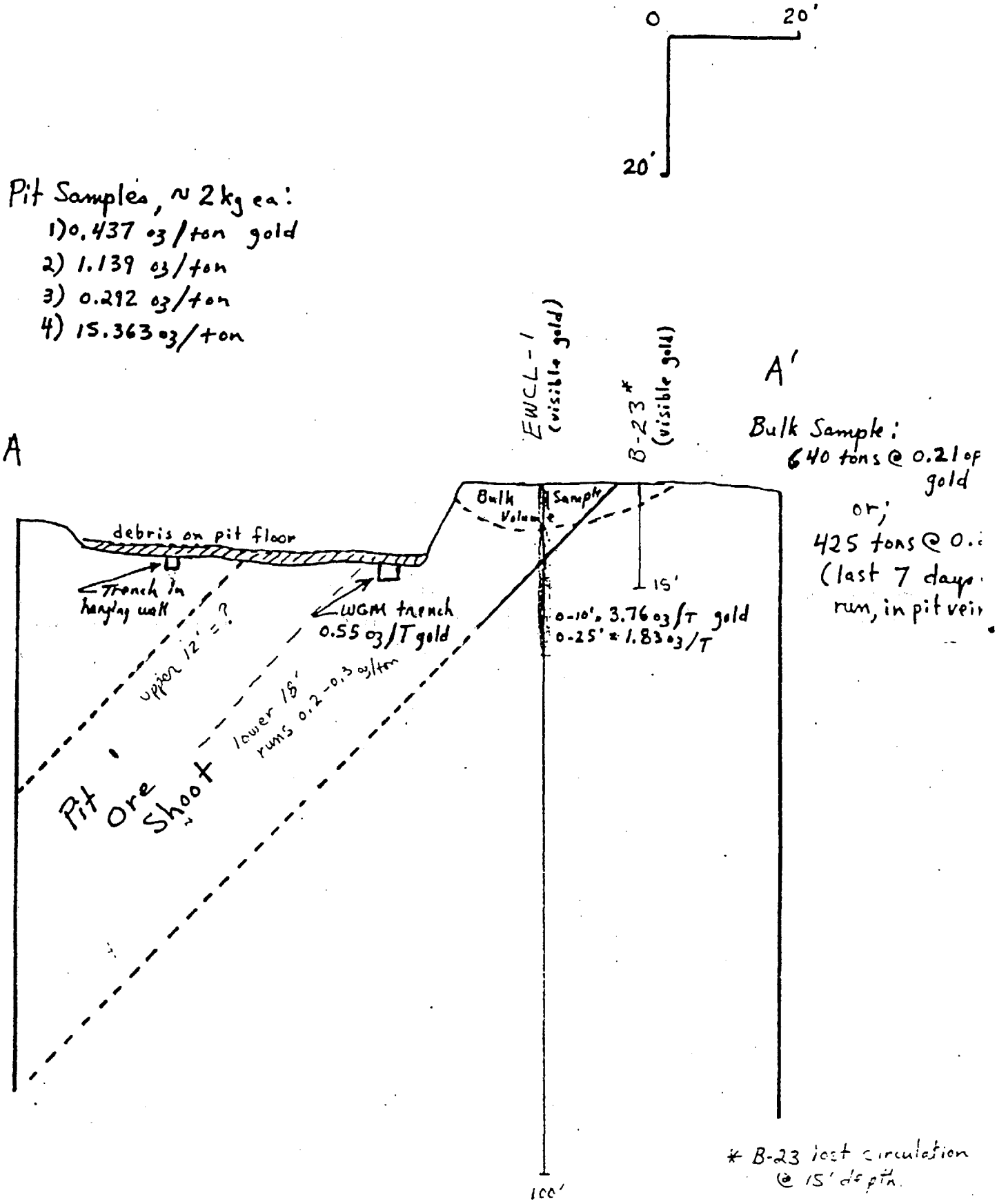
The flotation concentrates were leached by Carbon-in-Leach techniques. East West Minerals recovered the carbon and placed it in two 55 gallons drums which were shipped to a refiner in Reno, Nevada.

AGITATIONTIME	72 hours
CYANIDE LEVEL	3.5 lbs per ton of solution
Ph	11.2
CARBON IN LEACH	350 lbs

COMMENTS: A major problem with the mill run was the size of the mine run ore transported to the mill. Oversize up to 5 feet in diameter was common. A compressor and breaker was rented to reduce this ore with little success. A few of the larger boulders had to be shot and then broke by a 18 pound hammer before loading in the crusher.

Another factor was the lack of recovery of the fine carbon, the carbon was not pre-screened before placing it in the agitation tank so recovery of the gold in the flotation concentrate was drastically reduced.

SECTION A-A


0
20'
20'
Pit Samples, ~2 kg ea:
1) 0.437 oz/ton gold
2) 1.139 oz/ton
3) 0.292 oz/ton
4) 15.363 oz/ton
EWCL-1 (visible gold)
B-23* (visible gold)
A
A'
Bulk Sample:
640 tons @ 0.21 oz gold
or;
425 tons @ 0.
(last 7 days
run, in pit vei
Bulk Volume
Sample
debris on pit floor
Trench in hanging wall
WGM trench
0.55 oz/T gold
upper 12' = ?
lower 15'
runs 0.2-0.3 oz/ton
Pit Ore Shoot
15'
0-10', 3.76 oz/T gold
0-25' = 1.83 oz/T
100'
* B-23 lost circulation @ 15' depth.

To: Jim Askew, Golden Shamrock
Tony Wicks, East West
From: Tom Robyn

June 27, 1988

Drilling at Clementine was completed on Friday, June 24th. Ten holes totalling 860' (ca. 277 m) were drilled. Samples of intervals showing significant amount of vein chips have been submitted for assay, and results are expected this week. A drill location map accompanies this fax.

The drilling results can be summarized as follows:

- The holes were drilled with a 4.5" (11.43 cm) bit. At the end of drilling of the deeper holes, the surface part of the hole was 8-12" (20-30 cm) wide. Therefore, the deeper intervals of vein material were probably contaminated with up-hole cuttings caving off the wall. This could result in lower-than-real assay results for the deeper intervals.

