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Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 07/20/2001

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: GOLD ROAD

ALTERNATE NAMES:

BILLY BRYAN CLAIM
LINE ROAD SHAFT
RAILROAD CLAIM
LAST CHANCE CLAIM
SHARP ORE BODY
U.S. SMELTING & REFINING
RICE ORE BODY

MOHAVE COUNTY MILS NUMBER: 22E

LOCATION: TOWNSHIP 19 N RANGE 20 W SECTION 11 QUARTER SW
LATITUDE: N 35DEG 02MIN 43SEC LONGITUDE: W 114DEG 22MIN 35SEC
TOPO MAP NAME: OATMAN - 7.5 MIN

CURRENT STATUS: PRODUCER

COMMODITY:

GOLD LODE
SILVER

BIBLIOGRAPHY:

ADM MR GOLD ROAD FILE
ADM MR MOHAVE CUSTOM MILL PROJECT//MAPS
BLM MINING DISTRICT SHEET 479
RANSOME, F.L. "GEOL. OF OATMAN GOLD DIST, AZ"
USGS BULL 743, P. 154-165; 1923
AZ. GEOLOGICAL SOCIETY DIGEST, VOL. 15, P 141
ADDITIONAL WORKINGS SEC. 10, NENE, T19N-R20W
AZ. STATE MINE INSP. 29TH ANL RPT, P 9, 19
SCHRADER, F.C. "MIN. DPSTS OF CRBT RNGE, BLCK
MTN, GRND WSH CLF, AZ" USGS BUL 397, P 154-165
LAUSEN, C. "GEOL. & ORE DPSTS OF OATMAN & KAT
HERINE DIST, AZ" AZBM BULL 131, P. 106-108
MALACH, R. "OATMAN MINING CTR" P. 11-13
SCHRADER, F.C. "AIME TRANS." P. 208; 1917
GARDNER, E.D. "GLD MNG & MLLNG IN BLCK MTNS,
W, AZ" USBM IC 6901, P 31-32

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CONTINUATION OF GOLD ROAD

SCHRADER, F.C. "MIN. DPSTS OF CRBT RNGE, BLCK
MTN, GRND WSH CLFS,AZ" USGS BUL 340, P 76-77
TENNEY, J.B. "2ND RPT ON MIN. INDUST. OF AZ"
AZBM BULL 129, P. 83-85; 1930
ELSING, M.J. "AZ METAL PRODUCTION" AZBM BULL
140, P. 96; 1936
WILSON, E.D. "AZ LODE GOLD MINES" AZBM BULL
137, P. 94; 1967
WARNER, L.A. ET AL "OCCUR OF NONPEGMATITE BER
YL IN US" USGS PP 318, P 102-103; 1959
WEED'S MINES HANDBOOK, VOL. XVII, P. 47; 1925
"MIN. & WTR. RES. OF AZ" AZBM BULL 180, P 261
RABB, DAVID "REC. OF METAL VALUE PRIOR TO
RECLAMATION OF MINED AREAS IN THE SOUTHWEST"
ABGMT Open-File Report 80-14, 46 p.
ARIZONA MINE INSP. 29TH ANL RPT, P 9, 19
AZ GEOLOGICAL SOCIETY "1984 FALL FIELD TRIP,
STRUCTURE & MINERALIZTN KINGMAN AREA" P. 66
MICROFILM UG MINE MAPS
FLAT MAP DRAWER MAPS
ABM ROLLED MAP COLLECTION

08/05/96

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

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RAILROAD CLAIM
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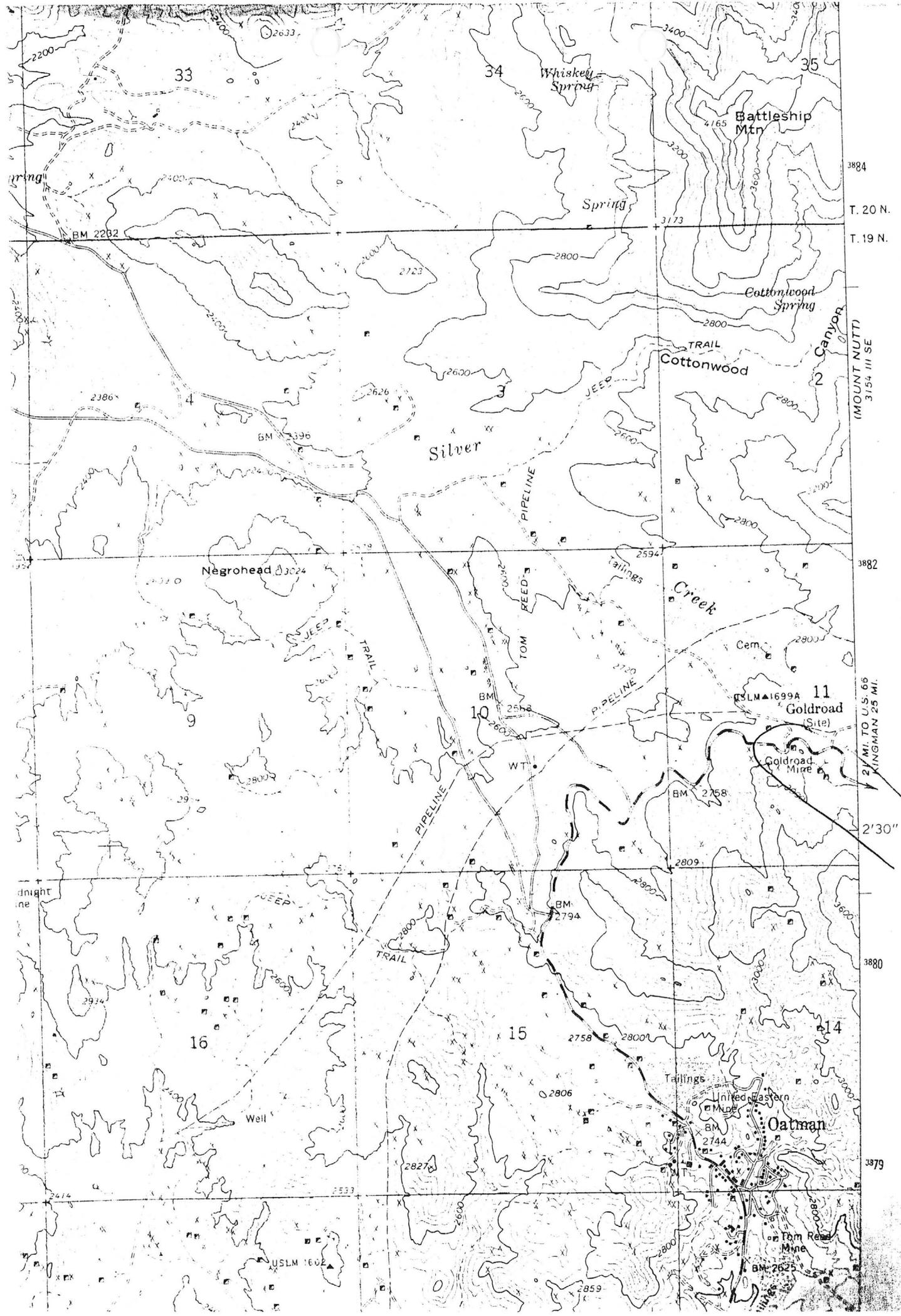
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ADMMR MOHAVE CUSTOM MILL PROJECT//MAPS
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MICROFILM UG MINE MAPS
FLAT MAP DRAWER MAPS
ABM ROLLED MAP COLLECTION

NUMBER	FILE	CONT	CONT1	PRINAME					
22E	F	0	Y	GOLD ROAD					
ALTNAME1				ALTNAME2					
BILLY BRYAN CLAIM				LINE ROAD SHAFT					
ALTNAME3				ALTNAME4					
RAILROAD CLAIM				LAST CHANCE CLAIM					
ALTNAME5				ALTNAME6					
SHARP ORE BODY				U.S. SMELTING & REFINING					
CURSTAT		MNAME			NLATDEG		NLATMIN		
PRODUCER		OATMAN - 7.5 MIN			35		02		
NLATSEC	WLONGDEG	WLONGMIN	WLONGSEC	TOWN	RANGE	SECTION	QUARTER	COM1	
43	114	22	35	19 N	20 W	11	SW	AU	
MOD1	COM2	MODI2	COM3	MODI3	COM4	MODI4			
LODE	AG								
COM5	MODI5	COM6	MODI6	COM7	MODI7				
BIB1									
ADMMR GOLD ROAD FILE									
BIB2									
ADMMR MOHAVE CUSTOM MILL PROJECT//MAPS									
BIB3									
BLM MINING DISTRICT SHEET 479									
BIB4									
RANSOME, F.L. "GEOL. OF OATMAN GOLD DIST, AZ"									



3884

T. 20 N.

T. 19 N.

(MOUNT NUTT)
3154 III SE

3882

2 1/2 MI. TO U.S. 66
KINGMAN 25 MI.

2'30"

3880

3879

The Story of the Gold Road Mine

Taken loosely from USGS Bulletin #397 by F.C. Schrader (1909)

In 1902, a Mexican prospector named Jose Jerez, who was grubstaked by friend Henry Lovin, of Kingman, in the amount of 16 dollars, was out searching for his lost burros when he stumbled over a chunk of quartz that glistened brightly in the midday sun. Upon examining the rock, Jose knew it contained some gold. Much to his amazement it assayed out to 40 ounces to the ton!!

He contacted Lovin with the good news and they both set out to start digging.

In a few months, they had managed to dig a 15 foot deep shaft on the rich vein. Their activity attracted the attention of a group from Los Angeles, who eventually purchased the claim from the two miners for \$50,000. This group then sold it to Joseph Burkhardt, who in turn sold it to another group of investors for \$275,000.

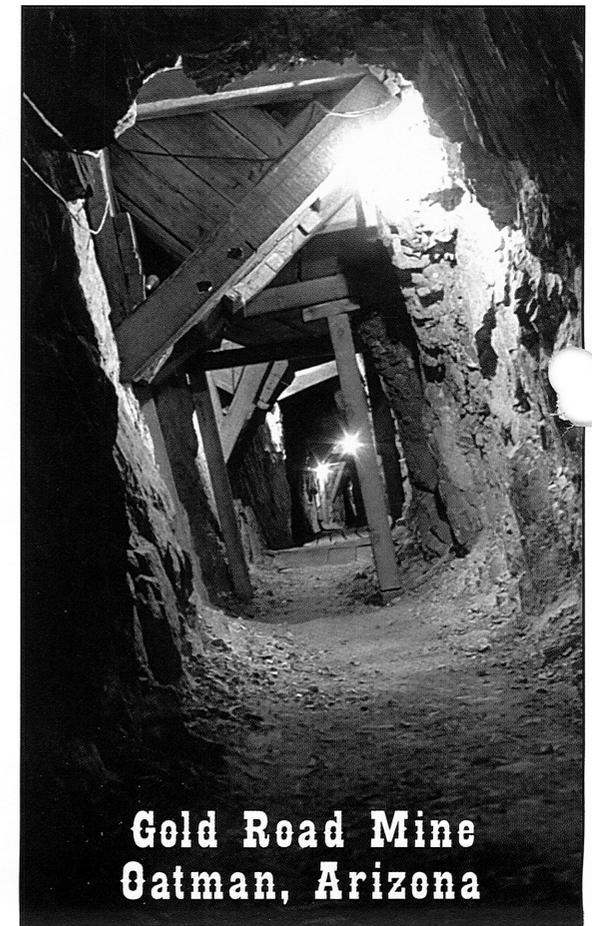
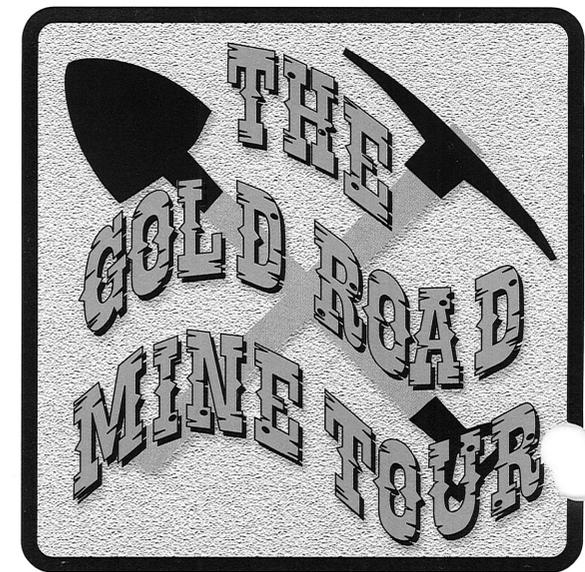
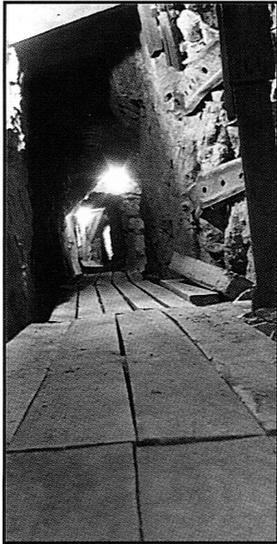
The new group immediately raised a half million dollars, incorporated under the laws of the Arizona Territory, and hired 180 workers and the mine was off and running.

By the end of 1907, the Gold Road Mine property had reportedly milled \$2,250,000.00 worth of the yellow metal. Most of the 140,625 ounces was produced in 1905 and 1906.

The mine has been in production off and on now for nearly 100 years.

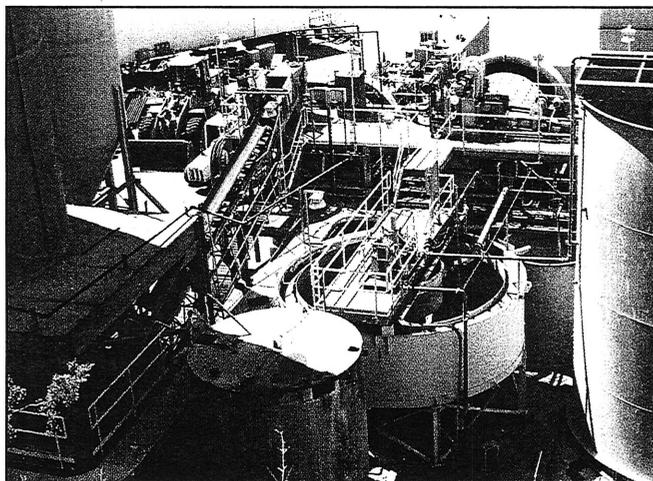
Its latest run was for 5 years, ending, at least temporarily, in 1998, when gold prices fell to below \$300 and ounce.

© Lasting Impressions - Oatman, Arizona



Gold Road Mine
Oatman, Arizona

Oatman, Arizona is located on historic route 66, about 20 miles southwest of Kingman. Coming from Las Vegas, it is approximately 100 miles south on either US 95 or US 93.



The Mine as it Looks Today circa 2000

When the mine was in full production in 1996, 97 & 98, it was running 500 tons of ore a day, producing 40,000 ounces of gold a year. The operation employed 135 miners at its peak.

Closure came in late 1998 when the price of gold fell below \$300.00 an ounce. Production could begin again when the price rises enough to make it feasible to start digging again.

The mine contains enough known ore to run for at least three years, and additional prospecting indicates there may be enough to extend that to ten years.

The mine is located on old historic Route 66, 2 1/2 miles east of Oatman, Arizona.

Tours conducted all day long.

The Gold Road Mine Tour

Enjoy a delightful guided tour of a real old time underground gold mine.

The 45 minute experience is exciting for everyone, and "user friendly" for the physically challenged. You are invited to bring along your camera or camcorder and take as many shots as you please.

Open 10 a.m. to 5 p.m. Daily
(Except Christmas and New Years Day)

Adults\$12.00
Children under 12\$6.00

Family Rates Available
Group Rates Available

Bus Tours Welcome

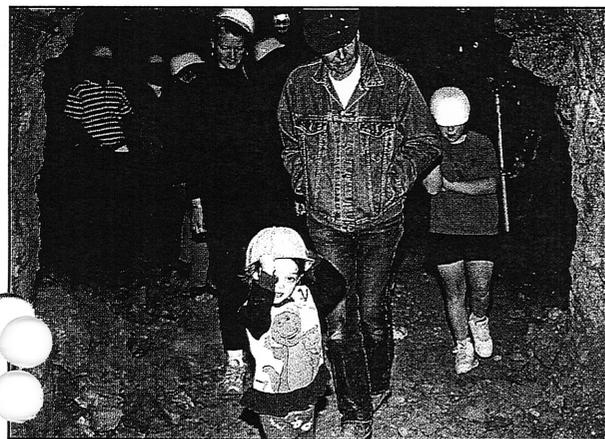
Plenty of parking for
RVs and buses



**P.O. Box 869
Oatman, AZ 86433**

**Phone (520) 768-1600
Fax (520) 768-2277**

E-mail: goldrd@ctaz.com



The mine tour is a walking tour. However, there is transportation available for those in need. You are transported to the mine entrance where the tour begins and will take you into the mine approximately one-eighth of a mile. The experience is so informative and exciting. If only the miners of yesteryear could be here to relate their own experiences.

Just try to imagine it!

GOLD ROAD (FIMOHQUE)

ADDWEST MINERALS INTERNATIONAL, LTD.
Notes to the Consolidated Financial Statements
September 30, 2001
(U.S. dollars unless otherwise stated)

1. Basis of Presentation and Going Concern

Basis of Presentation

Addwest Minerals International, Ltd. (the "Company") was incorporated under the Company Act of British Columbia on March 14, 1966, and is in the business of mining, extracting and marketing minerals and precious metals. The common stock of the Company is listed on the Canadian Venture Exchange.

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries, listed below:

<u>Company</u>	<u>Country of Registration</u>
Addwest Minerals, Inc. ("Addwest")	United States
U.S. Zeolites Inc. ("USZ")	United States
Urban Projects (Barbados) Ltd.	Barbados
Addwest Minerals (Barbados) Ltd.	Barbados

Intercompany transactions and balances have been eliminated on consolidation.

These consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States and are presented in United States dollars.