- Holes 4 & 5 were spudded in the footwall of the vein and did not encounter any significant amount of vein material. This shows that the "pit" vein is limited to the NW. However, a prospect shaft located about 225' NW of Hole 4 was sunk in quartz-carbonate-manganese vein. Therefore, at least two vein systems occur, or the "pit" vein is repeated by faulting.

- Holes 1, 2, 3, 7 & 8 encountered 20-25' (ca. 7-8 m) of vein material starting at the surface. This shows that the zone of veining is of significant thickness and relatively flat-lying in this area.

- Holes 6 & 10 encountered significant amounts of vein material between 35 and 45' (ca. 11-14 m) and continued in it for 20-25' (ca. 7-8 m). The true thickness of the vein is probably about 6-8 meters. The vein is either dipping in this area or down-faulted.

- Hole 9 encountered significant amounts of vein material in three intervals: 10-40' (ca. 3-13 m), 50-65' (ca. 16-21 m), and 80-115' (ca. 26-37 m). The percentage of vein material in the deeper intervals is lower than the vein intercepts higher in the hole. This suggests either contamination of the interval or a stockwork type of mineralization, or both.

- The vein system is open on three sides. Additionally, the vein is repeated by faulting elsewhere on the property, or a second, similar vein occurs near the pit.

- Drilling penetrated a vein system 6-8 meter thick over an area of about 70 x 300 meters. This suggests an open-pittable tonnage of +300,000 tonnes, which is open on three sides. The morphology of the area suggests the vein (or vein system) continues for at least an additional 300 meters to the SW, which could double the open-pittable reserves.

- The viability of the project depends on the assay results which are due late this week.

We have mentioned to the owners that we may undertake "bulk sampling" but this was being reviewed with you.

We have also, at the request of Bob Hicks, arranged to let him have a statement of the work program undertaken, as evidence that it conforms to the requirements for the 1988 Assessment.

I look forward to hearing form you.

Yours sincerely,

Tony Wicks

TW:cms

Encl.: Report and Results of Clementine Drilling Program
Drill Hole Indication Map

PROGRESS REPORT
CLEMENTINE MINE

June 1, 1988

An ortho-photo map of the property was completed at a scale of 1"=400' with an 8' contour interval. This map will be used to compile existing data and provide a base for mapping.

A contract geologist was on site to log drill cuttings and map in preparation for confirmation drilling. Cuttings from 25 holes drilled by Copper Lake but not logged or assayed have been located in the old operations building. Some of these were logged with the intent of locating intervals which pentrated the target quartz-carbonate-manganese vein. Several intervals were found and were submitted for fire assay. These samples were from outside the main target zone, and were assayed to test for extensions of the target. The assays results were anomalous in gold but were not of ore grade. These results indicate that the target zone may be limited on its extreme northeast margin.

T. L. Robyn will visited the property on Sunday, May 8 to determine progress.

The contract geologist completed mapping and logging of drill samples on May 18th. The results of his mapping show that the high-grade gold zone occurs at a zone of intersection of several mapped and inferred faults, creating a structurally-complex zone favorable for mineralization.

A Notice of Intent to Operate has been filed with the Phoenix District Office of the Bureau of Land Management. This notice is required before mobilizing equipment onto unpatented claims on BLM-supervised land.

Drilling is planned for mid-June which will test the previous operator's drilling results. At this time, a suitable rig has not been located because they are committed on long-term drilling programs. I will continue to attempt to locate a rig.

Thomas L. Robyn

EAST WEST RESOURCES INC.

Head office: 3 Harbor Drive • Suite 103
Sausalito, California 94965
Telephone (415) 331-8880 • Fax (415) 331-5937

July 27, 1988

Mr Irwin Singer
Jefferson Valley Gold Mines Inc.
101 Richmond Street West
Suite 906
Toronto, Ontario M5H 1T1

Dear Irwin:

Clementine

As I mentioned to you on the phone, the drilling program on Clementine was extremely disappointing and has not shown indications of a mine.

I attach the results of the drilling program together with a copy of the map of the drill hole locations.

The one hole, EWCL-1, that gave good grades indicates that there may be approximately 2,000-2,500 tons of ore lying between that hole and the Watts Griffiths trench, about which I spoke to you.

The ore is extremely dirty with high concentrations of alumina and calcium oxide, but with the silica content too low for the ore to be blended with smelter runs.

The smelter ore buyers we approached have not accepted this ore type.

What I have proposed we might do is that East West undertakes to try and mine out this small quantity of ore and, if we can have it suitably blended and treated, split the proceeds after direct mining and processing costs on a 50:50 basis with you.

We would be quite happy to undertake this with you on the basis that it would be feasible and worthwhile and continue to search for suitable contractors, smelters, or other processing plant within a cost effective distance of Clementine.

I confirm that the security and other costs are paid up to and including July 1988, but as further expenditure would fall due on the first of August I would like your agreement in principle for us to proceed upon this basis as early as possible.

EAST WEST MINERALS, INC.
Head office: 3 Harbor Drive • Suite 103
Sausalito, California 94965
Telephone: (415) 331-8880 • Fax: (415) 331-5937

February 10, 1989

Mr. Irwin Singer
Jefferson Valley Gold Mines Ltd.
Richmond-Adelaide Centre
101 Richmond Street West
Suite 906
Toronto, Ontario M5H 1T1

Dear Irwin:

East West carried out a bulk sampling program at the Clementine mine in an attempt to characterize the vein exposed in the pit, and make a small profit at the same time. Approximately 700 tons of ore was trucked to the mill, a distance of 60 miles one way, and processed.

The result was that we lost a large sum of money on the exercise. How much we have lost won't be known until the carbon is stripped and the gold recovered. We have had to truck the carbon to Reno for stripping, because of difficulties with the mill. The reasons we lost money are two-fold. First, we could not get the mill feed grade over 0.32 oz/ton gold, and second, the mill recovery ranged between 30 and 40 percent. Please recall that the only mill available, and the one we had to use, is a flotation mill.

Our assays on the pregnant liquor prior to stripping indicate that we probably have recovered 25 to 30 ounces of gold. I expect that we have lost at least $30,000 on this exercise.

The poor recoveries were caused by the fact that 0.20-0.25 oz/ton gold is contained in the -200 mesh fraction. This fraction is too small to recover by flotation method. The laboratory test samples which we used for determining which reagents to use were splits from our drill cuttings. The test samples were higher grade (1.83 oz/ton gold) and subsequently contained larger amounts of coarser gold which could be recovered by flotation. The test sample thus was not representative of the material fed to the mill. Even though we stripped off the top of the drill hole which gave us the high-grade intercept, the grades remained in the 0.2-0.3 oz/ton range.

Since there is no CIP mill in the region, and because there are no reserves proven at the mine which would justify installing one at the site, we have to conclude that the Clementine property is now an exploration property. Our work indicates that while high grades of gold occur on the property, they appear to be piecemeal and we have not been able to conclusively document continuity. The target that we can estimate as most likely to occur on the property does not meet our company's investment criteria.

We propose to pay the advance minimum royalty and security costs for January. We will not pay any costs for February or future months.

The Clementine project has been interesting, and I have enjoyed being in the joint venture with you. Perhaps we can find other attractive prospects to explore together.

Sincerely,

Tony Wicks
For and on behalf of
East West Resources, Inc.

ACT TECH
ACT ENVIRONMENTAL TECHNOLOGIES, INCORPORATED
ROBERT D. WAGNER

December 4, 1995

Torrie Chartier
Absolut Resources Corp.
505 3rd Street S. W.
Suite 1300
Calgary, Alberta T2P 3E6

Re: Clementine Mine, Maricopa County, Arizona.

Enclosed is a portion of a report on the Clementine Mine. I tried to copy the relevant parts although the rest of the report is available.

The conclusion of the report is 223,100 tons of 0.10 opt gold including 88,400 tons of 0.192 opt gold. This is a good place to start.

I think the exploration potential is better than is mentioned in the report. Another positive factor is that the agreement with the owner is much more realistic than when this report was written.

If you have any questions, please call.

Sincerely,

Steven J. Radvak, P.E.

2432 W. Peoria Avenue, Suite [illegible] • Phoenix, Arizona 85029-4734 • (602) 944-3800 • fax (602) 944-3139

SUMMARY REPORT ON THE MYSTIC PROJECT, ARIZONA

William H. Neumann

November 12, 1984

Location: The Mystic Project is a gold exploration property located approximately 20 miles NW of Phoenix, Arizona, in Maricopa County, just south of the Yavapai County line. The project has been broken up into two categories based on a Township division. These categories are designated as the Mystic I, which consists of all claims south of the T5N-T6N dividing line, and the Mystic II, which consists of all claims north of the T5N-T6N dividing line. The Mystic I consists of approximately 4640 acres of unpatented lode claims and state ground contained in Sections 1 through 14 of T5N, R1W and Sections 6 and 7 of T5N, R1E. The Mystic II, which is the largest portion of the project, consists of approximately 17,596 acres of unpatented lode claims and state ground contained in Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 18, 19, 20, 21, 22, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35 of T6N, R1W; Sections 1, 2, 3, 7, 10, 11, 12, 13, 14, 22, 23, 24, 25, 26, 27 of T6N, R2W; Sections 34, 35, 36 of T7N, R2W.

Property: The Mystic I is made up of four claim groups and one section of state land held under Arizona Prospecting Permit number 08-87726. These four claim groups are designated as the Harding lease, the McCully lease, the Win Group, and the Bummer Group. The Harding lease consists of 6 unpatented Question lode claims and one unpatented lode claim known as the Gunbolt claim. The McCully lease consists of 22 unpatented lode claims known as the D&M claims. The Win group is made up of 96 unpatented lode claims and the Bummer group is made up of 75 unpatented lode claims.

The Mystic II is made up of two claim groups and two sections of state land held under Arizona Prospecting Permit numbers 08-87884 and 08-84305. The claim groups are the Win group, which consists of 671 unpatented lode claims, and the Burro group, which consists of 146 unpatented lode claims.

Ownership & Lease Agreement: The Question claims and the Gunbolt claim of the Harding lease were leased by Albert Harding, et al, to Ranchers and assigned to Ranchers Gold and Silver Exploration Program - 1980. These were subleased to Goldsil Mining and Milling in 1984. The Harding lease is for a period of ten years commencing January 21, 1980, and so long thereafter as production is being obtained. The lease has an advance royalty of $10,000/month. The royalty shall be reduced to $5,000/month when in the preceeding month fifty linear feet of underground development has been completed. On the Question claims, there is a 10% NSR on gold and silver, and a 5% NSR for metals other than gold and silver. On the Gunbolt claim, there is a 1% NSR overriding royalty to Harding, et al, and 10% of gross production to N. O. White. The annual assessment requirements performed by Ranchers have been assigned to Goldsil Mining and Milling.

The D&M claims of the McCully lease were leased by Dale McCully, et al, to Virgil and Elsie Caughran and assigned to Ranchers Gold and Silver Exploration Program - 1980. The lease period is for ten years commencing November 24, 1980, and so long thereafter as production is being obtained.

The McCully lease has an advance royalty of $10,000/year. The advance royalty is credited against the production royalty which is 5% NSR. Ranchers performs the annual assessment requirements.

The Bummer group of unpatented lode claims were located by Coe & Van Loo Consulting Engineers and assigned to Ranchers Gold and Silver Exploration Program - 1980. The Bummer group was subleased to Goldsil Mining and Milling in 1984. Goldsil is now responsible for performing the annual assessment requirements.

The Win group of unpatented lode claims were located in 1980 and 1983 by Rocky Mountain Surveyors as an agent for Ranchers. They are assigned to Ranchers Gold and Silver Exploration Program - 1980 and Ranchers performs the annual assessment requirements.

The Burro group of unpatented lode claims were located in 1980 by Rocky Mountain Surveyors as an agent for Ranchers. They are assigned to Ranchers Gold and Silver Exploration Program - 1980 and Ranchers performs the annual assessment requirements.

Three sections of state land are being leased to Ranchers by the State of Arizona under Arizona Prospecting Permits. Section 2, T5N, R1W is being leased under Arizona Prospecting Permit number 08-87726. The lease is for five years commencing December 14, 1983. Section 32, T6N, R1W is being leased under Arizona Prospecting Permit number 08-87884. The lease is for five years commencing January 11, 1984. Section 16, T6N, R1W is being leased under Arizona Prospecting Permit number 08-84305. The lease is for five years commencing June 24, 1984. Under these lease agreements, Ranchers must expend $10/acre/year for the first two years and $20/acre/year for the next three years. Rental is $1/acre for each annual period. Each annual period, an application for renewal, plan of operation, and proof of expenditures must be submitted.