Going Concern

These consolidated financial statements have been prepared on the basis of accounting principles applicable to a "going-concern", which assumes that the Company will continue in operation for at least one year and will be able to realized its assets and discharge its liabilities in the normal course of operations. Several conditions and events cause substantial doubt about the Company's ability to continue as a "going concern". At September 30, 2001, the Company is experiencing a significant liquidity problem, has a deficit of approximately \$10 million, and has incurred substantial losses in recent years.

In June 1998, due to continued depressed gold prices, the Company completely shut down its only producing gold mining operation, the Gold Road Mine, located in Oatman, Arizona. The Company incurred \$248,000 in closing expenses and will require additional funding to re-open and commence operations. The mine re-opening costs are estimated to be approximately \$2,000,000. The Company substantially reduced costs and personnel during 1998 and will continue in that mode until the price of gold recovers. The Company continues to work with its creditors and successfully restructured certain debt in prior years. The Company's largest required expenditure will be to maintain its development properties with costs estimated to be \$210,000 in 2001. Management does not expect to incur any reclamation expenditures on any property in 2001. Funding for 2001 is expected to come from the Company's credit agreement with a related party whereunder the Company may borrow up to \$10,000,000, at the lender's option (see Note 4). The ability of the Company to continue as a "going concern" is dependent upon its ability to obtain additional financing, the continued support of its creditors, a recovery in gold prices and the success of future operations. It is not possible to predict with assurance the outcome of these matters.

The consolidated financial statements do not reflect adjustments in the carrying value of assets and liabilities, the reported revenues and expenses and the balance sheet classification used, that would be necessary if the Company were unable to continue as a "going concern".

**BC FORM 51-901F
(previously Form 61)**

QUARTERLY AND YEAR END REPORT

Incorporated as part of: X **Schedule A**
 Schedules B & C
(place "x" in appropriate category)

ISSUER DETAILS:

NAME OF ISSUER: Addwest Minerals International, Ltd.

ISSUER ADDRESS: #100 - 5460 Ward Road
Arvada, Colorado U.S.A. 80002

ISSUER PHONE NUMBER: (303) 424-5134

ISSUER FAX NUMBER: (303) 425-7497

CONTACT PERSON: Charles S. Williams

CONTACT POSITION: Director

CONTACT TELEPHONE NUMBER: (303) 424-5134

CONTACT EMAIL ADDRESS: addcam@ixnetcom.com

WEB SITE ADDRESS:

FOR QUARTER ENDED: September 30, 2001

DATE OF REPORT: November 29, 2001

ADDWEST MINERALS INTERNATIONAL, LTD.
Notes to the Consolidated Financial Statements
September 30, 2001 - Page 5
(U.S. dollars unless otherwise stated)

3. Property, Plant and Mine Development

	2001	2000
Land and mining claims	\$ 1,653,636	\$ 1,653,636
Buildings and equipment	3,738,248	3,240,540
Mine development	<u>4,033,433</u>	<u>4,033,433</u>
	9,425,317	8,927,609
Accumulated depletion and amortization	<u>(4,042,271)</u>	<u>(3,780,259)</u>
	<u>\$ 5,383,046</u>	<u>\$ 5,147,350</u>

4. Debt

Credit Agreement

The Company has a "Credit Agreement" with a related-party. The Credit Agreement, as amended on December 20, 1999 provides for Company borrowing up to \$10,000,000 at the lender's option, and bears interest at a fixed rate equal to 8.5% per annum. Principal and interest are due on July 1, 2002. As of September 30, 2001, \$5,348,679 of principal and \$1,699,539 of interest was outstanding in respect of this Credit Agreement.

Notes Payable

On March 1, 1999, the Company amended its \$350,000 note payable for acquisition of mineral rights as the Company was in default on the terms of payment required under the original agreement. The Company sold certain equipment in exchange for a \$50,000 repayment of the note payable. The remaining note payable of \$300,000 is payable in annual equal instalments of \$100,000 due February 2000, 2001 and 2002, respectively. The Company did not make the first two instalment payments and is in default of the payment terms. The \$300,000 note payable has been classified as current. Under the terms of the amended loan agreement, in the event of non-compliance, interest is to begin accruing at 2% above prime.

In 1996, the Company entered a loan agreement whereby the lender was obligated to loan up to \$1,000,000 and was granted an option to convert the loan amount into a 70% equity interest in USZ. As of September 30, 2001, the total loan balance outstanding was \$312,561, which is convertible into 21% of the outstanding stock of USZ. However, as of September 30, 2001, the lender is in breach of the loan agreement for failure to advance funds necessary to cover current obligations of USZ. As a result of the contract breach, USZ has not issued any shares to the lender. USZ is currently in negotiations to cure the breach.

GOLD ROAD

MOHAVE COUNTY

KAP WR 6/5/81: A report was received that UV Industries currently has the Gold Road Mine, San Francisco District, Mohave County. It is rumored that they have a small reserve of approximately 200,000 ton of ore which will assay at approximately .2 tr. oz. Au/ton.

MG WR 3/30/85: The Gold Road Mine (Mohave Co) is owned by the Sharon Steel Corporation. According to Mr. Dave Rabb, this property has tailings that may be higher grade than those on the Tom Reed and United Eastern properties.

NJN WR 2/15/85: Dan Maxwell reported Sharon Steel (c) still owns the Gold Road Mine (f) Mohave County and may let a Canadian company run a promotion on it.

May 29, 1942.

To: J. S. Coupal
From: Elgin B. Holt

OPERATING MINES

DEPT. MINERAL RESOURCES	<u>Mohave County</u>
RECEIVED	
JUN 3 1942	
PHOENIX	1044

GOLDROAD MINE: Located in San Francisco Mining District, in Mohave County. Operated by: U. S. Smelting Refining & Mining Company. President, N. W. Rice, Boston, Mass.

Metals: Gold only.

Operating 400-ton cyanidation plant.

Mine Superintendent: L. H. Duriez

Asst. Supt.: W. F. Elgin

Mill Supt.: Paris V. Brough.

Mr. Duriez was absent, but Mr. Elgin stated that no production data could be given out by the Goldroad office. That if this information is desired our Department would have to contact the Salt Lake office about it.

CONFIDENTIAL: Was told confidentially also that the company plans to close down during the duration on August 15th.

stopped for 5,000 feet along strike. Past production from the Gold Road Mine is 1,500,000 tons grading 0.32 o/T Au. The mine closed in 1942 by war board order #L-208, with reported reserves of + 250,000 tons of 0.25 o/T Au remaining in the mine.

- 20.9 Gold Road townsite - once a thriving community of 2,000 to 3,000 people. The three hundred ton per day Gold Road Mill was located across a small ridge to the north. Massive stockwork veined outcrop to left is relatively barren silica cap over the Sharp ore body on the Gold Road Vein (200,000 - 300,000 tons grading 0.50 o/T Au).
- 21.4 To the south a road cut exposes the post mineral Mallery fault zone. Two miles to the southeast the Mallery fault displaced the top of the Big Jim-Aztec ore shoot on the Tom Reed Vein by more than 400 feet. The Big Jim-Aztec ore shoot, footwall to the Mallery fault, was buried below barren Oatman latite and was discovered by accident. The Big Jim-Aztec orebodies produced + 500,000 tons grading 0.75 o/T Au.
- 22.5 United Western Mine adjacent to road produced 40,000 T grading 0.30 o/T Au prior to closure in 1940. Drilling in this area by Fischer-Watt Mining shows an open ended reserve of + 200,000 T grading 0.20 o/T Au. The only surface expression of the United Western mineralization is a weak zone of illitic alteration. At the surface, there is no detectable gold or silver and no definitive trace element anomaly.
- 23.1 To the north lies 750,000 tons of mill tailings from the United Eastern Mill. Mill ore came from the United Eastern and Big Jim ore shoots. Ore was ground to 80% - 200 mesh and processed through a modern Cyanide Mill. About 97% of the gold was recovered (Mill tailings grade + 0.03 o/T Au).
- 23.3 Stop 2 - Turn to right to old schoolhouse - view of Oatman - once a thriving community of 8,000 to 10,000 people. Oatman now has a population of 90 to 100 permanent residents. Cliff forming rock unit to north is Gold Road latite (13.2 + .9 my). White intrusive rock unit is the Elephants Tooth rhyolite (19.6 + .9 my). Slope forming unit is the Oatman latite which is host for most of the major ore shoots at Oatman. The mine shaft to the north is the United Eastern #2 shaft from which was produced 550,000 T grading 1.10 o/T Au. The only surface expression of the United Eastern ore shoot (300 feet below the present surface) is a zone of strong illitic alteration with no geochem signature. To the south east along the Tom Reed Vein - the bold silicified outcrop in back of the fire station is the top of the Tip Top ore shoot (250,000 T + 0.70 o/T Au). Erratic anomalous gold and silver values are obtained in outcrop. The top of the ore shoot is about 75 feet below the surface. East-southeast from the Tip Top at the cement foundations for the Tom Reed Mill on the small hill east of town is the Ben Harrison ore

NAME OF MINE: GOLDROAD
OWNER:

COUNTY: Mohave
DISTRICT:
METALS: Au

OPERATOR AND ADDRESS

MINF STATUS

Date:	OPERATOR AND ADDRESS	Date:	MINF STATUS
11/45	Supt: Guy Gardner, Goldroad	11/45	Repairing mine

May 27, 1957

GOLDROAD MINE
Mohave County
San Francisco Mining Dist.

Mine closed, all surface improvements have been
removed.

MARK GEMMILL

U.S. Smelting Refining & Mining Co. has changed to UV
Industries.

137 } Ariz Bureau of Mines
131 } p. 93

397- U.S.S. P 153

Arizona Department of Mines and Mineral Resources

INFORMATION FROM MINE CARDS IN MUSEUM

ARIZONA

Mohave Co.
11 mi. NE of Kingman
Billie O'Brien Mine
BRYAN

MM-K095 Galena in Quartz

MILS #22E

7-AKA'S

Gold Road (pit)

See also MILS #25J

Addwest Minerals Inc.: Gold Road Mine

(H) MOKHUIS CO.

Site Description

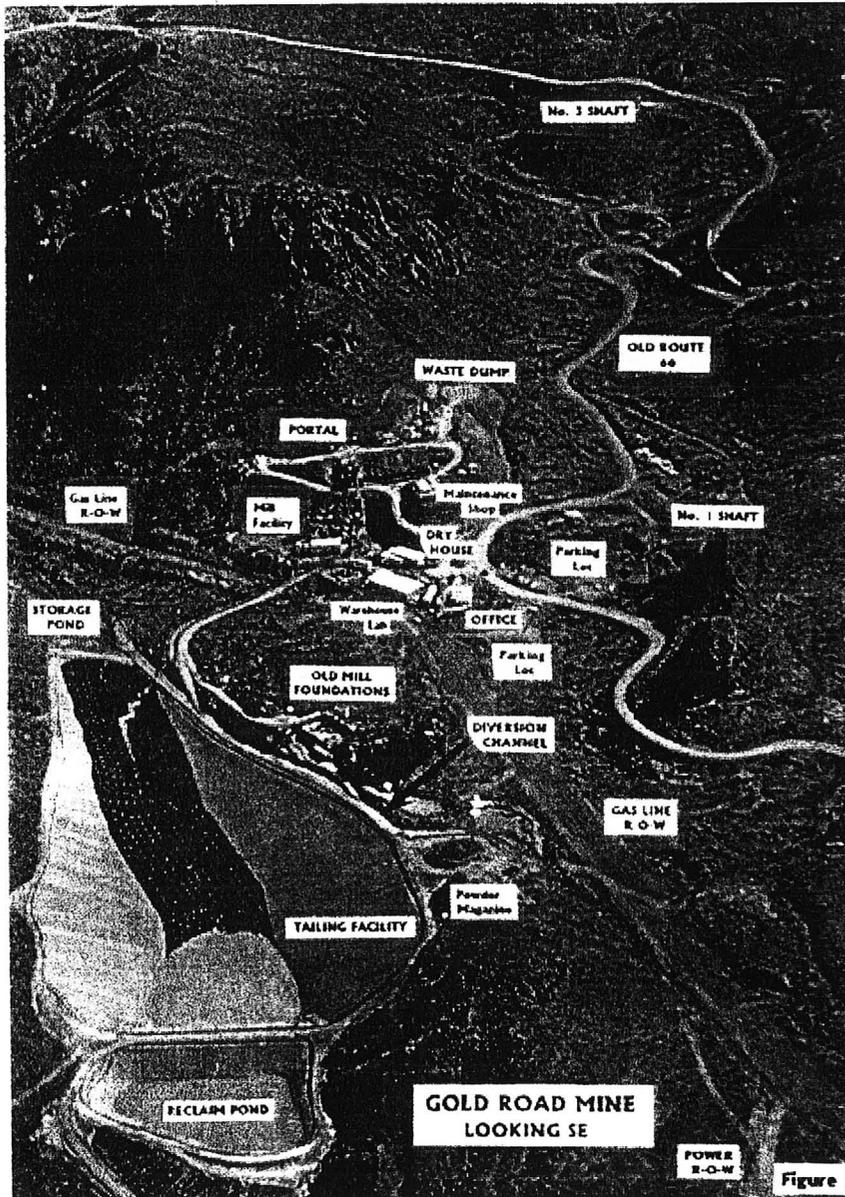
The Gold Road Mine is located ~2 miles north of Oatman at 3,000 feet elevation. Current mining operations consist of underground workings accessed by an adit and a 12'x14' main haulage decline to the 600 foot level. Current plans are for a 10 year mine life.

Summers are hot and winters moderate. Most precipitation occurs in July and August, averaging ~8 inches/year. Evaporation rates are ~80 inches/year.

The mine is located on the western slope of the Black Mountains, in the Silver Creek Valley. Silver Creek is diverted around the tailings facility. Currently, there is no potable groundwater or deep aquifer water available at the mine site.

Dominant vegetation in the area includes creosote bush, cat claw, various types of cactus and very sparse annual grasses. Wildlife species include desert mule deer, desert bighorn sheep, wild burros, Sonoran tortoise, field mice, coyote, birds, and reptiles. No endangered species are known in the area.

Types of land disturbance include the plant site, primary and secondary crusher and stockpile, waste dump, tailings storage, buildings, and tanks. The facilities currently in use have been placed on previously disturbed areas and have been designed to minimize new surface disturbances. Total surface disturbance should be approximately 28 acres.



Post-Mining Land Use

The PMLU objectives for Gold Road have been selected to promote the long-term goals of stability and public safety. PMLUs include revegetation for wildlife habitat, commercial uses and tourism.

Public Safety Standards

The following measures will be undertaken to ensure public safety: trash and debris will be hauled off-site on a weekly basis; pond liners will be removed and disposed of; portals will be sealed with steel doors or blocked and covered with earth; shafts will be sealed with steel caps; foundations will be broken up and/or buried with two feet of earth; the six foot fence will be left in place and warning signs will be posted; hazardous materials will be removed and properly disposed of.

Erosion Control and Topographic Contouring

The waste rock disposal area will occupy 4.1 acres at closure. Portions of the waste rock dump will be utilized as a parking

Figure 5

facility for future commercial ventures. Some of the waste rock will be used as erosion control on the tailing facility. The slopes of the dump will be graded to no greater than 3:1. The top of the dump will have a 2% grade to promote drainage. A 3' high berm will be constructed around the perimeter of the dump for safety. Stability analysis shows the dump configuration to be stable in both static and seismic conditions.

The reclaim solution pond will be backfilled and contoured after the liner has been removed. The final surface may be covered with waste rock to prevent erosion or covered with soil and revegetated.

The tailing facility will be drained and covered with a one foot thick layer of waste rock or the surface will be covered with soil and revegetated. The slopes will be regraded to no greater than 2.5:1 and covered with waste rock to prevent erosion.

Buildings not being retained for a specific post-mining land use will be removed and sold or demolished and salvaged. The foundations will be buried to a depth of two feet.

Roads

Roads built and maintained by Addwest are less than one half mile in length and cover ~1.5 acres. All roads will be left intact and maintained to achieve the post-mining commercial land use. Public access to these roads is blocked by a six foot high security fence and padlocked gate.

Revegetation

Revegetation of the tailings and other disturbed areas will promote the development of habitat for wildlife. Revegetation will be done using the hydroseeding technique. Seed, fertilizer, mulch, and tackifier will be applied. Hand broadcasting will also be used in certain hard-to-reach areas.

Soil Standards

No material for stockpiling has been or will be available. A potential borrow source will come from the existing waste dump. No off-site soil will be used.

[Mohave County Map](#)

[State Map](#)



Arizona Department of Mines and Mineral Resources

1502 West Washington, Phoenix, AZ 85007 Phone (602) 255-3795

Toll Free in Arizona 1-800-446-4259 FAX (602) 255-3777

Verbal Information Summary

June 22, 1998

From: Diane Bain

Mine: Gold Road - file

Linda Supernaw of Addwest Mineral Inc., P.O. Box 869, Oatman, AZ 86433, 520-768-1600, Gold Road mine, Mohave County, reports that the mine will be closed down on June 26. When asked if this could be a temporary shut-down she said that if the gold prices go up substantially it is conceivable that they would reopen. Although there has not been a public announcement, the Department can consider this public knowledge.



HMC

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Fife Symington, Governor Edward Z. Fox, Director

NOTICE OF THE PRELIMINARY DECISION TO ISSUE AN INDIVIDUAL AQUIFER PROTECTION PERMIT

Pursuant to Arizona Administrative Code, Title 18, Chapter 9, Article 1, the Director of the Arizona Department of Environmental Quality intends to issue an individual Aquifer Protection Permit to the following applicant:

Public Notice No. 9-94AZAP

on or about May 12, 1994

Addwest Minerals Inc. - Gold Road Project
P.O. Box 8638
Fort Mojave, AZ 86427

Aquifer Protection Permit No. P-102805

The Gold Road Project site is located in Township 19 North, Range 20 West, Section 11, Gila and Salt River Baseline and Meridian in Mohave County, approximately one mile northeast of Oatman, Arizona, over groundwaters of the Lake Havasu Groundwater Basin.