History: At the location of the present Mystic I-Harding lease, twelve unpatented lode mining claims were staked and filed by Albert Harding and Leith Pike in 1972 and 1973. Of the twelve, six claims were retained and another claim, the Gunbolt, was held by a lease from N. O. White. Harding seasonally explored the property by both core and rotary drilling for a total of about 4.5 miles of drilling in 83 hoes. For the first few years, the owners tried to find minable lead and zinc, and enriched copper-silver ore, but were not successful. In 1975, when they were contemplating abandoning the property, they drilled hole 23 which encountered 15' of .84 oz/ton gold. In January of 1979, Harding and Pike incorporated "Mystic Gold, Inc." and acquired equipment to sink a shaft centered on hole 25. Hole 25 contained 3 zones of mineralization, 15' of .33 oz/ton gold, 20' of 1.64 oz/ton gold, and 15' of 1.39 oz/ton gold. In February, the shaft was collared to 10' in anticipation of pouring concrete for a head frame. Operations were quickly curtailed when the small work force of three miners celebrated payday too extensively and walked off the job. After waiting four days for his crew to return, Harding decided that he needed to joint venture with or lease the property to a mining company.

Ranchers Gold and Silver Exploration Program - 1980 acquired a lease on the property in late 1979. In the summer of 1980, Ranchers began an

angle core drilling program that culminated with the completion of 70 holes by the end of February 1981. Although the drilling results were encouraging and many ore grade intercepts were encountered, it was decided to temporarily terminate the drilling program in 1981 and evaluate the results. One more angle core hole was drilled in the summer of 1982 to increase the down dip extension of the ore zone, but proved unsuccessful. During the fall of 1980, an extensive claim staking and land acquisition program was initiated. From extensive surface sampling and mapping, conducted over several field seasons by Ranchers, a number of scattered gold prospects and shows were found on both the Mystic I and II areas. Evidence of prospectors' activities can be seen throughout the property.

In the fall of 1982, Ranchers signed a deal for a joint venture on the Mystic I with American Copper and Nickel Co., a subsidiary of International Nickel Company. ACNC drilled eight holes in early 1983 which encountered minor to ore grade gold mineralization. 1982 and 1983 were financially disasterous years for ACNC, and they elected not to participate any further with the joint venture.

In the summer of 1983, four vertical rotary holes were drilled to test the east-west strike extensions of the ore zone. The hematitic red zones were encountered, but only traces of gold were detected. The drilling extended the strike length of the red zone approximately 500' to the west.

In 1984, Ranchers entered into an agreement with Goldsil Mining and Milling. Ranchers leased the Question, Gunbolt, and Bummer claims to Goldsil, which plans to develop an economic gold ore body. They are planning to sink a decline on the property for underground exploration purposes.

Geology: The geology of the Mystic area consists mainly of metavolcanics and metasediments assigned to the Precambrian Yavapai Series and unconformably overlying Cretaceous and Tertiary volcanics. A few mafic dikes, quartz veins, andd calcite veins, all of which appear to be related to the younger volcanics, cut the Precambrian rocks. Quaternary alluvium, colluvium, and caliche are present along stream valleys and plains and locally mask the bedrock.

The Precambrian metamorphics of the Yavapai Schist consist mainly of metavolcanic and subordinate metasediments deposited and metamorphosed in a major eugeosyncline about 1,730 to 1,820 million years ago in a zone trending northeast through central and western Arizona. This eugeosynclinal terrane was intruded by batholiths about 1,700 to 1,740 million years ago and again about 1,465 to 1,410 million years ago. The Yavapai consists of memtamorphosed basaltic, andesitic, dacitic, quartz latitic, and rhyolitic flows, tuffs, and breccias along with tuffaceous sandstone, chert, iron formation, shale and rare carbonates.

Gold mineralization at the Harding lease of the Mystic I occurs as native gold in an east-west trending, steeply dipping shear zone contained in the Precambrian Yavapai. The gold mineralization is associated with strong hematitic alteration and may or may not be associated with quartz. Intermediate and mafic metavolcanic units of the Yavapai appear to be best suited to gold mineralization. The red sheared zone has an average

thickness of 45' and ranges up to 70'. It has a southerly dip of 67° and can be traced by core and rotary drill holes for a strike length of 1100'. Originally, it was thought that the mineralization of the Mystic I was stratabound and Precambrian in age. After examining all of the drill data and surface mapping, it now appears that the mineralization occurs as a hematitic shear zone of epithermal origin. Although high grade ore intercepts have been encountered, Ranchers has felt that the mineralization is too spotty and discontinuous to calculate ore reserves or initiate underground mining activities. Some of the best gold intercepts delineated by angle core drilling are: 17' of .70 oz/ton Au in R-1, 15' of 1.28 oz/ton Au in R-2, 8' of .40 oz/ton Au in R-4, 5' of .30 oz/ton Au in R-12, 8' of .51 oz/ton Au in R-14, 12.5' of .27 oz/ton Au in R-35, 15' of .24 oz/ton Au in R-40, 4' of 2.10 oz/ton Au in R-55, and 8' of .64 oz/ton Au in R-56.

D&M Claims, Mystic I:

The D&M claims are located in Sections 2, 3, 10, and 11 of T5N, R1W. Two parallel red hematitic shear zones are the main targets of exploration on the D&M claims. These shear zones are approximately 120' apart, strike N30°E, and dip 50°-60°SE. The zones run parallel to the southwest for 940'. At this point, the eastern zone disappears under colluvium, but the western zone makes a right angle turn and heads west for another 800', maintaining its same angle of dip but in a more southerly direction. This host rock is a Precambrian phyllite. The red oxidized phyllitic shears contain quartz veinlets. Surface values up to .15 and .23 oz/ton gold have been encountered. The area contains many hornblende intrusions with associated quartz and copper oxide staining. A rhyolite porphyry intrusive terminates the shear zone to the west and the colluvial cover masks any further strike extensions to the northeast. Several prospect cuts have been encountered along the zones. Ranchers has drilled 3 angle core holes and 19 vertical rotary holes on the D&M claims. Only low grade gold values have been encountered in the drill holes.

Cactus Jack Area, Mystic II;

The Cactus Jack area is a large exploration area, encompassing most of Sections 29 and 30 of T6N, R1W. The area contains multiple hematitic red sheared zones hosted by Precambrian intermediate to mafic metavolcanics. The sheared zones and the host rock both have a north to northeast trending strike and dip to the northwwest. Many of these shears contain quartz and/or calcite veinlets with associated limonite in fracture fillings and vugs. Surface values up to .55 and .99 oz/ton gold have been found in a shallow prospect pit in the area. Little evidence of past prospecting can be found in the area. Much of the area is masked by colluvium and caliche. A total of 29 vertical rotary holes have been drilled in the area, most of which have been barren of mineralization. However, one vertical hole encountered 5' of .20 oz/ton gold between 25' and 30'.

Saddleback Area, Mystic II;

The Saddleback area is located in Section 34 of T6N, R1W. The main exploration emphasis is a series of narrow quartz veins of varying strikes and

dips. The widths on the quartz veins range from 1.5' to 2.0'. Unaltered Precambrian felsic metavolcanics are the host rocks for the veins. Hematite and copper oxide staining is abundant in association with quartz on the rubble piles at several prospect pits and on the dump of a deep shaft with some drifting. Surface assays of the quartz vein material range up to .07 and .12 oz/ton gold. Much of this area is also covered by colluvium, making strike extension determinations on the veins difficult without drilling.

Windy Well Area, Mystic II:

This area is located in Sections 27 and 28 of T6N, R1W. It is a quartz vein target with 2200' of strike length hosted by Precambrian intermediate metavolcanics. The metavolcanics strike northeast and dip steeply to the northwest. The vein is 1.5' to 2.0' wide, strikes N15°E to N35°E and dips 60°SE. An andesitic dike forms the hanging wall of the vein for the entire exposed strike length of the vein. The vein and dike are offset in several places by faulting. Several shafts, prospect pits, and one adit with approximately 150' of tunnel can be found along the vein structure. Some of the surface assays of the vein are: 2.2' of .30, 1.5' of .11, .23, .38, .54, and 1.04 oz/ton gold. The Windy Well vein is the only place on the Mystic property, other than drill hole R-2 on the Harding lease, where visible gold has been seen. Four angle core holes have been drilled into the vein to intercept it at -100'. Only low-grade mineralization was encountered. The vein is terminated to the south by a rhyolite porphyry intrusive and is covered by colluvium and Tertiary volcanics to the north.

Four Shafts Area, Mystic II:

The Four Shafts area is located southwest of the Cactus Jack area in Sections 30 and 31 of T6N, R1W. The exploration target is a 3' wide quartz vein which pinches and swells. It strikes N20°E, dips 20° to 60°SE, and has 200' of surface exposure. The vein is traceable for another 350' by float mapping for a total projected length of 550'. The colluvial cover is responsible for the poor exposure of the vein. The vein is contained in a red hematitic sheared zone hosted by Precambrian intermediate metavolcanics. The shear zone ranges from 50' to 75' in width, strikes N20°E, but dips steeply to the northwest which is opposite to the dip of the quartz vein. Four shafts have been sunk along the 200' of limited vein exposure. One of the shafts has a sizeable dump and appears to have had extensive workings. The quartz has abundant hematite associated with it and considerable copper oxide staining. Surface assays of .25, .34, .36, 1.61, and 5.60 oz/ton gold have been taken. Five angle reverse circulation rotary holes have been drilled to intercept the vein at depth. Mineralization was negligable except for hole FS-2 which encountered 5' of .13 oz/ton gold at 180'. The gold mineralization was in the hematitic shear zone, not the quartz vein. No appreciable gold mineralization was encountered at the projected intersections of the drill holes and the vein.

Section 32, Mystic II:

Section 32 is owned by the State of Arizona and leased to Ranchers. It is located in T6N, R1W. The main exploration emphasis has been on two narrow, parallel quartz veins in the northwest quarter of the section. Both

of these veins strike N10°E and dip 59° to 64°SE. The eastern vein has an exposed strike length of 650' and an average width of 1.5'. There are a few prospect pits on the vein and surface assays of 1.5' of 1.10 and 3.10 oz/ton gold have been taken. The western vein has an exposed strike length of 1300' and an average width of 1.4'. One shaft and several prospect pits are evident along the vein. Assays of 1.2' of .08 and .50 oz/ton gold have been taken on the vein. The two veins are approximately 80' apart and contain abundant hematite and copper oxide staining. Three angle core holes have been drilled to intersect these veins at depth. Only trace to low grade gold assays were encountered. Just to the west of these veins, another narrow quartz vein with the same strike and dip is exposed. It has a surface trace of approximately 400'. One sample taken on the vein contained .27 oz/ton gold. Another narrow, 700' long quartz vein is located near the center of the section. A shallow shaft has been dug on the vein. Surface samples ran up to .06 oz/ton gold. In Section 31, near the western edge of Section 32, a 300' long quartz vein is exposed. A very deep shaft has been sunk on the vein. This vein also strikes N10°E and dips 85°SE. A .23 oz/ton gold sample has been taken on the vein. All of these veins are hosted by northeast-trending Precambrian felsic metavolcanics, which dip from 48° to 81°NW. From surface sampling, it has been determined that many other scattered traces of gold occur throughout the section.

Section 35, Mystic II:

This section is located in T7N, R2W. It was staked in 1983, after reconnaissance mapping and sampling, proved out some potential in the southeast quarter of the section. The main target is a 2' to 3' quartz vein that can be traced for 800'. It has a north-south strike, and almost vertical dip. Hematite and strong copper oxide staining are associated with the quartz vein. Assays on the vein ran .05, .09, .11, .25, and .63 oz/ton gold. Two shafts, one adit, and numerous prospect pits have been excavated along the vein. The vein is hosted by Precambrian intermediate metavolcanics. Further mapping and sampling of the section has turned up other significant assays. They are .06, .07, .14, .19, and 1.24 oz/ton gold, occurring in several quartz veins with associated hematite vein type targets. More detailed mapping and sampling is needed on this Section.