The permittee will be authorized to operate an underground gold mining and milling facility that utilizes cyanide vat leaching and carbon-in-pulp technology for gold extraction and recovery. The mill production rate will be on the order of 300 to 500 tons per day, during an estimated operational life of 10 years. The leach processing facility is designed for zero discharge through containment of liquid from the largest vessel in any one area should it rupture.

Tailings from the milling facility will be detoxified and/or recovered to 40 mg/l total cyanide and 30 mg/l weak acid dissociable (WAD) cyanide using conventional cyanide treatment processes and thickened prior to disposal by pipeline in a double lined tailings impoundment. The tailings impoundment liner system incorporates eight inches of historic tailings, compacted to 1×10^{-5} cm/sec permeability, and a primary liner consisting of 30-mil polyvinyl chloride (PVC), placed on top of a substantial thickness of historic tailings. Based on the current reserve estimate, one to one and a half million tons of tailings will be placed in the impoundment.

Leachate solution draining from the tailings impoundment will be collected and stored in a double lined reclaim pond. The liner system for the reclaim pond will also incorporate eight inches of compacted historic tailings, a secondary 30-mil PVC liner

(continuation of the liner for the tailings impoundment), and a primary 40-mil ultraviolet stable PVC liner. A leak detection/collection system composed of a geonet/geotextile in the bottom of the pond and an eight ounce geotextile on the pond side slopes. Fluid will be removed from the pond by evaporation and pumping back tailings pond and/or for reuse in the leaching process.

The permit will require tailings, leachate, leachate-leak, surface water, and groundwater monitoring.

The permit and related materials are available for public review Monday through Friday, 8:00am to 5:00pm, at the Arizona Department of Environmental Quality, Aquifer Protection Program Section, Mining APP Unit, 3033 N. Central Avenue, 4th Floor, Phoenix, Arizona.

Persons may submit written comments or request a public hearing, in writing, to the ADEQ, Aquifer Protection Program Section, Mining APP Unit, 3033 N. Central Avenue, Phoenix, AZ 85012 within thirty (30) days from the date of this notice. Public hearing requests must include the reason for such a request.

ALINA INTERNATIONAL INDUSTRIES LTD.
(Vancouver Stock Exchange Symbol: "ALA")
5460 Ward Road, Suite 202
Arvada, Colorado 80002
(303) 424-5134

April 22, 1997

Dear Investor:

In the post-Bre-X market environment, a *newly listed, profitable, North American junior gold producer* provides an attractive investment opportunity. The enclosed 1996 Summary Annual Report for *Addwest Minerals* introduces you to that producer, along with its current parent company, Alina International Industries, Ltd. (Vancouver Stock Exchange Symbol: "ALA"). Alina, through its February 1997 acquisition of Urban Projects (Barbados) Ltd., controls 85 percent of Addwest Minerals, Inc., a Colorado-based junior gold mining company, and has the option to acquire the remaining 15 percent. Alina now has 258 million shares outstanding (undiluted), but expects to complete a shareholder-approved ten-for-one share rollback in the near future. Once the rollback is completed, shares outstanding will total approximately 26 million and the company's name will change to Addwest Minerals International, Ltd. The new name is shown on the 1996 Summary Annual Report in anticipation of this coming change.

Addwest Minerals turned in strong operating results for 1996, generating US \$2.1 million in net income and US \$3.7 million in operating cash flow. Its Gold Road Mine in Arizona produced 40,300 ounces of gold during 1996, its first full year of operation, at a cash operating cost of US \$235 per ounce. Gold Road expects to increase reserves during 1997, thereby lengthening mine life, while matching 1996 production and cash operating costs. Addwest Minerals' current portfolio of properties has more than 2.6 million ounces of gold in geologic resources. Prefeasibility studies on two advanced stage exploration projects, the Moss Mine Project near current operations at Gold Road and the Golden Zone Mine Project in Alaska, should be completed by year-end 1997. These two properties have the potential to quadruple Addwest's future production. In addition to these three major projects, Addwest also continues to evaluate new prospective properties for its portfolio.

Through its acquisition of Addwest Minerals, Alina has created a strong, publicly traded junior gold company with an exciting future. Addwest's long-established concentration on North America reflects our ability to add value in well-recognized mining districts. My goal is to keep you informed of our progress and to provide you with any information you might need. Please let us know how we can help you.

Sincerely,



Charles S. Williams
President and Chief Executive Officer

ALINA INTERNATIONAL INDUSTRIES LTD.

208 - 409 Granville Street
Vancouver, B.C.

February 28, 1997

NEWS RELEASE

(Vancouver Stock Exchange Trading Symbol: ALA)

Public Gold Producer

The Company is pleased to report that it has completed the "Major Property Acquisition" as previously announced. The final approval of this transaction was received from the Vancouver Stock Exchange as at February 26, 1997. Alina, through Urban Projects (Barbados) Ltd., now holds 85% of Addwest Minerals, Inc. Charles S. Williams, Addwest Minerals' President, reports "Taking Addwest public has been a stated goal of ours for several years. Accomplishing this task in conjunction with our strong operating results and performance in 1996 has allowed us to demonstrate our abilities to the marketplace and instantly bring value to our new shareholders. I would like to personally thank the Directors of Alina for their participation in this transaction." The combination of Alina and Addwest Minerals will result in a very strong public junior gold producer with excellent advanced stage exploration properties in its pipeline. Addwest Minerals, Inc. is a Colorado, U.S.A., based gold mining company. The initial transaction involved issuing 251,600,000 Alina shares for 85% of Urban Projects (Barbados) Ltd. Urban Projects (Barbados) Ltd. owns 100% of Addwest Minerals, Inc.

Also completed was the issuance of 271,407 shares in settlement of \$40,710.94 of outstanding debts.

Alina's shareholders have approved an immediate share rollback of the Company's shares on a ten-for-one basis, and change of name to "Addwest Minerals International, Ltd.". After the consolidation, the Company will have approximately 26,000,000 shares outstanding on an undiluted basis. Vancouver Stock Exchange approval to the consolidation and name change will be requested immediately.

In connection with the business combination, Alina also announces several management changes. Effective immediately, James R. Houston will become the Company's Chairman of the Board, Charles S. Williams will assume the office of President and Chief Executive Officer. William J.N. Buchan has taken the position of Chief Financial Officer. The current management team of Addwest Minerals, Inc., in addition to Charles S. Williams and William J.N. Buchan, is Charles W. Dalrymple - Vice President Land & Contracts, Alan Founie - Vice President Exploration, and Ronald R. Short - Vice President Operations.

Alina has also appointed the following Directors: James R. Houston - Chairman, Charles S. Williams - President, Allan Marter - mining executive, David Rennie - Chartered Accountant, and George Brazier - solicitor.

Addwest Minerals, Inc. owns and operates the Gold Road underground gold mine in the historic Oatman Mining District of Arizona. Gold Road has been in operation for the past two years. Addwest is preparing prefeasibility studies on the neighboring Moss Mine Project gold deposit, and also on its Golden Zone Mine Project gold deposits in Alaska.

Addwest Minerals, Inc. is developing more than 3.5 million ounces of in situ geological resource within its existing portfolio of properties, and has plans to pursue other opportunities of merit.

1996 Operating Results

James R. Houston, Chairman, adds "I am pleased that in our first press release we can announce our audited 1996 results show a Net Income of approximately \$2,000,000 U.S., production from the Gold Road Mine of 40,300 ounces of gold, and cash operating costs of \$235 U.S. per ounce. I hope that our new shareholders and those that may join us in the near future will share in our vision of a gold company in full production - an excellent management team, and a future full of exciting possibilities."



GEORGE R. BRAZIER,
Director

This News Release was prepared by the Board of Directors on behalf of Alina International Industries Ltd. which is solely responsible for its contents.

The Vancouver Stock Exchange has neither approved nor disapproved the information contained herein.

ALINA INTERNATIONAL INDUSTRIES LTD.

208 - 409 Granville Street

Vancouver, B.C.

(604) 683-2137

February 25, 1997

NEWS RELEASE

(Vancouver Stock Exchange Trading Symbol: ALA)

The Company is acquiring Urban Projects (Barbados) Ltd. ("Urban"), which owns Addwest Minerals, Inc., a Kentucky corporation, which owns and operates the Golden Road Mine 25 miles southwest of Kingman, Arizona, which mine is presently producing approximately 40,000 ounces of gold per year. Addwest also is exploring the Golden Zone Project which covers approximately 16,720 contiguous acres halfway between Anchorage and Fairbanks, Alaska, the Moss Mine Project which comprises approximately 2,200 acres and is located eight miles from the Golden Road Mine, in addition to other lesser advanced projects. The Company will initially acquire 85% of Urban from the shareholders of Urban by issuing 251,600,000 pre-consolidation shares. The Company will have the right to acquire the remaining 15% by issuing 44,400,000 pre-consolidation shares to a Colorado limited partnership controlled by Mr. Charles Williams and family, Mr. Williams being the President of Addwest.

Concurrently with the closing of the acquisition, the present Board of Directors will resign and the following will be appointed:

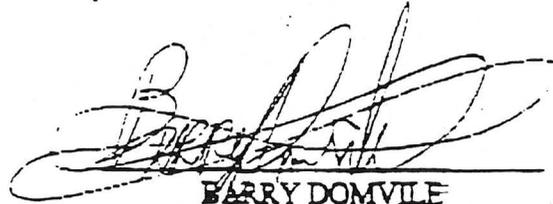
James R. Houston	-	Chairman of the Board of Directors
Charles S. Williams	-	Director, President and Chief Executive Officer
William J.N. Buchan	-	Chief Financial Officer
David N. Rennie	-	Director
Allan J. Marter	-	Director
George R. Brazier	-	Directors

On July 2, 1996, proceedings were commenced in the Supreme Court of British Columbia (Action No. C963803) by Brian Fraser against James Ralph Houston, Urban Projects Ltd., Urban Projects (Barbados) Ltd. and Addwest Minerals, Inc. Mr. Fraser, as plaintiff, alleges that the defendants, other than Addwest, were parties to an agreement, whereby they would purchase Addwest and divide the shares amongst themselves. The plaintiff further alleges that the other defendants, other than Addwest, breached that agreement and he seeks a declaration that the defendant Houston in his personal capacity and as the alter ego of the defendant, Urban Projects (Barbados) Ltd., as well as Urban Projects Ltd., holds all or a portion of the shares in Addwest in trust for the plaintiff. The plaintiff further claims damages including punitive damages. The plaintiff also alleges that it was agreed amongst the plaintiff and the defendants, other than Addwest, and the plaintiff seeks a declaration that Addwest would not sell any of its assets except after the assets of Addwest had become part of a publicly traded company.

It is anticipated that the matter will be scheduled for trial in early 1999.

The defendants deny the validity of all of the plaintiff's claims and have mounted a vigorous defence against the same.

Subject to Vancouver Stock Exchange approval, immediately following the closing of the Addwest acquisition, 500,000 escrow shares are to be transferred to Charles Williams in consideration for US\$2,500, 271,407 pre-consolidation shares are to be issued to various creditors of the Company in settlement of \$40,710.94 of accounts payable at a deemed price of \$0.15 per share and the Company's shares are to be consolidated on a one-new for ten-old share basis. This would result in the Company having approximately 25,832,502 shares issued and outstanding following the acquisition of the 85% interest in Urban/Addwest and the issuance of the shares for debt.



BARRY DOMVILLE

Director

The Vancouver Stock Exchange has not reviewed and does not accept responsibility for the adequacy or accuracy of this news release.

The Story of the Gold Road Mine

Taken loosely from USGS Bulletin #397 by F.C. Schrader (1909)

In 1902, a Mexican prospector named Jose Jerez, who was grubstaked by friend Henry Lovin, of Kingman, in the amount of 16 dollars, was out searching for his lost burros when he stumbled over a chunk of quartz that glistened brightly in the midday sun. Upon examining the rock, Jose knew it contained some gold. Much to his amazement it assayed out to 40 ounces to the ton!!

He contacted Lovin with the good news and they both set out to start digging.

In a few months, they had managed to dig a 15 foot deep shaft on the rich vein. Their activity attracted the attention of a group from Los Angeles, who eventually purchased the claim from the two miners for \$50,000. This group then sold it to Joseph Burkhardt, who in turn sold it to another group of investors for \$275,000.

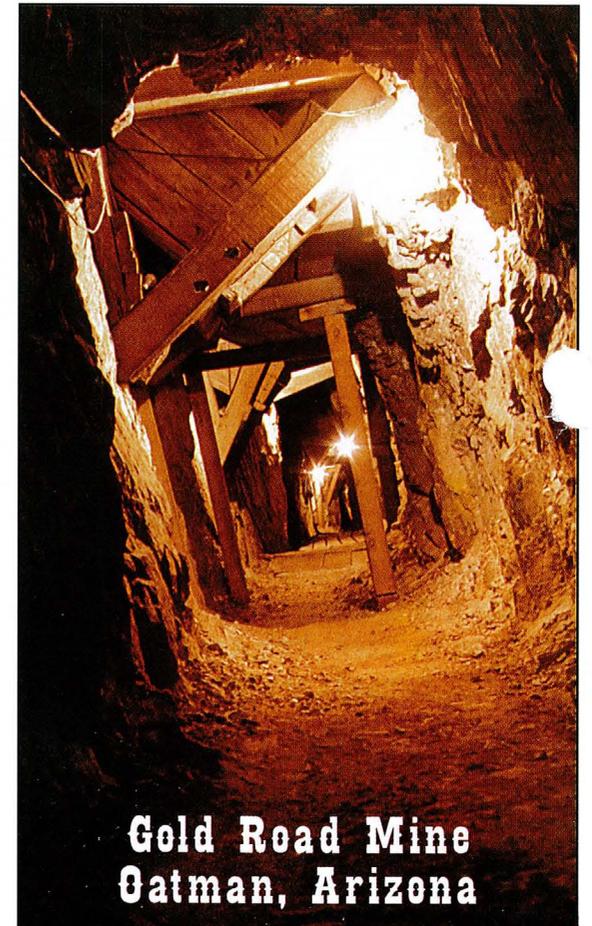
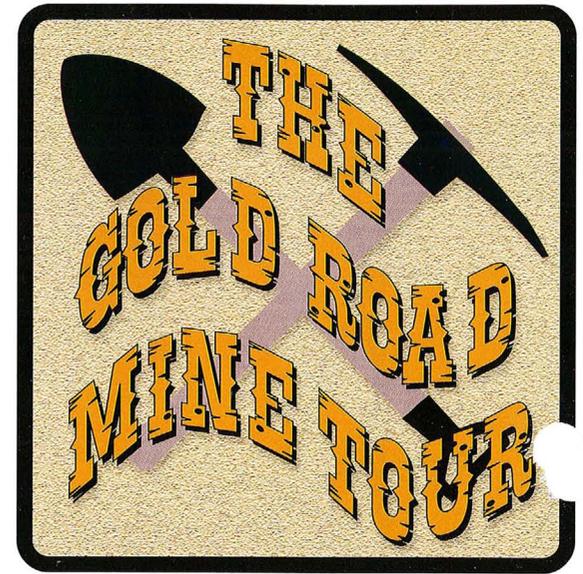
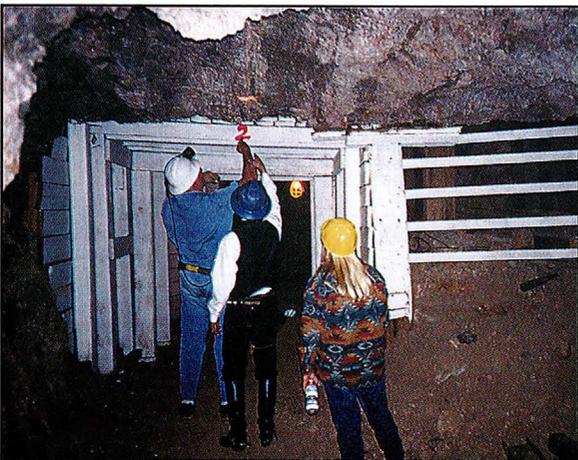
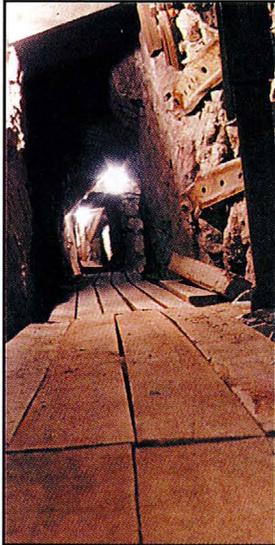
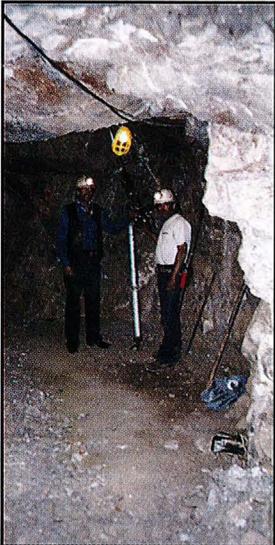
The new group immediately raised a half million dollars, incorporated under the laws of the Arizona Territory, and hired 180 workers and the mine was off and running.

By the end of 1907, the Gold Road Mine property had reportedly milled \$2,250,000.00 worth of the yellow metal. Most of the 140,625 ounces was produced in 1905 and 1906.

The mine has been in production off and on now for nearly 100 years.