Geronimo, Mystic II:

The Geronimo is located in Section 5 and 6 of T6N, R1W. The exploration emphasis here is a 1' to 4.2' wide quartz vein contained in a 4' to 10' wide red hematitic shear zone, hosted by intermediate metavolcanics. Two rather deep shafts and several prospect pits are located on the vein. The property was last worked in the 1960s. The foundation for a small mill can be seen just below the northern-most shaft. The vein can be traced for 750', strikes N15°W to N32°W, and dips 70° to 74°NE. Precambrian intermediate metavolcanics which strike NE and dip approximately 70°NW are the host rocks for the Geronimo vein. The extensive colluvial cover masks any further extensions of the vein. Surface assays of 3.8' of .28, 4.2' of .33, .48, and 1.16 oz/ton gold have been taken along the vein. five angle core holes have been drilled to intersect the vein at depth. One hole was abandoned due to circulation problems; one hole, G-5,

intersected 3' of .08 oz/ton gold; and the other three contained only traces of gold mineralization.

Buick Prospect, Mystic II:

This area is located in Section 14 of T6N, R2W. Many prospects, shallow shafts and one small adit dot the area. The exploration emphasis of this activity has been several narrow quartz veins with strong copper oxide staining and abundant associated hematite. Most of these veins appear to be short, with the longest being 150' in length. The maximum mineralized thickness observed was 2.2' which assayed .05 oz/ton gold. Other assay values taken were .10 and .21 oz/ton gold. These veins are hosted by Precambrian felsic to intermediate metavolcanics which strike NE and dip 78° to 80°SE. This area adjoins a Tertiary intrusive porphyry plug.

Owl Shaft, Mystic II:

The Owl Shaft area is located in Section 25 of T6N, R2W. This area contains many northeast trending, northwest dipping red hematitic shear zones contained in a Precambrian phyllite. These multiple red zones contain highly contorted and convoluted bedding in places. Some quartz veinlets are associated with the shears. Surface sampling of the area has revealed only traces of gold mineralization. One shaft, sunk through colluvium into a red hematitic shear, and a couple of shallow prospect pits can be seen in the area. This area is just south of the Kaiser Steel claims which cover most of the Precambrian Iron Formation exposure in the Mystic Area. The Iron Formation is a series of beds made up of predominently specularite, magnetite, hematite, and quartz. The formation extends for several miles and is approximately one mile wide. Sampling of most of the test pits and tunnels on the Kaiser Steel claims indicated only low-grade mineralization in the range of .01 to .02 oz/ton. One narrow bed of Iron Formation outcrops in the Owl Shaft area. No significant gold values have been found.

Exploration: Exploration on the Mystic property has consisted of several drilling programs, extensive surface mapping and sampling programs, and a geophysical program conducted by ACNC which was limited to the Harding lease. The drilling programs were conducted from June of 1980 through August of 1984. A total of 106 holes have been drilled on the Mystic I by Ranchers and ACNC. Of these, 83 have been angle core holes and 23 have been vertical percussion holes. The mineralized hematitic shear zone on the Harding lease has been the main emphasis of exploration drilling. Seventy-one angle core holes and 4 vertical percussion holes were drilled by Ranchers and 8 angle core holes were drilled by ACNC. Some of these core holes have intercepted exceptionally high-grade gold mineralization with the best intercept being 5' of 3.45 oz/ton gold contained in hole R-2. Drilling to date has not been able to establish the existance of a commercially minable deposit due to lack of continuity of the gold mineralization between holes.

The other area of concentrated drilling on the Mystic I has been the D&M claims. Three angle core holes and 21 vertical percussion holes were drilled here. One additional angle core hole was drilled just inside

the northern edge of Arizona State Section 2. The total footage drilled on the Mystic I is 34,484'.

Sixteen angle core holes and 37 percussion holes, a total of 53 holes, have been drilled on the Mystic II. The drilling was conducted on various targets over several seasons to test for ore grade gold mineralization and satisfy annual assessment commitments. The drilling consisted of 4 angle core holes to test the Windy Well vein, 4 angle core holes at the Geronimo, 4 angle core holes on Section 32 of T6N, R1W, 2 angle core and 3 vertical percussion holes on Section 16 of T6N, R1W, 2 angle core holes on Section 2 of T6N, R2W, 29 vertical percussion holes on the Cactus Jack area, and 5 angle reverse circulation rotary holes on the Four Shafts vein. Total drilling on the Mystic II amounted to 10,693'. Tables 1 and 2 summarize the drilling results on both the Mystic I and Mystic II.

MYSTIC PROJECT
Summary of Drilling Results
Table 1
November 12, 1984

	Barren (less than .01 oz gold/ton)	Weak (.01-.04 oz gold/ton)	Moderate (.05-.09 oz gold/ton)	Moderate to Strong (greater than .10 oz gold/ton)	Total Holes	Total Footage
Mystic I						
Angle core holes	5	31	18	21	75	27,727
Percussion holes	17	6	—	—	23	4,405
INCO						
Angle core holes	—	3	1	4	8	2,352
Sub-Total	22	40	19	25	106	34,484
Mystic II						
Angle core holes	10	5	1	—	16	2,892
Percussion holes	29	6	—	2	37	7,801
Sub-Total	39	11	1	2	53	10,693
Total	61	51	20	27	159	45,177

- drilling conducted June 1980 - Aug. 1984

TABLE 2

MYSTIC, ARIZONA ANGLE CORE HOLES
Assay Results
Intercepts with Gold Greater than .10 oz/Ton

Mystic I

Ranchers' Angle Core Hole No.	Drill Depth From	To	Thickness	Gold oz/Ton	Remarks
R-1	226	243	17	.70	(incl. 4.5' - 1.96 oz/Ton)
R-2	230	235	5	3.45	
	235	245	10	.19	
R-4	148	154	6	1.45	
	194	202	8	.40	
R-6	129	132	3	.92	
R-7	250.5	253	2.5	.55	
R-8	212	218	6	.12	
R-11	240	248	8	.11	
	254	256	2	.12	
R-12	178	183	5	.30	
R-14	176	184	8	.51	
	198	204	6	.22	
R-16	71.5	73	1.5	.10	
R-17	271	276	5	1.82	
	349.5	352	2.5	.14	
R-20	185	189	4	.14	
R-22	270.5	275	4.5	.13	
R-35	247.5	260	12.5	.27	(incl. 4' - .45 oz/Ton)
R-40	121	136	15	.24	(incl. 5' - .39 oz/Ton)
R-50	242.5	247.5	5	.20	

Ranchers' Angle Core Hole No.	Drill Depth From	To	Thickness	Gold oz/ton	Remarks
R-55	368	373	5	.12	
	403	407	4	2.10	
R-56	175	180	5	.85)	(8' - .64 oz/Ton)
	180	183	3	.30)	
R-57	89.5	93.5	4	.14	
R-60	192.5	195	2.5	2.06	
	200.5	204	3.5	.10	
R-71	135	136	1	.11	

Mystic I

Angle Core Hole No.	Drill Depth From	To	Thickness	Gold oz/Ton	Remarks
40992	130	136	6	.16	
	149	172	23	.43	
40994	144	168	24	.18	
	190	194	4	.10	
40996	219	222	3	.11	
40998	100	102	2	.34	

Mystic II

Percussion Hole No.	Drill Depth From	To	Thickness	Gold oz/Ton	Remarks
CJ-13	25	30	5	.20	
FS-2	180	185	5	.13	

ADMMR Field Visit

Mine **Mystic** (f) Maricopa T5N, R1W, Sec. 12 Date: **February 26, 1993**
Mill **Redtail** (f) Yavapai T9N, R5W, Sec. 30 nw Engineer: **Nyal J. Niemuth**

Operating Company: **Mystic Mine LLC, INC.**, an Oklahoma company registered in Arizona
Local Address: **P.O. Box 71773, Phoenix, AZ 85080** Phone: **602-9938767**
Information from: Joe Stocks and Graham Patterson for Mystic. Bob Barefoot for Redtail mill.

This group has taken over mining and milling following about one year of operation by Fischer Watt Mining. During that time it is reported that Fischer Watt produced approximately 18,000 tons of ore that had a recovered average of 0.32 oz/ton Au (5760 oz Au). This grade is likely lower than the actual grade of material mined reflecting gold mineralization that occurs both as coarse free milling and as fine micron size particles amenable to cyanide mill recovery. Early ore was treated in a small gravity mill on site while later ore was treated at the cyanide mill at Repulbic Goldfield's Congress mine. Some of the gravity tailings were also retreated at the Congress mill.

Mystic mine LLC Inc. has **three** operating groups or partners. These consist of: **Frank Downey and Joe Stocks** (Stock's address and phone above) who put the deal together and handles administration; **RMG Mining Inc.**, Graham Patterson, Vice President, 2814 W. Bell Rd #1465-307, Phoenix, AZ 85023, Phone 602-863-1740, Fax 602-548-9540, Mobile phone 602-541-4321 handles the mining ; and **DCRS (Canada) Ltd.** (contact is Bob Barefoot) P.O. Box 20818, Wickenburg, AZ 85358, Phone 602-684-3032 or 602-684-2867 does the milling at the Redtail facility. For details of the DCRS process see ADMMR's Redtail mill file.

Mystic Mine LLC Ltd. subleased the mine about 18 weeks ago. Fischer Watt shut down before mining out the last 50' vertical of reserves identified by drilling. This was partly due to an attempt, carried out by their contractor, Small Mines Development, to greatly increase tonnage and decrease mining costs by conducting a large vertical blast. Reports on the results are mixed, but it likely resulted in a lot of dilution and problems with support. Mineralization is hosted in a high angle shear zone associated with an intrusive tertiary felsic volcanic dike intruded into metasedimentary schist of the Yavapai series. The dominant gangue mineral is fine grained, massive, earthy, red, hematite. This combination results in bad ground requiring lots of support in the form of bolts, split sets, panels, cyclone fencing, etc. Below the present level, approximately the 300, are only a couple of drill holes, but they intend continue mining to test for ore extensions. Present widths and grades are reported as improving and among the best seen.

The mine is accessed by a spiral ramp decline developed in the foot wall of the shear zone. Grade of the ramp is -16° and it has a total length of 3250'. A misting system similar to that used for summer patios for temperature control is used in the ramp to control dust. As the mineralized shear is approached, much white, coarse calcite is commonly observed in the footwall. Shear widths greater than 50' are reported but observing or estimated the mineralized width is difficult as red earthy specular hematite is pervasive throughout the shear and not confined to the mineralized area. Sampling is conducted by panning, with areas containing 0.2 oz/ton Au or above readily showing a large gold tail in a pan.

It was reported that the current mining operation has produced 2,000 tons of near 1 ounce material which has all been trucked to the Redtail facility. Ore production is targeted at 100 tons per day. Staff consist of 4 office people and 12 miners. Mining equipment on the Mystic site includes a 3 yard loader, 2 - 8 ton underground haul trucks, an underground loader, diesel powered generator and compressor, a storage truck (used as shop and to house parts inventory) and a small trailer used as mine office.

It is interesting to note that the prospect shaft the old timers sunk can observed underground. It was reported that it fell about 3 feet short of intersecting high grade gold mineralization!

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

1. Information from: Bud Hillemeyer

   Company: Fischer-Watt Gold Co. Inc. (c)

   Address: 114 Tucker #7

   Kingman, AZ 86401

2. Phone: 753-1622

3. Mine: MYSTIC

4. ADMMR Mine File: Same

5. County: Maricopa

6. Summary of information received, comments, etc.:

Mr. Hillemeyer reports that the land containing the Mystic will be exchanged by the BLM and become deeded land. The developer involved offered #3 million to extinguish the unpatented mineral rights. It was accepted with the following breakdown. Terra Mining Ltd. (c) $2 million, Total Erickson (c) $650,000, and the rest to Fischer-Watt. Upon close of escrow Fischer-Watt hopes to obtain a 8 year, 100% interest on the property from the developer. If successful in obtaining a lease, they would sink a decline to obtain bulk samples to confirm mineralized grade before proceeding with any mining plan.

Date: September 13, 1988

Nyal J. Niemuth, Mining Engineer

SECTION 100 SE

LOOKING NW – N 49°E

SW

NE

— 550 SW — 500 SW — 450 SW — 400 SW — 350 SW — 300 SW — 250 SW — 200 SW — 150 SW — 100 SW — 50 SW — 00 — 50 NE — 100 NE — 150 NE — 200 NE

700 —

600 —

500 —

C152 Proj. C104 C103 EW9 C102 Proj. MM10 Proj. C21 Proj. MM5 MM4

.242

?