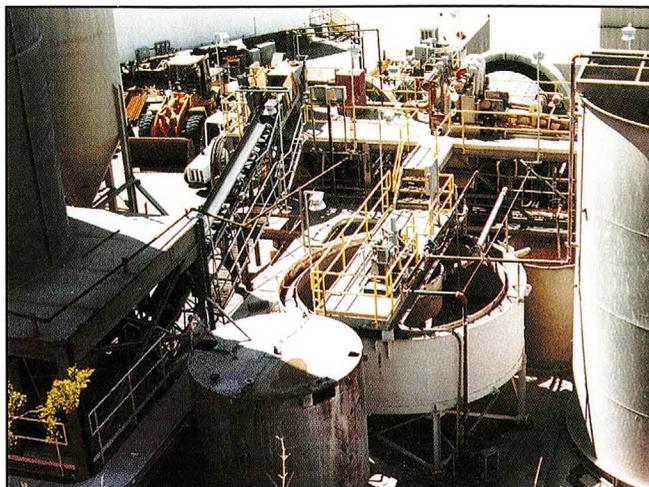
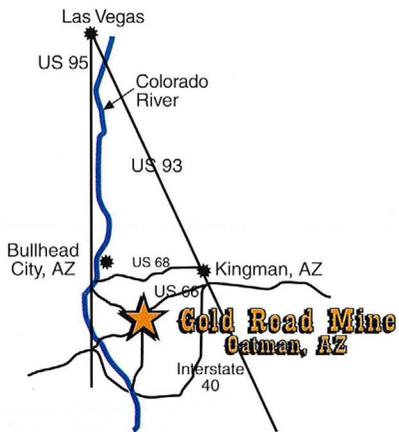
Its latest run was for 5 years, ending, at least temporarily, in 1998, when gold prices fell to below \$300 and ounce.

© Lasting Impressions - Oatman, Arizona



Gold Road Mine
Oatman, Arizona

Oatman, Arizona is located on historic route 66, about 20 miles southwest of Kingman. Coming from Las Vegas, it is approximately 100 miles south on either US 95 or US 93.



The Mine as it Looks Today *circa 2000*

When the mine was in full production in 1996, 97 & 98, it was running 500 tons of ore a day, producing 40,000 ounces of gold a year. The operation employed 135 miners at its peak.

Closure came in late 1998 when the price of gold fell below \$300.00 an ounce. Production could begin again when the price rises enough to make it feasible to start digging again.

The mine contains enough known ore to run for at least three years, and additional prospecting indicates there may be enough to extend that to ten years.

The mine is located on old historic Route 66, 2 1/2 miles east of Oatman, Arizona.

Tours conducted all day long.

The Gold Road Mine Tour

Enjoy a delightful guided tour of a real old time underground gold mine.

The 45 minute experience is exciting for everyone, and "user friendly" for the physically challenged. You are invited to bring along your camera or camcorder and take as many shots as you please.

Open 10 a.m. to 5 p.m. Daily
(Except Christmas and New Years Day)

Adults\$12.00
Children under 12\$6.00

Family Rates Available
Group Rates Available

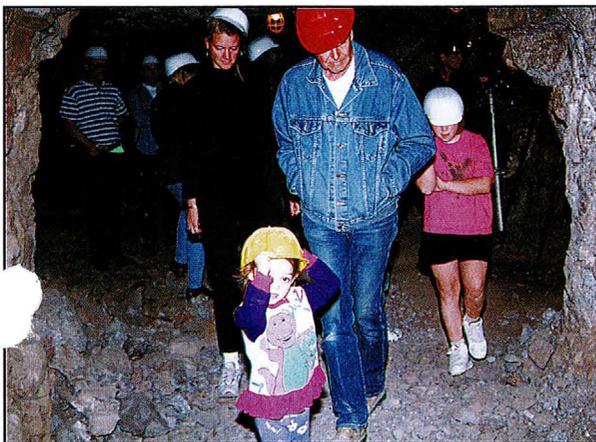
Bus Tours Welcome

Plenty of parking for RVs and buses



**P.O. Box 869
Oatman, AZ 86433**

**Phone (520) 768-1600
Fax (520) 768-2277
E-mail: goldrd@ctaz.com**



The mine tour is a walking tour. However, there is transportation available for those in need. You are transported to the mine entrance where the tour begins and will take you into the mine approximately one-eighth of a mile. The experience is so informative and exciting. If only the miners of yesteryear could be here to relate their own experiences.

Just try to imagine it!

~~1/2~~ HML
A/C.

NM ROTHSCHILD & SONS (DENVER) LIMITED

REVIEW OF ADDWEST MINERALS, INC.'S
GOLD ROAD PROJECT
OATMAN, ARIZONA

SEPTEMBER 1993

MODIFIED OCTOBER 1993

PREPARED BY:

BEHRE DOLBEAR & COMPANY, INC.
1601 BLAKE STREET, SUITE 301
DENVER, COLORADO 80202

2300-00235

BEHRE-DOLBEAR & COMPANY, INC.
Minerals Industry Consultants

1601 Blake Street
Suite 301
Denver, Colorado 80202

TEL: (303) 620-0020
FAX: (303) 620-0024

October 12, 1993

NM Rothschild & Sons (Denver) Limited
3020 Republic Plaza
370 Seventeenth Street
Denver, CO 80202

Gentlemen:

Behre Dolbear & Company, Inc. has completed a review of Addwest Minerals, Inc.'s (AMI) feasibility study relating to the Gold Road Mine property in the vicinity of Oatman, Mohave County, Arizona and technical data supporting AMI's in-house feasibility study. The review encompassed estimated reserves, mine and mill capital and operating costs, environmental aspects and an economic analysis of the proposed project. A site visit to a portion of the underground workings of the Gold Road Mine was also a part of Behre Dolbear's review.

While AMI's feasibility study and economic analysis is the result of a large amount of effort and work in the appraisal of an extensive data base, Behre Dolbear had reservations concerning several conclusions drawn by AMI which could have affected the resultant cash flow. The major differences relate to the total tons of minable reserves classified as proven and probable as determined by estimated costs of production, the amount of mine dilution that should be anticipated using the method of mining proposed by AMI and its effect on grade of ore to the mill, and certain differences related to personnel requirements and labor costs. With the concurrence and agreement of both AMI and Rothschild, Behre Dolbear made the modifications felt necessary and then completed cash flows and economic analyses based on three different production scenarios.

Behre Dolbear concludes that based upon the scenarios utilized, the Gold Road Project has proven and probable minable reserves at a \$375 per ounce gold price of between 464,668 and 517,937 tons with an average grade of 0.302 to 0.318 ounces of gold per ton, containing a total of 138,277 to 147,264 ounces of gold after adjustment for mining and processing losses. The cash cost to produce an ounce of recovered gold ranges between \$212.48 and \$212.58. Direct operating costs total between \$55.52 and \$58.06 per ton of ore.

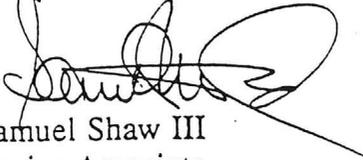
Behre Dolbear appreciates the opportunity to have been of service to NM Rothschild & Sons (Denver) Limited. Please call us if you have any questions.

Sincerely,

BEHRE DOLBEAR & COMPANY, INC.



Bernard J. Guarnera
Senior Vice President - Operations



Samuel Shaw III
Senior Associate

BJG:keu

23000-00235

TABLE OF CONTENTS

	<u>PAGE NO.</u>
1.0 Executive Summary	1
1.1 Project Economics	2
1.2 Reserves	4
1.3 Mining	5
1.4 Milling	6
1.5 Environmental	6
2.0 Introduction	7
3.0 Geology and Mineralization	10
3.1 Resource Estimates	12
3.1.1 USSR's Resource Estimate - 1942	12
3.1.2 AMI's Reserve Estimates	13
3.1.2.1 Global Geological Resource Estimate	14
3.1.2.2 In Situ Minable Reserves (WSE)	15
3.1.3 Behre Dolbear Reserve Estimate	16
3.1.3.1 Classification of Reserves	18
3.1.3.2 Potential Resources	19
4.0 Mining	21
4.1 Capital Costs	23
4.2 Operating Costs	25
4.2.1 Personnel Requirements	25
4.2.2 Labor Costs	30
4.3 Mine Dilution	33
5.0 Milling	36
5.1 Capital Costs	36
5.2 Operating Costs	37

TABLE OF CONTENTS (Continued)

	<u>PAGE NO.</u>
6.0 Environmental	39
7.0 Project Economics and Sensitivities	41
7.1 Cash Flow Scenarios	42
7.2 Sensitivities	46

TABLES

PAGE NO.

Table 1.1	Gold Road Project - Economic Performance	3
Table 1.2	Gold Road Project - Sensitivity of Reserves to Gold Prices	4
Table 3.1	Minable Reserves - Gold Road Project	18
Table 4.1	AMI Capital Cost Estimate - Gold Road Project	23
Table 4.2	Added Equipment Requirements	24
Table 4.3	AMI's Operating Costs - Gold Road Project	25
Table 4.4	Comparative Production Staffing Summary - Gold Road Project	27
Table 4.5	Comparative Personnel Roster	29
Table 4.6	AMI - Labor Rate Summary	31
Table 4.7	Comparative Estimated Mine Labor Costs	32
Table 5.1	Comparative Milling Costs 500-TPD Mill, \$ Per Ton	38
Table 7.1	Direct Operating Costs Summary, 722-TPD	41
Table 7.2	Gold Road Project - Economic Performance	45
Table 7.3	Gold Road Project - Sensitivity of Reserves to Gold Price	47
Table 7.4	Gold Road Project - Sensitivity of Reserves to Direct Operating Costs	47
Table 7.5	Sensitivity to Changes in Capital and Operating Costs, Cases 1, 2 and 3	48
Table 7.6	Sensitivity to Changes in Spot Prices, Cases 1, 2 and 3	49

APPENDICES

- APPENDIX 1 Detailed Ore Reserve Calculations
- APPENDIX 2 Production Schedules, Cases 1, 2, and 3
- APPENDIX 3 Minproc Engineers, Inc.'s letter to AMI relative to estimated mill capital costs.
- APPENDIX 4 Behre Dolbear & Company, Inc.'s Detailed Cash Flows

1.0 EXECUTIVE SUMMARY

NM Rothschild & Sons (Denver) Limited (Rothschild) engaged Behre Dolbear & Company, Inc. to conduct a review of Addwest Minerals, Inc.'s (AMI) Gold Road Project near Oatman, Arizona. The review had as its objective:

- ♦ The confirmation of precious metal reserve estimates in accordance with U.S. Security and Exchange Commission (SEC) reporting requirements for proven and probable reserves;
- ♦ The confirmation of the suitability of the selected mining method;
- ♦ The review of the mine plan with particular attention to scheduling, labor, and equipment requirements;
- ♦ The review of mineral processing methodologies with special attention to reagent consumption and forecasted recoveries;
- ♦ The review of capital and operating cost projections for both mining and processing, commenting on the sources and validity of such cost estimates;
- ♦ The review of the status of all required permitting;
- ♦ A report on all environmental issues which may affect the project; and
- ♦ The development of a cash flow model (with appropriate sensitivity analyses) based on findings provided by AMI's feasibility study and Behre Dolbear's study.

Behre Dolbear's review allows the conclusion that based upon the scenarios utilized the Gold Road Project has proven and probable minable reserves at a \$375 per ounce gold price totaling between 464,668 and 517,937 tons of ore with an average grade of 0.302 to 0.318 ounces of gold per ton containing between 147,716 and 156,398 ounces of gold. Adjusted for losses due to mining and processing, a total of 138,277 to 147,264 ounces of gold are estimated to be recoverable. The cash cost to produce an ounce of recovered gold ranges between \$212.48 and \$212.58. Direct operating costs total between \$55.52 and \$58.06 per ton of ore.

The project displays net present values at a 15 percent discount rate ranging between \$4.67 and \$6.35 million. The internal rate of return ranges between 45.1 and 62.3 percent.

1.1 PROJECT ECONOMICS

Utilizing the information developed, Behre Dolbear estimates project cash flows based on three scenarios as requested by Rothschild:

- ♦ Case 1 - Mine productivity and the operating efficiency of the mill reaches design criteria at the start up of the operation. The minable reserves are based on an average direct operating cost of \$55.52 per ton;
- ♦ Case 2 - Mine productivity and operating efficiency of the mill is reduced at start up of the project. A start-up period of three quarters was anticipated by Behre Dolbear during which time the project could expect lower than design productivity on both the mine and the mill. Due to increased costs during start up, the minable reserves for this case is based on an average direct operating cost of \$58.06 per ton. Case 2 constitutes the second scenarios requested by Rothschild and represents, in both Behre Dolbear's and

Rothschild's opinion, the most appropriate scenario for the project's development and operation; and

- ♦ Case 3 - Mine productivity and operating efficiency of the mill is reduced at start up identically to Case 2, but the mining schedule uses the reserves calculated in Case 1 which are based on an average direct operating cost of \$55.52 per ton.

Table 1.1 presents the economics of the Gold Road Project.

TABLE 1.1 GOLD ROAD PROJECT - ECONOMIC PERFORMANCE			
	CASE 1	CASE 2	CASE 3
NPV @ 15%	\$6,348,590	\$4,984,348	\$4,667,145
NPV @ 10%	\$7,565,404	\$6,187,660	\$5,871,250
NPV @ 5%	\$8,954,310	\$7,562,372	\$7,252,010
IRR, %	62.3	47.7	45.1

Behre Dolbear performed sensitivity analyses on the project to determine the performance variability as a function of the following parameters:

- ♦ Reserves versus gold price;
- ♦ Reserves versus operating costs;
- ♦ Change in capital costs +15% to -10%;
- ♦ Change in operating costs +15% to -10%; and
- ♦ Change in spot gold price from \$330 per ounce to \$425 per ounce.

The results of the sensitivity analyses are presented in Tables 7.3 through 7.6. The sensitivities indicate that reserves are sensitive to direct operating costs and economic performance is most sensitive to operating costs.

1.2 RESERVES

Table 1.2 presents minable reserves at various gold prices for the three cases analyzed.

TABLE 1.2 GOLD ROAD PROJECT SENSITIVITY OF RESERVES TO GOLD PRICE					
Case 1 & 3 - Direct Operating Costs of \$55.52/Ton			Case 2 - Direct Operating Costs of \$58.06/Ton		
Gold Price	Ounces	Tons	Gold Price	Ounces	Tons
\$350	147,100	461,055	\$350	132,805	380,520
\$375	156,398	517,937	\$375	147,716	464,668
\$400	158,913	533,729	\$400	158,696	532,303

The Gold Road Mine produced over 600,000 ounces of gold until its closure in 1942. The vein on which the mine sits has produced ore over 60 percent of its length. Based upon the production history of the Gold Road Mine; the 60 percent pay ratio of the vein, and the continuity of mineralization displayed in underground workings, Behre Dolbear concludes that the reserves at the Gold Road Project would meet SEC classification standards for **Proven** and **Probable** reserves.

Behre Dolbear believes that the Gold Road Mine has the potential to produce additional ore beyond the reserves determined to date. The additional reserves, which could equal the present reserves, are most likely to be found along strike or at depth.

1.3 MINING

AMI has proposed a mining method of sublevel longhole shrinkage or vertical crater stoping for the Gold Road Project. The mining method has the advantage of high productivity but the disadvantage, in Behre Dolbear's opinion, of probable high dilution.

AMI originally proposed a 580 ton per day (tpd) operation. Due to dilution exceeding 25 percent, Behre Dolbear has increased the production rate to 722 tpd.

Capital costs for the mine are estimated by Behre Dolbear to be \$5.88 million including approximately \$2.0 million for mine equipment. Behre Dolbear's capital cost estimate represents an increase of \$540,000 beyond AMI's proposed \$5.34 million estimate.

Behre Dolbear also increased the mine labor force by 10 individuals and mine operating costs by \$5.40 per ton from AMI's estimates. The increases were due to AMI's omission of unscheduled downtime and absenteeism and an addition by Behre Dolbear of three mechanics to compensate for AMI's use of used equipment. Labor rates were increased to reflect an unreasonably high required productivity at the higher production level of 722 tpd and below market wage rates utilized by AMI.

Behre Dolbear believes that a total of 121 personnel will be involved in the Gold Road operation. AMI had estimated a labor force of 107 individuals. The differences are the 10 personnel additions proposed by Behre Dolbear for the mining operation, the addition of a Safety Engineer, a Surveying Technician, a Sampling/Grade-Control Technician, and a Changehouse/Janitor.

1.4 MILLING

Behre Dolbear found the proposed processing methodology to be suitable for the project. Recoveries and reagent consumption are felt to be realistic.

Although AMI has received letters from contractors stating that the mill could be constructed for a \$5.0 million capital expenditure, Behre Dolbear believes \$6.3 million is more realistic. Behre Dolbear's estimate is based on the need to expand mill capacity to 625 tpd to complement the mine expansion. The \$5.0 million figure has been used in Behre Dolbear's economic analysis at Rothschild's request.

Behre Dolbear believes that AMI's projected mill operating cost of \$12.09 is realistic. Due to the lower grade mill feed resulting from Behre Dolbear's addition of dilution, a lower recovery averaging 94 percent has been estimated by Behre Dolbear.

1.5 ENVIRONMENTAL

Behre Dolbear assessed the environmental aspects of the Gold Road Project by conducting a site visit, reviewing available documentation, and interviewing appropriate regulatory officials by telephone. Behre Dolbear concludes that the project has no fatal flaws from an environmental viewpoint. Permitting requirements are straightforward, and there are no significant environmental liabilities associated with the property.

No significant environmental liabilities from previous operations appear to be associated with the property. Existing tailings appear to be geochemically innocuous. The presence of several open stopes might be considered a minor potential environmental liability due to possible safety issues and visual impact, but this is not considered a significant liability by Behre Dolbear.

2.0 INTRODUCTION

NM Rothschild & Sons (Denver) Limited (Rothschild) engaged Behre Dolbear & Company, Inc. to conduct a review of Addwest Minerals, Inc.'s (AMI) Gold Road Project near Oatman, Arizona. The review had as its objective:

- ◆ The confirmation of precious metal reserve estimates in accordance with U.S. Security and Exchange Commission (SEC) reporting requirements for proven and probable reserves;
- ◆ The confirmation of the suitability of the selected mining method;
- ◆ The review of the mine plan with particular attention to scheduling, labor, and equipment requirements;
- ◆ The review of mineral processing methodologies with special attention to reagent consumption and forecasted recoveries;
- ◆ The review of capital and operating cost projections for both mining and processing, commenting on the sources and validity of such cost estimates;
- ◆ The review of the status of all required permitting;
- ◆ A report on all environmental issues which may affect the project; and
- ◆ The development of a cash flow model (with appropriate sensitivity analyses) based on findings provided by AMI's feasibility study and Behre Dolbear's study.

The study commenced on August 10, 1993. Behre Dolbear personnel involved in the project were:

- ♦ Samuel Shaw III - Project Manager and Mining Engineer;
- ♦ Richard Pliler - Geologist;
- ♦ Alva L. Kuestermeyer - Processing;
- ♦ Robert E. Cameron - Mineral Economics;
- ♦ Dorian L. Nicol - Environmental Aspects; and
- ♦ Bernard J. Guarnera - Project Advisor and Editor of the report.

Behre Dolbear's review included:

- ♦ A site visit and tour of the accessible underground workings of the Gold Road Mine under the guidance of AMI personnel;
- ♦ Numerous interactive discussions with members of AMI's technical staff regarding their methodology, procedures, and assumptions;
- ♦ Perusal of the extensive historical and recent data bases, reports, and technical publications available in the files at the office of AMI;
- ♦ Review of the technical assumptions and standards utilized in AMI's feasibility study; and
- ♦ Internal review and confirmation of suppositions and development of technical information and costs by Behre Dolbear professionals.

During the course of the study, Behre Dolbear recognized areas of omissions and questionable findings. Subsequently, with Rothschild's consent, Behre Dolbear undertook

a more detailed analysis of the project and has utilized its assumptions and findings in the assessment of the project.

3.0 GEOLOGY AND MINERALIZATION

The Gold Road Project lies within the Oatman, or San Francisco, Mining District in Mohave County, Arizona. Since its discovery in 1863 this currently inactive district has produced in excess of 2.2 million ounces of gold and 800,000 ounces of silver from low sulfide quartz-calcite veins.

The area is underlain by a thick sequence of easterly dipping Tertiary volcanic rocks which are cut by a series of northwest-trending and steeply dipping faults. These structures host the district's productive auriferous quartz veins. Although at least 23 vein systems have been identified in the Oatman District, 90 percent of the production has been derived from two veins, the Gold Road Vein and the Tom Reed Vein.

The structure containing the Gold Road Vein is a normal fault system which strikes northwesterly and dips to the northeast 60 to 80 degrees. The Gold Road Vein in detail actually consists of two or more veins separated by host rock containing stringer veinlets. The vein tends to be lenticular and to pinch and swell from 1 to 25 feet. The average vein width which has been mined historically is approximately 4.7 feet.

The ore-bearing portions of the mineralized veins are primarily hosted in the Miocene volcanics of the Gold Road and the underlying Oatman formations which have approximate thicknesses of 800 and 1,000 feet respectively. The Oatman formation ("andesite") hosts the ore from the Tom Reed Vein and a portion of the ore produced from the Gold Road Vein. Ore deposits found in the Oatman andesite tend to be related to stockwork veining and brecciation with well-defined ore shoots having widths of 10 to 45 feet and grades in excess of 0.5 ounces of gold per ton (opt).

The Gold Road Vein is largely developed in the Gold Road Formation ("latite") where the vein tends to be long and narrow with widths averaging 3 to 6 feet, although the structural zone may approach 100 feet. The producing vein has averaged somewhat less than 0.40 opt.

On the northwestern end of the Gold Road Mine workings the vein is hosted in a transition zone between the Gold Road and the Oatman formations where widths to 22 feet averaging approximately 0.6 opt were attained.

The mineralogy of the vein conforms with low-sulfide epithermal vein systems, and consists essentially of quartz, calcite, and minor amounts of adularia with free gold in the ore bodies. The gold is very fine grained and alloyed with silver at a ratio of about one to one. The vein filling appears to have been deposited in five recognizable stages or pulses with the gold content increasing with each successive stage.

Alteration related to the Gold Road Vein is relatively poorly developed and consists of widespread propylitic alteration surrounding illitic and silicic alteration. The Gold Road latite is silicified in immediate proximity to the vein. More intense silicification tends to be related to the better ore grades found in shoots within the vein.

Ore bodies in the vein systems of the Oatman District are lenticular in plan and irregular along their strike. The ore in the Gold Road Vein appears to be more continuous, both vertically and laterally, than that found in the Tom Reed Vein. To date, ore has been produced or identified along the Gold Road Vein system for more than 7,000 feet along strike and up to 1,300 feet vertically. The vein has produced ore grade material along 60 percent of its strike length on a historic basis.

The Gold Road Mine, since its discovery in 1903, has produced approximately 612,000 ounces of gold from 1,691,000 tons of ore containing gold at an average grade of 0.362 opt. The mine was owned, and for all practical purposes operated, by the United States Smelting, Refining and Mining Company (USSRM) since 1911. The mine has been idle since its closure by Government order in 1942.

3.1 RESOURCE ESTIMATES

AMI has in its possession a large amount of data generated by USSRM as well as a number of reports reviewing and analyzing the data by independent consultants and AMI. The database consists of extensive maps, production, and sampling records generated by USSRM, including stope records, car assays, and mill data. Of particular value were records of the systematic sampling of the mine's haulage levels on approximate 5-foot centers during the mine's operation by USSRM.

The primary basis of the resource estimates for the Gold Road Mine are USSRM's mining experience and historical sampling in this underground mine. During the operation of this mine, ore was defined by drifting along the vein system using visual and assay guides. The veins were sampled by channeling perpendicularly across the structure along the drifts. The samples were analyzed by fire assay procedures on site by USSRM. The grades, widths, and potential stope widths were thus estimated. These data in the form of assay sheets and level and projection drift maps are largely in the possession of AMI. In a similar manner the production stopes, muck piles, and ore cars were sampled, assayed, and recorded.

The large volume of channel sample data in the possession of AMI consists of more than 4,600 channel sets along the development drifts of the seven levels of the mine. Behre Dolbear has examined and analyzed a portion of the data and has found them to be acceptable for engineering purposes. No justification to question the veracity of the data was indicated by this review.

3.1.1 USSRM'S Resource Estimate - 1942

Upon the forced closure of the Gold Road Mine in September, 1942, USSRM compiled a reserve estimate for future planning purposes. Utilizing sampling data, the mineralized vein was divided into ore blocks and waste areas based upon a breakeven gold grade of 0.17 opt.

The vertical dimension of each block was projected 50 feet, unless information supported other distances. The width and horizontal length of each block were based upon actual measurements in the drifts. A tonnage factor of 13.0 cubic feet per ton of rock in place was used.

USSRM identified blocks of in-place ore totalling about 419,000 undiluted tons having an average thickness of 5 feet and a gold content of 0.325 opt for a total of 136,000 ounces. The blocks ranged in thickness from 2 to 12 feet. Approximately 40 percent of the ore tonnage was developed on three sides, 33 percent on two sides, and the remaining 27 percent on one side. USSRM did not classify the resources into reserve categories. Additionally, 9,500 tons of broken ore in stopes were identified. Also listed were 28,000 tons of "probable" ore scattered throughout the mine as small isolated blocks, or as ore grade material left in stopes or as mine support.

3.1.2 AMI's Reserve Estimates

AMI implemented a sampling program within selected accessible areas in the mines to develop confidence in the channel sampling conducted by USSRM. Rock chip samples were taken across the vein system from the Line Road 200-Level and the 100-Level. The resultant fire assays confirmed the areas of mineralization reported by USSRM.

AMI commissioned Western Services Engineering, Inc. (WSE) to complete an ore reserve evaluation of the Gold Road Project. The results of this study are summarized in the WSE report, The Gold Road Project Movable Reserve Evaluation, Mohave County, Arizona, dated January, 1993. The resources utilized in subsequent studies by AMI were derived from this report.

Utilizing a 0.10 opt cutoff AMI manually updated and modified the ore blocks previously defined by USSRM. Areas along drifts with gold in excess of 0.10 opt were combined with

similar areas along overlying and/or underlying drifts to define possible minable stopes. It was determined that minable widths of 5.0 feet and a 0.15 opt grade were appropriate for minable blocks. Applying these guidelines, WSE utilized the applicable data to develop resource models.

After a statistical analysis of the data base, WSE compiled the in situ gold resources within the areas designated by AMI. The PC-MINE mineral modelling system was used. According to WSE, the procedure included:

- ◆ Definition of the Sectional Model, including the zones of potential economic mineralization;
- ◆ Using the Inverse-Distance Squared method, estimating the ore grades; and
- ◆ Compilation of the in situ resource estimates.

Behre Dolbear reviewed the model methodology implemented by WSE and determined that it was applicable for this project and conformed to accepted engineering practices. For resource definition, WSE and AMI based their classification upon the definitions published by the U.S. Bureau of Mines in U.S. Geological Bulletin 1450A, published in 1976; not U.S. Security and Exchange Commission definitions.

3.1.2.1 Global Geological Resource Estimate

Utilizing the vein grades and widths reported by USSRM, WSE compiled an estimate of the in situ geologic resource within potentially minable stopes as determined by AMI personnel at various cutoffs. By applying an internal cutoff grade of zero, the total resource within all of these potentially minable areas were calculated to be approximately 519,600 tons

containing 177,200 ounces of gold. This undiluted material has an average grade of 0.34 opt and a thickness of 4.54 feet.

3.1.2.2 In Situ Movable Reserves (WSE)

AMI determined that minimum mining widths of 5.0 feet were realistic for the minable blocks due to their selection and design of the proposed mining system. WSE then computed the minable reserves at various cutoff grades within the potential stope areas which had been delineated manually by AMI. In the situations where ore grade vein width were less than 5.0 feet wide, the width was diluted to 5.0 feet using a grade for dilutant of 0.065 opt. The dilutant grade was justified by WSE as being the average below the 0.15 opt cutoff grade used to define the stopes.

WSE estimated the in situ minable reserve at a zero internal cutoff grade for the defined stopes to be 579,470 tons of minable material at a grade of 0.318 opt (184,000 ounces of gold); the increase in tonnage and ounces from the global estimate being a direct result of the dilution. The average minable thickness was 5.58 feet. Based upon the amount of underground development and the quality of the sample data, AMI and WSE considers the in situ reserves estimates to be in the proven and probable categories.

Comparison of the minable and geological resources compiled by WSE at a 0.15 opt cutoff indicate a tonnage dilution of 38 percent and a grade reduction of 25 percent. This equates to diluting to the minimum 5 foot mining width with material grading 0.026 opt, not the 0.065 opt indicated by WSE.

3.1.3 Behre Dolbear Reserve Estimate

Behre Dolbear's review of AMI's reserve procedures raised some areas of concern. Specifically:

- ♦ The tonnages of the minable resources defined by AMI did not include any dilution of the ore by mining overbreak and stope wall degradation during draw down for ore intervals 5.0 feet or greater in width. Support for this is supplied by Behre Dolbear's review of the historical production data and summary reports by USSRM and its consultants which indicate that the shrinkage stoping mining method employed at the Gold Road Mine, resulted in a 25 to 30 percent reduction in the grade of the ore. Historically, the vein thickness in the mined out areas has averaged 4.7 feet from stopes averaging 6.3 feet wide. The records also indicate the grade of the dilutant averages 0.027 opt, or the grade of dilutant material apparently included by WSE in their reserves statement. Mining overbreak in the Gold Road Mine has historically resulted in dilution averaging about 25 percent.

Behre Dolbear reviewed a number of the stope production records to verify these figures and found that measured stope widths were consistently and uniformly larger than the ore vein widths. Veins greater than 5 feet in width resulted in measured stopes widths 30 percent wider. Based upon Behre Dolbear's experience under similar mining conditions, traditional industry experience, and upon the production history of the mine, Behre Dolbear recommends the application of the historical 24.6 percent mining dilution to the resource blocks defined by AMI;

- ♦ On the lower levels of the mine, AMI has identified minable blocks which have been sampled on one side along the lower-most drifts. In a number of cases, AMI extended this ore 100 to 200 feet below the drifts. The limited

testing by shafts and drilling in the Gold Road Mine did not encounter ore grade material below that elevation. While Behre Dolbear believes that ore grade material will likely extend to greater depths in the vein system, this has yet to be documented. Behre Dolbear concludes this extension should be limited to a 50-foot maximum. An examination of detailed sampling and production records covering several decades of ownership and operation by USSRM, demonstrates consistent grade continuity of 50 feet or greater along the strike of the vein and are also consistent with USSRM's practice of extending ore-grades a maximum distance no greater than 50 feet in the vertical direction below the lowest sampled level. WSE through their variography study confirms that horizontal continuity could be established for 50 feet or greater but could not rigorously establish continuity in the vertical direction with the limited data set; and

- ◆ At the southeastern end of the mine workings AMI limited the ore blocks to the end of the drifts. In keeping with Behre Dolbear's conclusions from examination of USSRM records, Behre Dolbear has extended the ore blocks 50 feet beyond the ends of the drifts, thereby increasing the total undiluted tonnage of the five blocks involved by 22,600 tons containing 9,400 ounces of gold.

Behre Dolbear, in addition to the above, conducted its own reserve calculation for selected ore blocks to confirm the figures utilized by AMI and WSE. Any differences found were not significant.

Based upon our findings, Behre Dolbear adjusted AMI's reserves for:

- ◆ Appropriate extensions and losses;
- ◆ Dilution;

- ◆ Losses due to mining and milling; and
- ◆ Economics based upon Behre Dolbear's determination of operating costs.

Utilizing a \$375 per ounce gold price at Rothschild's request, Behre Dolbear believes that using AMI's original production scenario adjusted for the above listed factors, minable reserves at the Gold Road Project total 517,937 tons of ore with an average grade of 0.302 opt containing 156,398 ounces of gold. Adjusted for losses due to mining and processing, a total of 147,264 ounces of gold are estimated to be recoverable. Table 3.1 presents minable reserves at various gold prices.

TABLE 3.1 MINABLE RESERVES - GOLD ROAD PROJECT		
Gold Price	Minable Ounces	Minable Tons
\$350	147,100	461,055
\$375	156,398	517,937
\$400	158,913	533,729

Assumes a direct operating cost of \$55.25 per ton and sales + royalty of 4.5 percent.

The detailed ore reserve calculations and statements for a gold price of \$375 per ounce are contained in Appendix 1. The statements follow the same block designation and sequencing used by AMI, noted as Phase I, Phase II, and Phase III in AMI's mine planning.

3.1.3.1 Classification Of Reserves

The SEC has established definitions for reserves to be utilized in annual reports and other governmental filings:

- ◆ **Proven (Measured) Reserves:** Reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings, or drill holes; grade and/or quality are computed from the results of detailed sampling and (b) the sites for inspection, sampling, and measurement are spaced so closely and the geologic character is so well-defined that size, shape, depth, and mineral content of reserves are well-established.

- ◆ **Probable (Indicated) Reserves:** Reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.

Based upon the production history of the Gold Road Mine, the 60 percent pay ratio of the vein, and the continuity of mineralization displayed in underground workings, Behre Dolbear concludes that the reserves at the Gold Road Project would meet the SEC classification standards for **Proven** and **Probable** reserves.

3.1.3.2 Potential Resources

The determination of reserves within a vein deposit is very difficult. Vein deposits by their nature are not compatible with the accurate delineation of the majority of their reserves prior to development. Exploration programs in underground vein mines are most often conducted concurrently with production. Behre Dolbear's experience is that many vein mines have profitably operated for years with less than a year of identified reserves at any given time. For this reason, Behre Dolbear believes that the currently estimated reserves at the Gold Road Project must be regarded as conservative with a significant probability that the eventual reserves will increase.

Because of the nature of the Gold Road Vein, little exploration has been undertaken in the mine area since the mine was closed in 1942. During 1973 and 1974 two core holes were drilled from the surface to intersect the extension of the vein system to the southeast. The two holes were spaced at approximately 600 foot intervals along strike starting about 600 feet from the face of the 500 Level. The first hole along the trend encountered 2.1 feet with a gold content of 0.53 opt (5 feet of 0.28 opt). The second hole intercepted 5.0 feet at 0.10 opt. These results, in Behre Dolbear's opinion, demonstrate legitimate potential for the extension of the mineralized vein system along strike for at least an additional 1,000 feet.

Behre Dolbear noted earlier that the downdip extension of the vein beneath the mine has not been explored and could contain substantial resources. There is also substantial untested potential along strike to the northwest where the vein, which contained an ore shoot with high grades and thicknesses, was apparently interrupted by a fault offset. The structural zone containing the identified ore shoots may reach widths of 100 feet and there is evidence that it may host parallel unevaluated shoots of gold mineralization.

Based on these factors and the historical production of the mine, Behre Dolbear is of the opinion that the Gold Road Project has the potential of yielding additional reserves equal to or greater than those currently identified. The additional reserves will most likely be developed along strike and at depth as further exploration is conducted.

4.0 MINING

AMI examined several potential methods for the development and the mining of ore reserves. Estimates were completed to evaluate the most economic method of gaining access to the reserves both from the standpoint of the initial capital investment required and also that of the resultant operational costs applicable to mine production. Similarly, detailed examination was completed in evaluation of the most appropriate mining method to be employed when considering criteria such as the thickness and attitude of the ore reserves, the relative strength of the ore and the adjacent country rock composing the hanging and footwalls, and the quantities of ore and waste required to meet anticipated production goals.

Behre Dolbear reviewed in detail AMI's mine plan and estimated capital and operating costs. Behre Dolbear agrees with the proposed entry by means of declines that will allow the use of large capacity rubber-tired equipment (loaders and trucks) for the handling and transportation of ore, equipment, materials and supplies as well as the transportation of personnel. When applicable, this method of access avoids a large part of the restrictions and costs inherent in the use of a vertical shaft and hoisting facilities. The country rock outside the immediate ore zone is competent and no difficulty is anticipated in the completion of the declines or the haulageways on the primary mine levels.

AMI proposes a modification of the shrinkage stope method previously employed by USSRM until the closure of the mine in 1942. The original method is still applicable, but developments in mining equipment and ground support offer opportunities for modification, resulting in higher productivities for both manpower and equipment with markedly lower mine production costs.

The method termed "Sublevel Longhole Shrinkage" by AMI is virtually the same as that known as "Vertical Crater Stopping". Behre Dolbear agrees that the method is applicable for the orebodies at the Gold Road Mine but has reservations concerning the degree of mine dilution.