.096 .094 .023 .045 .115 .052 .035 .032 .027 .095 .024 .070 .010 .005 .034 .751 .057 .018 .021 NA .013 .027 .143 .043 NA .037 .016 .022 .009 .040

Projection of Charlotte Vein

K.L. Howard, Jr. 7/90

SECTION 50 SE

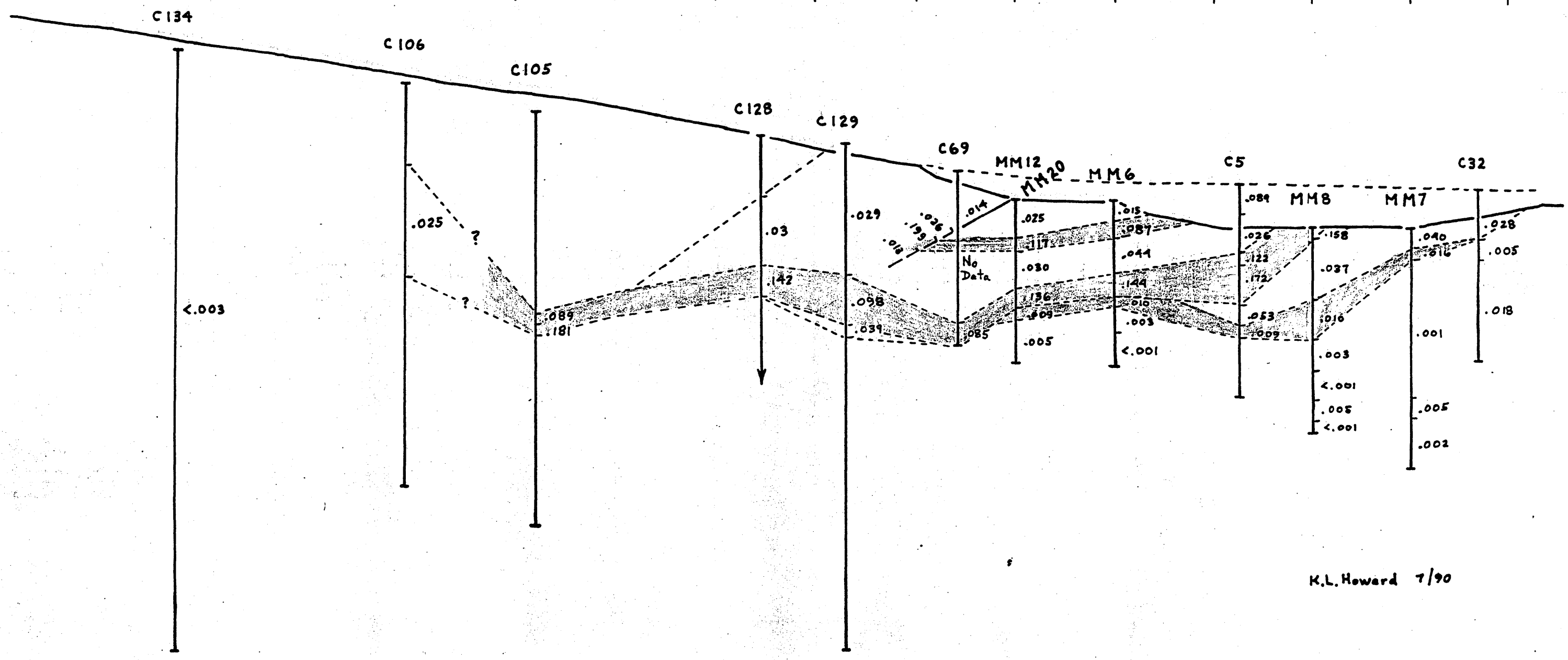
LOOKING NW – N49°E

SW — 550 SW — 500 SW — 450 SW — 400 SW — 350 SW — 300 SW — 250 SW — 200 SW — 150 SW — 100 SW — 50 SW — 00 — 50 NE — 100 NE — 150 NE — 200 NE — NE

1700 —

1600 —

C134 C106 C105 C128 C129 C69 MM12 MM20 MM6 C5 MM8 MM7 C32



No Data

K.L. Howard 7/90

CLEMENTINE PROSPECT PLACER TEST RESULTS
MARICOPA COUNTY, ARIZONA
November 9-10, 1989

Kenneth L. Howard, Jr. Howard Mining & Exploration, Co.

AMPLE #	SAMPLE TYPE	HEIGHT	SAMPLE DESCRIPTION	TOTAL WEIGHT KG	WEIGHT +1/4 IN. KG	WEIGHT -1/4 IN. KG	% MINUS 1/4"	GOLD GRAINS	HEAVY MINERALS	OPY EST. GRADE
CTP1	Vertical Channel	2'5"	Old Terrace gravel surface to bedrock	32.27	23.76	8.51	26.37	none	abundant magnetite minor amph+epidote	nil
CTP2A	Vertical Channel	5'6"	Old Terrace gravel and sand foresets	23.08	12.97	10.11	43.80	none	abundant epidote, amph.-minor magnetite	nil
CTP2B	Vertical Channel	1'6"	Coarse channel under CTP2A	24.00	19.38	4.62	19.25	none	amphibole=magnetite trace epidote	nil
CRP1	Vertical Channel Composite	1'	Old gravel on bed rock under CRP2	42.89	36.34	6.55	15.27	2	magnetite=epidote	0.00[illegible]x
CRP2	Vertical Channel Composite	1'	Recent wash over CRP1	30.52	22.99	7.53	24.67	none	magnetite+amphibole	nil
CRP3	Pit	1'	Recent wash below boulder in wash	19.50	15.56	3.94	20.21	8	abundant magnetite, epidote, amphibole	0.00[illegible]x
CRP4	Pit	1'	Recent wash from bedrock pothole	19.01	10.70	8.31	43.71	none	magnetite, epidote, and amphibole	nil

RESERVES

Measured

Block	A	75,000 Tons	.06 oz Au
Block	B	37,500 Tons	.07 oz Au

Indicated

Block	C	537,500 Tons
Block	D	52,000 Tons
Block	E	5,200 Tons
Block	F	62,500 Tons

GERALD WEATHERS ≈1983?