AMI's mine plans are designed for an average mine production rate of 580 tons per day (tpd) of run-of-mine (ROM) ore. The 580 tpd is based on AMI's assumption that the required minimum mining width of 5 feet will be consistently achieved with no excess dilution from overbreak and stope wall degradation due to ventilation and stope draw down. In the instance where the vein width exceeds the minimum mining width, according to AMI's mine plans, only the width of the vein will be mined, again with no overbreak.

Behre Dolbear previously noted (Section 3.1.2.3) that through a review of sampling and stope production records of USSRM for the period of 1938 through 1942, it could conclude that the historic record of 24.6 percent mine dilution of USSRM will not be bettered in the mining method planned by AMI. Accordingly, Behre Dolbear at AMI's request increased the daily tonnage from 580 tpd to 722 tpd to account for the dilution. Adjustments were made in manpower requirements, increased daily costs for haulage, and other operational costs at both the mine and the mill. The adjusted costs for the 722 tpd production schedule were incorporated in Behre Dolbear's cash flow analyses. The economically minable reserves were in turn modified by the changed operational costs. Production schedules for the Case-1, Case-2, and Case-3 scenarios are contained as Appendix 2. The schedules show the planned sequencing of production from the reserve blocks that are economically minable, the diluted tonnage and grade for each block, and the anticipated tonnage produced from each on a quarterly basis.

AMI's mining plans contemplate gaining secondary access to the ore blocks by crosscutting from the declines rather than attempting to rehabilitate the original haulageways. Behre Dolbear believes this is a sound approach. During Behre Dolbear's site visit, it was apparent that failure of ground support in the main haulageways, especially in the upper workings, could be a source of considerable rehabilitation and cost. Although the timber supports in the lower workings that have been under water since the mine closure might still be in sound condition, Behre Dolbear believes the approach proposed by AMI appears to be the lowest risk and most cost effective. Further, the declines outside the shear zone will

provide the means for detailed longhole drilling of suspected mineralized areas within the main shear zone that were not detected in the earlier mining operations.

4.1 CAPITAL COSTS

Table 4.1 provides a summary of AMI's estimate (corrected by Behre Dolbear) of the total capital costs for the Gold Road Project of \$5,348,845 including both the pre-production and post-production requirements. The pre-production costs total \$3,333,295 and post-production costs total \$2,015,550.

TABLE 4.1 AMI CAPITAL COST ESTIMATE - GOLD ROAD PROJECT	
PRE-PRODUCTION CAPITAL BUDGET	
Decline and Crosscuts	\$ 764,970
Level and Stope Development	1,153,400
Underground Shops	36,225
Mine Equipment	1,021,600
Mine Inventory	100,000
Site Engineering, Construction Admin.	257,100
Total Phase 1	\$3,333,295
POST-PRODUCTION CAPITAL BUDGET	
Decline Extension and Crosscuts	\$ 574,750
Level Development and Rehabilitation	450,000
Mine Equipment	634,550
Total Phase 2	\$1,659,300
Decline 700 to 900 Level	\$ 356,250
TOTAL MINE CAPITAL COST	\$5,348,845

AMI's estimated capital budget does not include any contingency. Behre Dolbear's experience in such projects indicates an allowance of at least 10 percent would be applicable

for a project of this nature. Behre Dolbear's review indicates total mine capital cost is \$5,883,700.

Behre Dolbear also reviewed the quantity, type, and capabilities of the mining equipment scheduled by AMI and determined that despite the increased production, the proposed equipment type and quantity is appropriate for production rate of 722 tpd with minor modifications. Capital costs for mining equipment total \$1,656,125, again exclusive of any contingency allowance. AMI's costs for mining equipment are those of used, but rebuilt, units and are based on written vendor quotations and familiarization with the current used-equipment market.

Since the purchase of only used equipment is contemplated by AMI, Behre Dolbear recommends that an additional capital expenditure in the range of \$150,000 to \$180,000 should be considered to provide a measure of equipment backup. Backup for loading and trucking of ore are especially critical as it may be assumed that availability will be markedly lower than that for new equipment. The recommended additions would consist of those listed in Table 4.2.

TABLE 4.2 ADDED EQUIPMENT REQUIREMENTS		
ITEM	UNITS	COST (\$)
Underground Truck	1	35,000
Loader	1	75,000
Jackleg Drills	5	6,250
Stoper Drills	5	5,000
Slushers	2	10,000
Power Center	1	12,000
		Total = \$143,250
		Contingency @ 15% = 21,490
		Total = \$164,740

The capital cost for mine equipment will then range from \$1,821,738 to approximately \$2,000,000.

4.2 OPERATING COSTS

AMI estimated the total direct cost of mining not including preproduction development to be \$29.61 per ton as presented in Table 4.3. Table 4.3 differs from AMI's feasibility study in that Behre Dolbear has corrected their figures for mathematical errors.

TABLE 4.3 AMI'S OPERATING COSTS GOLD ROAD PROJECT	
ITEM	\$/TON
Labor	18.05
Equipment Repair	1.57
Materials	4.79
Supplies	3.13
Services	<u>0.21</u>
SUBTOTAL	27.75
Contingency @ 6.7%	1.86
TOTAL	29.61

The unit-cost of \$29.61 per ROM ton is that estimated for an average mine production rate of 580 tons per day (tpd). The estimated cost of \$9.88 per ton for equipment repair, mining supplies, materials and services are judged low based on Behre Dolbear's experience. Behre Dolbear also believes that the labor requirements, labor rates, and contingency used in AMI's study are low and require adjustment.

4.2.1 Personnel Requirements

For the original planned production of 580 tpd, not including the handling of 50 to 100 tpd of development waste, AMI scheduled 77 production and service-related personnel. This

manning schedule averages a productivity of 7.53 tons per manshift (tpms). Behre Dolbear concludes this productivity would be realistic for the proposed mining method. If an additional 100 tpd of waste is included, the estimated productivity would be 8.83 tpms; still a reasonable level in Behre Dolbear's estimation.

The production schedule was changed by Behre Dolbear, at the request of AMI from 580 tpd to 722 tpd to include the handling of an additional 24.6 percent mine dilution. The required productivity would then increase to 9.38 tpms for ore only and 10.7 tpms with the 100 tpd of development waste included at AMI's manpower schedule. Behre Dolbear believes this level of productivity is higher than can be expected for the mining method used.

Behre Dolbear believes that mine production and support service staffing should be increased by 10 people consisting of three miners, three utility miners, three mechanics, and one toplander. The additional miners are warranted in the original AMI manpower schedule which apparently makes no allowances for unscheduled downtime and for absenteeism. Also, under AMI's 580 tpd scenario, Behre Dolbear felt that with use of used equipment, the staffing of only four mechanics is marginal. Since an approximate 25 percent increase in tonnage is to be loaded and hauled, Behre Dolbear believes an additional three mechanics is also warranted.

In addition to the increase in underground staffing, AMI's plan to run three full production shifts per day with attendant large quantities of materials and supplies to be transferred underground, Behre Dolbear believes that a toplander is required on each shift rather than on two shifts as noted in AMI's estimate.

Using Behre Dolbear's adjustments, the productivity level for production and service related personnel under the 722 tpd schedule would be 8.30 tpms, or 9.45 tpms including a possible 100 tpd of development waste. The level of 9.45 tpms is about the maximum that can be expected at the Gold Road Mine.

Table 4.4 summarizes the comparative staffing of underground production and service related personnel.

TABLE 4.4 COMPARATIVE PRODUCTION STAFFING SUMMARY GOLD ROAD PROJECT		
UNDERGROUND	AMI	BEHRE DOLBEAR
Miner	26	29
Utility Miner	26	29
Truck Driver	11	11
Toplander	2	3
Mechanic	4	7
Oiler	3	3
Electrician	2	2
LH Driller	3	3
TOTAL	77	87

Behre Dolbear's experience with operations similar to the Gold Road Mine on the scale planned by AMI indicates the addition of several support and service personnel is justified. In our estimation, a safety engineer and two technical support people are required. The technical support personnel are in anticipation of what Behre Dolbear feels will be critical grade-control tasks as well as those related to surveying control of numerous development headings. A minimum of two technicians are mandatory to provide help to the engineering and geological staff for these efforts due to the variability in grade demonstrated in WSE's variography study.

Grade-control at Gold Road will be extremely important and must be addressed. USSRM's sampling records show that they took channel samples at close intervals (5-feet in most instances) in the development headings, in the backs of the active stopes on an almost weekly basis, muckpile samples in the stopes, plus chute and car samples. Accordingly,

Behre Dolbear has added a technician to the manpower requirements specifically committed to sampling and grade control. Behre Dolbear believes that the employment of only one geologist is insufficient for the requirements of adequate grade-control in addition to his other responsibilities.

Behre Dolbear believes a safety engineer is warranted in consideration of the federally mandated periodic training requirements, records and report filings, and the ongoing underground safety inspections necessary for the site. The safety engineer could also assist in other engineering tasks on an "as available" basis, and possibly serve as a shift boss when required by absences of regular personnel.

Behre Dolbear noted that no provision was made in AMI's estimate for daily maintenance of surface facilities, mainly the miners' changehouse. We have included an hourly employee for maintenance of the changehouse, lamp maintenance and repair, and possibly janitorial service of the administrative offices. Table 4.5 summarizes the total personnel requirements at the Gold Road Mine including the additions recommended by Behre Dolbear.

**TABLE 4.5
COMPARATIVE PERSONNEL ROSTER**

Classification	Addwest	Behre Dolbear
Mine Manager	1	1
Mine Superintendent	1	1
Mill Superintendent	1	1
Maintenance Superintendent	1	1
Mine Shift Boss	3	3
Mine Foreman	1	1
Mine Engineer	1	1
Mine Geologist	1	1
Safety Engineer	0	1
Technician/Drafting	1	1
Technician/Surveying	0	1
Technician/Sampling	0	1
Assaying/Refining	1	1
Office Manager	1	1
Clerk	1	1
Changehouse/Lampman/Janitor	0	1
Miner	26	29
Utility Miner	26	29
U/G Truck Driver	11	11
Toplander	2	3
Mechanic	4	7
Oiler	3	3
Electrician	2	2
Longhole Driller	3	3 - Explosives
Mill Operator	4	4
Mill Labor	4	4
Crusher Operator	2	2
Mill Maintenance	3	3
Assay Labor	2	2
Parts Runner	1	1
TOTALS	107	121

4.2.2 Labor Costs

Labor rates determined by AMI are presented in Table 4.6 and indicate a weighted average salaried wage rate of \$19.36 per hour and a weighted average hourly wage rate of \$10.42 per hour. Behre Dolbear has reviewed these rates and concludes they are not in keeping with present levels in the mining industry because:

- ◆ It is the usual practice in the mining industry to include a pay differential for hourly employees working on other than the day-shift. No shift differential is included in AMI's estimate. Similarly, no allowance for unscheduled overtime has been included. When considering the relative complexities of the mining method proposed, the necessity for numerous production and development crews, plus the use of used equipment, Behre Dolbear believes such an allowance must be included, and has added to labor costs an allowance of 5 percent of the base rate applicable only to the hourly underground production and support personnel;
- ◆ In addition, although a large number of underground mines have closed in the past decade, there is a shortage of skilled miners having experience in the mining of narrow veins as will be required at the Gold Road Mine; and
- ◆ The U.S. Bureau of Labor Statistics, Table C-1, Mining, notes an average hourly rate of \$13.65 per hour in 1990. If the Bureau's figure is escalated at 3 percent per year for the years of 1991 through 1994, the corresponding figure for 1994 is approximately \$15.36 per hour, i.e., an increase of about 12.5 percent. Accordingly, Behre Dolbear increased the wage rates for hourly personnel by 12.5 percent.

TABLE 4.6 AMI - LABOR RATE SUMMARY			
Administrative & Supervision	Number	\$/Day	Total - \$/Day
Manager	1	240	240
Mine Superintendent	1	220	220
Shift Boss	3	180	540
Geologist	1	140	140
Engineer	1	140	140
Tech/Draftsman	1	80	80
Mechanic Supt	1	204	204
Office Manager	1	80	80
Clerk	1	60	60
Totals	11		1,704
Weighted Average - \$19.36/Hour			
Hourly Production	Number	\$/Hour	
Miner	26	11.50	
Utility Miner	26	9.50	
Truck Driver	11	9.50	
Toplander	2	9.00	
Mechanic	4	12.00	
Oiler	3	10.00	
Electrician	2	12.00	
LH Driller	3	10.50	
Totals	77		
Weighted Average - \$10.42/Hour			
Weighted Average Salaried & Hourly - \$11.54/Hour			

Table 4.7 presents a comparison of AMI's and Behre Dolbear's estimate of total labor requirements for the operation. Behre Dolbear finds that labor costs will total \$145,367.58 per day, or \$19.90 per ROM ton versus \$14.50 per ton as calculated by AMI.

**TABLE 4.7
COMPARATIVE ESTIMATED MINE LABOR COSTS**

Surface	Addwest		Behre Dolbear	
	Number	Cost - \$/Day	Number	Cost - \$/Day
Mine Superintendent	1	301.40	1	399.08
Shift Boss	3	739.80	3	832.28
Mechanic Superintendent	1	139.74	1	157.21
Geologist	1	191.80	1	215.78
Engineer	1	191.80	1	215.78
Safety Engineer	0	-	1	215.78
Tech/Draft	1	115.08	1	129.47
Tech/Survey	0	-	1	129.47
Tech/Sample	0	-	1	129.47
Dryhouse/Lampman	0	-	1	110.97
Total	8	\$1,679.62	12	\$2,586.26
No unscheduled overtime				
Underground				
Miner	26	3,277.04	29	4,112.05
Utility Miner	26	2,707.12	29	3,396.91
Truck Driver	11	1,145.32	11	1,288.49
Toplander	2	197.28	3	332.91
Mechanic	4	526.08	7	1,035.72
Oiler	3	328.80	3	369.90
Electrician	2	263.04	2	295.92
LH Driller	3	345.24	3	388.40
Total	77	\$8,789.92	87	\$11,220.30
Add unscheduled overtime at 5% base rate = 561.02				
Total = \$11,781.32				
Total Labor per Day		\$10,469.54		\$14,367.58
Total Labor		\$14.50		\$19.90

4.3 MINE DILUTION

As noted earlier, Behre Dolbear has concern about the anticipated degree of potential mine dilution resulting from unplanned breakage during stoping. The use of the planned stope development equipment requires a minimum width of 5 feet for completion of the sublevels from which the ore is to be drilled and blasted. AMI believes that the necessary minimum width can be maintained with little if any sloughing of the country rock from the hanging and footwalls. Behre Dolbear, however, believes that on the basis of (1) examination of historical data from the operations of USSRM, (2) the alteration of the country rock adjacent to the mineralized zone observed in some parts of the mine during the site visit, and (3) the method of drilling and blasting of the ore blocks planned by AMI, that the probability of inadvertent dilution beyond the planned mining width must be considered. Support for this is demonstrated by:

- ◆ USSRM, with its great experience in the mining of the narrow width vein, had an average dilution of 24.6 percent and a nearly corresponding reduction in mine grade at Gold Road. USSRM internal correspondence reviewed by Behre Dolbear, notes the company's concern and desire to lower the dilution at the Gold Road Mine. When evaluating the historic experience of USSRM with the use of conventional shrinkage stoping methods in comparison with the modified method to be employed by AMI, Behre Dolbear concludes that mine dilution will continue to be a significant problem. There is no evidence in Behre Dolbear's opinion that it will be any less than the historic figure of 24.6 percent, and if not carefully controlled, the proposed method of drilling may result in a higher figure with resultant grade control problems;
- ◆ A second factor is that in Behre Dolbear's experience, alteration of the country rock adjacent to the vein will contribute to mine dilution in those areas. Care will be required in the blasting of the long drill holes even in areas where both the wall rock and the ore are competent. It may be

necessary to vary the hole spacing and/or the powder-factor from one stope to another or even within the same stope. Obviously, such procedures are not labor cost-effective; and

- ♦ A critical factor will be the correct alignment of the 22-foot long drill holes that are required for blasting. Correction has to be made for the varying dip of the vein and this will probably require a stope-by-stope adjustment. Almost perfect alignment of the drill must then be observed by the miners and under the pressure of production requirements, a requirement which may prove difficult to achieve.

Control of the direction of the drill hole is also complicated by the necessity of using jointed drill steel. The height of the sublevels is to be 8 feet and therefore, a drill hole 20 feet to 22 feet in length will require the use of four 6-foot lengths of drill steel. The inherent slackness in even new drill-rod couplings and the increase in slackness with wear, will contribute to the difficulty of maintaining the critical alignment of the hole. Behre Dolbear believes that maintaining the desired location of the bottom of any one drill hole within 6 to 8 inches will be problematic, aside from the difficulty of assuring the correct alignment of the drill by the miner.

In the original shrinkage stoping method used by USSRM at the Gold Road Mine, the procedure was to drill 6-foot holes with a handheld drill (stoper). This procedure, although much less productive than that of using wagon-drills as planned by AMI, allowed great flexibility in modifying the drill pattern, the powder-factor, and the location of the drill holes with respect to the contact of the vein with the hanging and footwalls. Thus, at least some degree of control in attempting to correct problems such as variances in vein width or the competency of the country rock adjacent to the vein was achieved in the past. This flexibility in modifying factors critical to minimizing dilution will

be largely lost with the drilling method to be used by AMI. While the use of the wagon-drills will markedly increase productivity, Behre Dolbear believes the consideration of other important factors could be sacrificed.

Behre Dolbear has accordingly applied a dilution factor of 24.6 percent in the estimation of reserve tonnages, the grade of ROM ore to the mill, and in the mine production costs.

5.0 MILLING

The processing plant for the Gold Road Project would consist of a standard cyanide leach/CIP plant. The basic process consists of crushing, grinding, cyanide leaching of the ground product, and absorption of the dissolved gold on activated carbon. The gold is recovered from the carbon in a deabsorption process where it is deposited on stainless cathodic screens in an electroplating process. Gold sponge is washed from the screens, filtered, dried, smelted and cast into bars. Anticipated recovery is 95 percent of the gold content and 50 percent of the silver content.

5.1 CAPITAL COSTS

Behre Dolbear reviewed the data from the metallurgical and mineral dressing work completed by International Compliance Technologies (ICT) on bulk samples from the Gold Road Mine and the estimated capital costs completed by a consultant retained by AMI. The estimate was not as detailed as is required in a feasibility study as it was based largely on factored costs. Total capital costs for a 500 tpd capacity mill were estimated by AMI's consultant to be \$4,930,000 for the mill proper plus an additional \$800,000 for construction of a tailings disposal facility. AMI plans to purchase used equipment and anticipates savings of approximately \$650,000, yielding a net cost of the mill to AMI of \$4,280,000.

On the basis of the information available in the AMI study, Behre Dolbear estimated the cost of the required mill on the basis of new equipment as \$6,281,370. Accepting AMI's estimate that approximately 13 percent can be saved through the purchase of used equipment, the capital cost of the mill as estimated by Behre Dolbear would be approximately \$5,464,500. Behre Dolbear also noted that AMI did not include a contingency allowance in the mill capital costs and believes that a minimum 10 percent contingency fee is applicable for an estimate of the level provided.

Since the required daily capacity of the mill was increased to 625 tpd because of the addition of mine dilution, Behre Dolbear made another estimate of the mill capital costs. A scaling-factor appropriate for the type and capacity of mill was used and the estimated capital cost of the larger mill with the purchase of used equipment (and the 13 percent savings assumed by AMI) was determined to be approximately \$6,284,200.

In substantiation of AMI's estimated costs for the mill, AMI obtained a letter from MINPROC Engineers, Inc., (Minproc) in which Minproc stated that the plant could be built for \$5,000,000 if some undefined contractual commitments were agreed to by AMI. Rothschild requested, that Behre Dolbear use, the \$5,000,000 capital cost figure supplied by Minproc in the cash flow analyses. A copy of Minproc's letter is appended as Appendix 3.

5.2 OPERATING COSTS

Behre Dolbear's estimated direct operating costs for the 500 tpd capacity plant to be \$12.03 per ton, a figure in close agreement with the \$12.09 per ton cost in AMI's study. Behre Dolbear estimated a slightly higher unit cost of \$12.38 per ton during the first year of operation to account for what is felt to be the probability of higher maintenance costs with used equipment during that period. The comparative unit milling costs of the AMI and Behre Dolbear estimates for the 500 tpd mill are presented in Table 5.1. A comparison of total labor requirements for the entire Gold Road Project is presented in Table 5.2. For the determination of the operating costs for the 625 tpd mill, unit costs for all items including operating supplies, electricity and fuel were kept constant. There was no required increase in labor which was prorated downward on the basis of the increased tonnage, i.e., the ratio of 500/625.

TABLE 5.1 COMPARATIVE MILLING COSTS 500-TPD MILL \$ PER TON		
	Addwest	Behre Dolbear
Labor	4.59	4.75
Equipment	0.31	0.48
Materials & Supplies	3.72	3.55
Electric Power	2.30	2.16
Services	0.07	-
Subtotal	10.99	10.94
Contingency @ 10%	1.10	1.09
TOTAL	\$12.09	\$12.03

Behre Dolbear reviewed the metallurgical and mineral dressing data which included the recent study by ICT, the earlier study completed by the Booth Company for Sharon Steel in 1981, and historical data contained in the AMI study. The historical data from the 1937-1942 period comprised excerpts from the Taggart Handbook of Mineral Dressing that referred to the operating performance at the Gold Road Mine between 1937 and 1942.

Behre Dolbear concluded that the anticipated reagent consumption and a recovery of 95 percent are consistent with a grade of 0.31 opt or greater. Insufficient information was available to make an exact judgement of the anticipated recoveries at lower grades. On the basis of the loss to tailings determined in the metallurgical study, an estimate was made of the decreased loss expected at lower grades of mill feed. The adjusted recoveries depending on the grade of mill feed during each quarter, varied from 93 percent to 96 percent with an overall average for the 12 quarters, of 94 percent. The adjusted recoveries were applied in Behre Dolbear's cashflows.

6.0 ENVIRONMENTAL

Behre Dolbear assessed the environmental aspects of the Gold Road Project by conducting a site visit, reviewing available documentation, and interviewing appropriate regulatory officials by telephone. Behre Dolbear concludes that the project has no fatal flaws from an environmental viewpoint. Permitting requirements are straightforward, and there are no significant environmental liabilities associated with the property.

The project's permitting status is greatly simplified by the fact that proposed activities are on patented land. Two major permits are required, both from Arizona state agencies:

- ◆ Aquifer Protection Plan; and
- ◆ Air Quality Permit.

The Aquifer Protection Plan permit application has been filed and is currently under review by the state. The officials reviewing the application do not anticipate difficulties and approval is expected during November 1993. As part of the application, ore and waste rocks were geochemically characterized with respect to acid generating potential and other toxicity characteristics. Neither the ore nor the waste is acid-generating and neither exhibits significant toxicity characteristics. The permit will require ground water monitoring and establishment of background levels. The necessary monitoring wells should be installed as soon as reasonable to begin collection of background data. AMI management has stated that they plan to install the wells during the fall of 1993. The costs of compliance with this permit should be nominal.

The Air Quality Permit is expected to be straightforward. The principal requirement, in Behre Dolbear's opinion, will be dust suppression equipment in the mill and possibly on the haul road. Costs associated with compliance should be minimal in Behre Dolbear's opinion.

Two wilderness areas occur on BLM land in the region, but it is not expected that these will cause a problem for the proposed project as the project will not have visual, noise, or air quality impacts on wilderness areas. Nonetheless, coordination of project activities with the BLM would be prudent and Behre Dolbear confirmed that this is being pursued by AMI.

No significant environmental liabilities from previous operations appear to be associated with the property. Existing tailings appear to be geochemically innocuous. The presence of several open stopes might be considered a minor potential environmental liability due to possible safety issues and visual impact, but this is not considered a significant liability by Behre Dolbear.

7.0 PROJECT ECONOMICS AND SENSITIVITIES

Behre Dolbear has determined that the average life of mine direct cash operating cost will be \$55.52 per ton as presented in Table 7.1. The cash cost to produce an ounce of recoverable gold is \$212.58. The table includes further adjustments to AMI's costs for property and severance taxes.

TABLE 7.1 DIRECT OPERATING COSTS SUMMARY 722-TPD	
Mining	\$/ROM Ton
Labor	19.90
Equipment Repair	1.62
Materials & Supplies	<u>11.65</u>
Subtotal	33.17
Contingency @ 10%	<u>3.32</u>
Total	36.49
Milling (After Year 1)	
Operative Labor	3.31
Maintenance Labor	0.92
Electrical Power	2.16
Operating Supplies	2.95
Maintenance Supplies	1.15
Fuel	<u>0.50</u>
Subtotal	10.99
Contingency @ 10%	<u>1.10</u>
Totals	12.09
Administration	
Labor	0.95
Equipment	0.08
Site Reclamation	0.40
Supplies	0.32
Services	0.50
Indirects	<u>0.54</u>
Subtotal	2.79
Contingency @ 10%	<u>0.28</u>
Total	3.07
PROPERTY AND SEVERANCE TAXES	3.87
TOTAL	55.52

Behre Dolbear appreciates that the cash cost of \$213 per ounce appears to be low for an underground mine, even in comparison to some surface mines. Behre Dolbear believes, nevertheless, that the figure is reliable based upon the analysis of costs performed for this study.

7.1 CASH FLOW SCENARIOS

Behre Dolbear estimated project cash flows based on three scenarios determined by joint discussions between Behre Dolbear and Rothschild personnel:

- ♦ Case 1 - Mine productivity and the operating efficiency of the mill reaches design criteria at the start up of the operation. The minable reserves are based on an average direct operating cost of \$55.52 per ton;
- ♦ Case 2 - Mine productivity and operating efficiency of the mill is reduced at start up of the project. A start-up period of three quarters was anticipated by Behre Dolbear during which time the project could expect lower than design productivity on both the mine and the mill. Due to increased costs during start up, the minable reserves for this case is based on an average direct operating cost of \$58.06 per ton; and
- ♦ Case 3 - Mine productivity and operating efficiency of the mill is reduced at start up identically to Case 2, but the mining schedule uses the reserves calculated in case 1 which are based on an average direct operating cost of \$55.52 per ton.

Case 2 was requested by Rothschild after discussion with Behre Dolbear and it represents what both Behre Dolbear and Rothschild believe to be the most realistic scenario for the project's development and operation. Case 2 is based on the fact that typical mining and

milling operations usually realize reduced productivity and mill recovery during the initial period of operation. The initial inefficiencies are due to the operation having to hire and train a new work force. Additionally, the uniqueness of the ore or ground conditions within any given mining and milling operation results in a learning period for most operations regardless of the level of experience of the new work force. Behre Dolbear therefore feels that the effects of reduced productivity and reduced mill recovery during the start up of an operation is an important consideration in any mining venture and should be modeled in the project's economic analysis. The assumptions special to Cases 2 and 3 are:

- ♦ The start up production for the mine was assumed by Behre Dolbear to average 50 percent of the target production of 46,725 tons in the first quarter, 75 percent of the target in the second quarter, 90 percent in the third quarter, and 100 percent of the target in each subsequent quarter;
- ♦ The start up recoveries for the mill were reduced by taking the estimated recovery and subtracting 4 percent in the first quarter, 2 percent in the second quarter, 1 percent in the third quarter and no deduction in each subsequent quarter;
- ♦ Mining and milling labor requirements during start up were assumed to be 75 percent during the first quarter, 85 percent during the second quarter, and 100 percent during subsequent quarters. Labor costs for the mine and mill were prorated at these percentages;
- ♦ Consumables for the mine and mill were prorated by the tonnage produced during the quarter; and
- ♦ G&A operating costs were not prorated by tonnage during start up.

Other assumptions utilized in all cases are:

- ◆ The quarterly grade and tonnage figures used for cash flow analysis were determined from the Behre Dolbear mining plan as presented in Appendix 2. Behre Dolbear used the same stoping sequence and stope production rates as determined by AMI's engineers. Behre Dolbear adjusted the contained tonnage and grade of each stope to reflect Behre Dolbear's adjustments to the minable reserve statement;
- ◆ The mill recovery for each quarter was estimated from the projected average mill head grades for that quarter;
- ◆ The average price of gold was calculated using a \$350.00 per ounce contango rate of 2.5 percent per annum price scheme for hedging of project costs at Rothschild's request. The rest of the recoverable gold was sold at a spot price of \$350 per ounce;
- ◆ The average price of silver was assumed to be \$4.50 per ounce;
- ◆ The operating costs were estimated by Behre Dolbear engineers;
- ◆ One percent of the gold plus silver value was used for cost of sales, transportation, insurance, etc. of the milled product;
- ◆ A 3.5 percent royalty was utilized;
- ◆ Property taxes were estimated using the same method as the AMI feasibility study due to a recent court case which has required the State of Arizona to change their method of assessing value to mineral properties. Behre Dolbear personnel could not get an opinion from Arizona as to what changes would be forthcoming;

- ♦ Silver recovery was estimated at 50 percent of the recovered gold;
- ♦ Behre Dolbear calculated severance taxes using the estimated weighted mineral value from the actual ratio of the operating cost of the mine divided by total operating costs;
- ♦ The cash flow analysis was conducted before state and federal income taxes at the request of Rothschild; and
- ♦ Capital costs for the project were supplied by AMI with the estimate for the mill supplied by Minproc at the request of Rothschild.

The results of the cash flows are presented in Table 7.2. Net present values range from \$4.67 million to \$8.95 million and internal rates of return range from 45.1 to 62.3 percent. The detailed cash flows are presented as Appendix 4.

TABLE 7.2			
GOLD ROAD PROJECT - ECONOMIC PERFORMANCE			
	CASE 1	CASE 2	CASE 3
NPV @ 15%	\$6,348,590	\$4,984,348	\$4,667,145
NPV @ 10%	\$7,565,404	\$6,187,660	\$5,871,250
NPV @ 5%	\$8,954,310	\$7,562,372	\$7,252,010
IRR, %	62.3	47.7	45.1

7.2 SENSITIVITIES

Behre Dolbear performed sensitivity analyses on the project to determine the performance variability as a function of the following parameters:

- ◆ Reserves versus gold price;
- ◆ Reserves versus operating costs;
- ◆ Change in capital costs +15 percent to -10 percent;
- ◆ Change in operating costs +15 percent to -10 percent; and
- ◆ Change in spot gold price from \$330 per ounce to \$425 per ounce.

The results of the sensitivity analyses are presented in Table 7.3 through 7.6. The sensitivities indicate:

- ◆ Reserves are sensitive to direct operating costs. An increase of the direct operating cost from \$55.52 per ton (Case 1 and 3 reserves) by 1 percent to \$56.00 per ton will reduce the minable reserves from 156,398 ounces of gold to 149,557 ounces, a 4 percent reduction. An increase in direct operating costs by 10 percent to \$60.00 per ton will reduce the minable reserves to 141,705 ounces of gold, a 10 percent reduction;
- ◆ At a given reserve assumption the project's economic performance is more sensitive to changes in operating costs than capital costs. An increase in operating costs by 15 percent will reduce the project's NPV at 5 percent by 38 percent in Case 1, 42 percent in Case 2, and 44 percent in Case 3. An increase in capital costs by 15 percent only reduces the NPV at 5 percent by 17 percent in Case 1, 20 percent in Case 2, and 19 percent in Case 3.

- ◆ Using the hedging program designed by Rothschild, a reduction in the spot price of gold by 5 percent will reduce the project's economic performance by 14 percent in Case 1, 16 percent in Case 2, and 16 percent in Case 3.

**TABLE 7.3
GOLD ROAD PROJECT
SENSITIVITY OF RESERVES TO GOLD PRICE**

Case 1 & 3 - Direct Operating Costs = \$55.52/Ton			Case 2 - Direct Operating Costs = \$58.06/Ton		
Gold Price	Ounces	Tons	Gold Price	Ounces	Tons
\$350	147,100	461,055	\$350	132,805	380,520
\$375	156,398	517,937	\$375	147,716	464,668
\$400	158,913	533,729	\$400	158,696	532,303

**TABLE 7.4
GOLD ROAD PROJECT
SENSITIVITY OF RESERVES TO DIRECT OPERATING COSTS**

DIRECT OPERATING COST	MINABLE OUNCES - GOLD	MINABLE TONS
\$50.00	160,478	544,234
\$51.00	159,982	540,868
\$54.00	158,696	532,303
\$55.00	156,398	517,937
\$56.00	149,557	475,872
\$57.00	147,716	464,668
\$59.00	147,100	461,055
\$60.00	141,704	430,024
\$65.00	130,591	368,509
\$70.00	127,279	351,452

TABLE 7.5
GOLD ROAD PROJECT
SENSITIVITY TO CHANGES IN CAPITAL AND OPERATING COSTS

CASE 1						
	Change in Capital Costs			Change in Operating Costs		
	+15%	Base	-10%	+15%	Base	-10%
NPV @ 15%	\$4,980,387	\$6,348,590	\$7,260,725	\$3,565,115	\$6,348,590	\$ 8,186,347
NPV @ 10%	\$6,165,462	\$7,565,404	\$8,498,699	\$4,510,157	\$7,565,404	\$ 9,582,704
NPV @ 5%	\$7,521,195	\$8,954,310	\$9,909,721	\$5,591,814	\$8,954,310	\$11,174,598
IRR, %	48.5	62.3	73.4	43.5	62.3	73.6
CASE 2						
NPV @ 15%	\$3,659,473	\$4,984,348	\$5,867,597	\$2,376,661	\$4,984,348	\$6,706,055
NPV @ 10%	\$4,838,441	\$6,187,660	\$7,087,139	\$3,323,972	\$6,187,660	\$8,078,448
NPV @ 5%	\$6,188,753	\$7,562,372	\$8,478,119	\$4,409,533	\$7,562,372	\$9,644,143
IRR, %	36.9	47.7	56.2	31.6	47.7	57.4
CASE 3						
NPV @ 15%	\$3,342,270	\$4,667,145	\$5,550,394	\$2,081,827	\$4,667,145	\$6,374,202
NPV @ 10%	\$4,522,032	\$5,871,250	\$6,770,729	\$3,025,469	\$5,871,250	\$7,750,349
NPV @ 5%	\$5,878,390	\$7,252,010	\$8,167,756	\$4,111,442	\$7,252,010	\$8,325,827
IRR, %	34.6	45.1	53.4	29.3	45.1	54.6

**TABLE 7.6
GOLD ROAD PROJECT
SENSITIVITY TO CHANGES IN SPOT PRICES**

CASE 1					
	SPOT PRICE				
	\$330	\$350	\$375	\$400	\$425
NPV @ 15%	\$5,311,377	\$6,348,590	\$ 7,645,107	\$ 8,941,624	\$10,238,140
NPV @ 10%	\$6,438,764	\$7,565,404	\$ 8,973,704	\$10,382,003	\$11,790,303
NPV @ 5%	\$7,727,446	\$8,954,310	\$10,487,891	\$12,021,471	\$13,555,051
IRR, %	55.0	62.3	71.2	79.9	88.4
CASE 2					
NPV @ 15%	\$3,986,787	\$4,984,348	\$6,231,298	\$ 7,478,248	\$ 8,725,198
NPV @ 10%	\$5,094,159	\$6,187,660	\$7,554,535	\$ 8,921,411	\$10,288,287
NPV @ 5%	\$6,360,697	\$7,562,372	\$9,064,467	\$10,566,561	\$12,068,655
IRR, %	41.7	47.7	54.9	61.7	68.4
CASE 3					
NPV @ 15%	\$3,688,011	\$4,667,145	\$5,891,061	\$ 7,114,978	\$ 8,338,895
NPV @ 10%	\$4,796,076	\$5,871,250	\$7,215,218	\$ 8,559,185	\$ 9,903,152
NPV @ 5%	\$6,068,246	\$7,252,016	\$8,731,714	\$10,211,419	\$11,691,123
IRR, %	39.3	45.1	52.1	58.8	65.3

APPENDIX 1

DETAILED ORE RESERVE CALCULATIONS

Phase I - 24.6 Percent Dilution
(No start up loss)
Cases 1 and 3

BEHRE DOLBEAR & COMPANY, INC.

Block	GOLD									SILVER			Royalty & Sales (4.5%) \$/ton	Mining Mill, etc. \$/ton	Total Cost/ton	Slope Value	Oz Mined Gold			
	Reserves			Dilution			Diluted Tons			Recoverable Ounces	Price \$/oz	Value								
	Tons	Grade	Ounces	Tons	Grade	Ounces	Tons	Grade	Ounces											
MD/54	15210	0.773	11757	3742	0.027	101	18952	0.626	11858	11265	375	\$4,224,539	5633	4.50	\$25,347	10.09	55.52	65.61	\$3,006,445	11858
MD/52	4330	0.512	2217	1065	0.027	29	5395	0.416	2246	2133	375	\$800,038	1067	4.50	\$4,800	6.71	55.52	62.23	\$469,080	2246
MD/51	6440	0.251	1616	1584	0.027	43	8024	0.207	1659	1576	375	\$591,095	788	4.50	\$3,547	3.33	55.52	58.85	\$122,377	1659
350/38	6640	0.223	1481	1633	0.027	44	8273	0.184	1525	1449	375	\$543,218	724	4.50	\$3,259	2.97	55.52	58.49	\$62,545	1525
350/31	5340	0.239	1276	1314	0.027	35	6654	0.197	1312	1246	375	\$467,303	623	4.50	\$2,804	3.18	55.52	58.70	\$79,542	1312
350/30	3900	0.192	749	959	0.027	26	4859	0.159	775	736	375	\$275,988	368	4.50	\$1,656	2.57	55.52	58.09	(\$4,644)	0
350/26	10980	0.158	1735	2701	0.027	73	13681	0.132	1808	1717	375	\$644,018	859	4.50	\$3,864	2.13	55.52	57.65	(\$140,846)	0
350/25	28470	0.196	5580	7004	0.027	189	35474	0.163	5769	5481	375	\$2,055,284	2740	4.50	\$12,332	2.62	55.52	58.14	\$5,077	5769
350/21	7254	0.210	1523	1784	0.027	48	9038	0.174	1572	1493	375	\$559,854	746	4.50	\$3,359	2.80	55.52	58.32	\$36,052	1572
350/14	17230	0.292	5031	4239	0.027	114	21469	0.240	5146	4888	375	\$1,833,121	2444	4.50	\$10,999	3.87	55.52	59.39	\$569,198	5146
350/04	16390	1.204	19734	4032	0.027	109	20422	0.972	19842	18850	375	\$7,068,863	9425	4.50	\$42,413	15.67	55.52	71.19	\$5,657,443	19842
350/03	29998	0.473	14189	7380	0.027	199	37378	0.385	14388	13669	375	\$5,125,832	6834	4.50	\$30,755	6.21	55.52	61.73	\$2,849,341	14388
100/01A	15240	0.339	5166	3749	0.027	101	18989	0.277	5268	5004	375	\$1,876,577	2502	4.50	\$11,259	4.47	55.52	59.99	\$748,612	5268
100/01B	17480	0.339	5926	4300	0.027	116	21780	0.277	6042	5740	375	\$2,152,399	2870	4.50	\$12,914	4.47	55.52	59.99	\$858,644	6042
100/02	19430	0.430	8355	4780	0.027	129	24210	0.350	8484	8060	375	\$3,022,409	4030	4.50	\$18,134	5.65	55.52	61.17	\$1,559,592	8484
100/11	3820	0.306	1169	940	0.027	25	4760	0.251	1194	1135	375	\$425,487	567	4.50	\$2,553	4.05	55.52	59.57	\$144,499	1194
100/12&13	5490	0.216	1186	1351	0.027	36	6841	0.179	1222	1161	375	\$435,446	581	4.50	\$2,613	2.88	55.52	58.40	\$38,559	1222
100/20	2410	0.825	1988	593	0.027	16	3003	0.687	2004	1904	375	\$714,017	952	4.50	\$4,284	10.76	55.52	66.28	\$519,258	2004
100/19	8350	0.233	1946	2054	0.027	55	10404	0.192	2001	1901	375	\$712,860	950	4.50	\$4,277	3.10	55.52	58.62	\$107,230	2001
100/24	11200	0.157	1758	2755	0.027	74	13955	0.131	1833	1741	375	\$652,932	871	4.50	\$3,918	2.12	55.52	57.64	(\$147,502)	0
100/28	2390	0.180	430	588	0.027	16	2978	0.150	446	424	375	\$158,914	212	4.50	\$953	2.42	55.52	57.94	(\$12,662)	0
100/29	5290	0.196	1037	1301	0.027	35	6591	0.163	1072	1018	375	\$381,892	509	4.50	\$2,291	2.62	55.52	58.14	\$943	1072
100/36	2390	0.115	275	588	0.027	16	2978	0.098	291	276	375	\$103,571	138	4.50	\$621	1.57	55.52	57.09	(\$65,832)	0
100/37	12320	0.169	2082	3031	0.027	82	15351	0.141	2164	2056	375	\$770,893	1028	4.50	\$4,625	2.27	55.52	57.79	(\$111,652)	0
	257992		98206	63466		1714	321458		99920	94924		\$35,596,527.38	47462		\$213,579				\$16,351,302	92604

Phase II - 24.6 Percent Dilution

BEHRE DOLBEAR & COMPANY, INC.

Block	GOLD												SILVER			Royalty & Sales (4.5%) \$/ton	Mining Mill, etc. \$/ton	Total Cost/ton	Stope Value	Oz Mined Gold
	Reserves			Dilution			Diluted Tons			Recoverable Ounces	Price \$/oz	Value	Recoverable Ounces	Price \$/oz	Value					
	Tons	Grade	Ounces	Tons	Grade	Ounces	Tons	Grade	Ounces											
500/32	2900	0.206	597	713.4	0.027	19	3613	0.171	617	586	375	\$219,686	293	4.50	\$1,318	2.75	55.52	58.27	\$10,443	617
500/21	17650	0.210	3707	4341.9	0.027	117	21992	0.174	3824	3633	375	\$1,362,204	1816	4.50	\$8,173	2.80	55.52	58.32	\$87,720	3824
500/16	6230	0.287	1788	1532.58	0.027	41	7763	0.236	1829	1738	375	\$651,720	869	4.50	\$3,910	3.80	55.52	59.32	\$195,149	1829
500/15	4730	0.302	1428	1163.58	0.027	31	5894	0.248	1460	1387	375	\$520,081	693	4.50	\$3,120	3.99	55.52	59.51	\$172,446	1460
500/06	6960	0.354	2464	1712.16	0.027	46	8672	0.289	2510	2385	375	\$894,212	1192	4.50	\$5,365	4.67	55.52	60.19	\$377,618	2510
500/05	15385	0.442	6800	3784.71	0.027	102	19170	0.360	6902	6557	375	\$2,458,965	3279	4.50	\$14,754	5.81	55.52	61.33	\$1,298,099	6902
600/27	7630	0.193	1473	1876.98	0.027	51	9507	0.160	1523	1447	375	\$542,684	724	4.50	\$3,256	2.58	55.52	58.10	(\$8,474)	0
700/33	5480	0.272	1491	1348.08	0.027	36	6828	0.224	1527	1451	375	\$543,979	725	4.50	\$3,264	3.61	55.52	59.13	\$143,522	1527
700/22	24440	0.219	5352	6012.24	0.027	162	30452	0.181	5515	5239	375	\$1,964,608	2619	4.50	\$11,788	2.92	55.52	58.44	\$196,750	5515
700/18	2410	0.262	631	592.86	0.027	16	3003	0.216	647	615	375	\$230,646	308	4.50	\$1,384	3.48	55.52	59.00	\$54,870	647
700/17	3910	0.294	1150	961.86	0.027	26	4872	0.241	1178	1117	375	\$418,776	558	4.50	\$2,513	3.89	55.52	59.41	\$131,845	1178
700/08	9940	0.322	3201	2445.24	0.027	66	12385	0.264	3267	3103	375	\$1,163,762	1552	4.50	\$8,983	4.25	55.52	59.77	\$430,433	3267
700/07	22933	0.390	8944	5841.518	0.027	152	28575	0.318	9096	8641	375	\$3,240,518	4321	4.50	\$19,443	5.13	55.52	60.65	\$1,526,806	9096
700/35	7340	0.370	2716	1805.64	0.027	49	9146	0.302	2765	2626	375	\$984,872	1313	4.50	\$5,909	4.88	55.52	60.40	\$438,430	2765
700/43	5230	0.274	1433	1286.58	0.027	35	6517	0.225	1468	1394	375	\$522,889	697	4.50	\$3,137	3.63	55.52	59.15	\$140,554	1468
700/45	3590	0.345	1239	883.14	0.027	24	4473	0.282	1262	1199	375	\$449,728	600	4.50	\$2,698	4.55	55.52	60.07	\$183,719	1262
	146758		44413	36102		975	182860		45388	43118		\$16,169,310	21559		\$2,698				\$5,381,928	43864

Phase III - 24.6 Percent Dilution

BUREAU DOLBEAR & COMPANY, INC.

Block	GOLD										SILVER			Royalty & Sales (4.5%) \$/ton	Mining Mill, etc. \$/ton	Total Cost/ton	Slope Value	Oz Mined Gold		
	Reserves			Dilution			Diluted Tons			Recoverable Ounces	Price \$/oz	Value	Recoverable Ounces						Price \$/oz	Value
	Tons	Grade	Ounces	Tons	Grade	Ounces	Tons	Grade	Ounces											
900/44	572	0.390	223	141	0.027	4	713	0.318	227	216	375	\$80,826	108	4.50	\$485	5.13	55.52	60.65	\$38,082	227
900/34	9800	0.214	2097	2411	0.027	65	12211	0.177	2162	2054	375	\$770,316	1027	4.50	\$4,822	2.86	55.52	58.38	\$62,122	2162
900/23	4436	0.163	723	1091	0.027	29	5527	0.136	753	715	375	\$268,089	357	4.50	\$1,609	2.20	55.52	57.72	(\$49,312)	0
900/10	1800	0.154	277	443	0.027	12	2243	0.129	289	275	375	\$103,012	137	4.50	\$618	2.08	55.52	57.60	(\$25,554)	0
900/09	2701	0.177	478	664	0.027	18	3365	0.147	496	471	375	\$176,706	236	4.50	\$1,060	2.38	55.52	57.90	(\$17,083)	0
900/46	1144	0.183	209	281	0.027	8	1425	0.152	217	206	375	\$77,289	103	4.50	\$464	2.45	55.52	57.97	(\$4,886)	0
900/47	5896	0.431	2541	1450	0.027	39	7346	0.351	2580	2451	375	\$919,245	1226	4.50	\$5,515	5.66	55.52	61.18	\$475,273	2580
900/48	2748	0.259	712	676	0.027	18	3424	0.213	730	693	375	\$260,057	347	4.50	\$1,560	3.44	55.52	58.96	\$59,744	730
900/49	3360	0.155	521	827	0.027	22	4187	0.130	543	516	375	\$193,485	258	4.50	\$1,161	2.09	55.52	57.61	(\$46,551)	0
900/53	1924	0.121	233	473	0.027	13	2397	0.102	246	233	375	\$87,489	117	4.50	\$525	1.65	55.52	57.17	(\$49,045)	0
900/55	1628	0.261	425	400	0.027	11	2028	0.215	436	414	375	\$155,204	207	4.50	\$931	3.48	55.52	58.98	\$36,503	436
900/56/57	2010	0.443	890	494	0.027	13	2504	0.361	904	859	375	\$321,972	429	4.50	\$1,932	5.82	55.52	61.34	\$170,280	904
900/58/59	4820	0.689	3321	1186	0.027	32	6006	0.558	3353	3185	375	\$1,194,504	1593	4.50	\$7,167	9.00	55.52	64.52	\$814,159	3353
900/60/61	3000	0.223	669	738	0.027	20	3738	0.184	689	654	375	\$245,430	327	4.50	\$1,473	2.97	55.52	58.49	\$28,258	689
900/62	7850	0.280	2198	1931	0.027	52	9781	0.230	2250	2138	375	\$801,612	1069	4.50	\$4,810	3.71	55.52	59.23	\$227,086	2250
900/63	4584	0.284	1302	1128	0.027	30	5712	0.233	1332	1268	375	\$474,633	633	4.50	\$2,848	3.76	55.52	59.28	\$138,882	1332
900/64/65	7620	0.270	2057	1875	0.027	51	9495	0.222	2108	2003	375	\$750,979	1001	4.50	\$4,506	3.58	55.52	59.10	\$194,353	2108
900/68	8992	0.198	1780	2212	0.027	60	11204	0.164	1840	1748	375	\$655,550	874	4.50	\$3,933	2.65	55.52	58.17	\$7,759	1840
900/68	3340	0.180	601	822	0.027	22	4162	0.150	623	592	375	\$222,081	296	4.50	\$1,332	2.42	55.52	57.94	(\$17,695)	0
900/69	2220	0.587	1303	546	0.027	15	2766	0.476	1318	1252	375	\$469,497	626	4.50	\$2,817	7.68	55.52	63.20	\$297,485	1318
	80445		22562	19789		534	100234		23096	21941		\$8,227,976.79	10971		\$49,368				\$2,339,862	19929

Total all Phases 156398

Phase I - 24.6 Percent Dilution
(Startup Included)
Case 2

BEIRRE DOLBEAR & COMPANY, INC.

Block	GOLD									SILVER			Royalty & Sales (4.5%) \$/ton	Mining Mill, etc. \$/ton	Total Cost/ton	Slope Value	Oz Mined Gold			
	Reserves			Dilution			Diluted Tons			Recoverable Ounces	Price \$/oz	Value								
	Tons	Grade	Ounces	Tons	Grade	Ounces	Tons	Grade	Ounces											
MD/54	15210	0.773	11757	3742	0.027	101	18952	0.626	11858	11265	375	\$4,224,539	5633	4.50	\$25,347	10.09	58.07	68.16	\$2,958,118	11858
MD/52	4330	0.512	2217	1065	0.027	29	5395	0.416	2246	2133	375	\$800,038	1067	4.50	\$4,800	6.71	58.07	64.78	\$455,322	2246
MD/51	6440	0.251	1616	1584	0.027	43	8024	0.207	1659	1576	375	\$591,095	788	4.50	\$3,547	3.33	58.07	61.40	\$101,915	1659
350/38	6640	0.223	1481	1633	0.027	44	8273	0.184	1525	1449	375	\$543,218	724	4.50	\$3,259	2.97	58.07	61.04	\$41,447	1525
350/31	5340	0.239	1276	1314	0.027	35	6654	0.197	1312	1246	375	\$467,303	623	4.50	\$2,804	3.18	58.07	61.25	\$62,575	1312
350/30	3900	0.192	749	959	0.027	26	4859	0.159	775	736	375	\$275,988	368	4.50	\$1,656	2.57	58.07	60.64	(\$17,035)	0
350/26	10980	0.158	1735	2701	0.027	73	13681	0.132	1808	1717	375	\$644,018	859	4.50	\$3,864	2.13	58.07	60.20	(\$175,733)	0
350/25	28470	0.196	5580	7004	0.027	189	35474	0.163	5769	5481	375	\$2,055,284	2740	4.50	\$12,332	2.62	58.07	60.69	(\$85,380)	0
350/21	7254	0.210	1523	1784	0.027	48	9038	0.174	1572	1493	375	\$559,854	746	4.50	\$3,359	2.80	58.07	60.87	\$13,004	1572
350/14	17230	0.292	5031	4239	0.027	114	21469	0.240	5146	4888	375	\$1,833,121	2444	4.50	\$10,999	3.87	58.07	61.94	\$514,454	5146
350/04	16390	1.204	19734	4032	0.027	109	20422	0.972	19842	18850	375	\$7,068,863	9425	4.50	\$42,413	15.67	58.07	73.74	\$5,605,367	19842
350/03	29998	0.473	14189	7380	0.027	199	37378	0.385	14388	13669	375	\$5,125,832	6834	4.50	\$30,755	6.21	58.07	64.28	\$2,754,029	14388
100/01A	15240	0.339	5166	3749	0.027	101	18989	0.277	5268	5004	375	\$1,878,577	2502	4.50	\$11,259	4.47	58.07	62.54	\$700,190	5268
100/01B	17480	0.339	5926	4300	0.027	116	21780	0.277	6042	5740	375	\$2,152,399	2870	4.50	\$12,914	4.47	58.07	62.54	\$803,105	6042
100/02	19430	0.430	8355	4780	0.027	129	24210	0.350	8484	8060	375	\$3,022,409	4030	4.50	\$18,134	5.65	58.07	63.72	\$1,497,857	8484
100/11	3820	0.306	1169	940	0.027	25	4760	0.251	1194	1135	375	\$425,467	567	4.50	\$2,553	4.05	58.07	62.12	\$132,362	1194
100/12&13	5490	0.216	1186	1351	0.027	36	6841	0.179	1222	1161	375	\$435,446	581	4.50	\$2,613	2.88	58.07	60.95	\$21,116	1222
100/20	2410	0.825	1988	593	0.027	16	3003	0.667	2004	1904	375	\$714,017	952	4.50	\$4,284	10.76	58.07	68.83	\$511,601	2004
100/19	8350	0.233	1948	2054	0.027	55	10404	0.192	2001	1901	375	\$712,860	950	4.50	\$4,277	3.10	58.07	61.17	\$80,700	2001
100/24	11200	0.157	1758	2755	0.027	74	13955	0.131	1833	1741	375	\$652,932	871	4.50	\$3,918	2.12	58.07	60.19	(\$183,088)	0
100/28	2390	0.180	430	588	0.027	16	2978	0.150	446	424	375	\$158,914	212	4.50	\$953	2.42	58.07	60.49	(\$20,256)	0
100/29	5290	0.196	1037	1301	0.027	35	6591	0.163	1072	1018	375	\$381,892	509	4.50	\$2,291	2.62	58.07	60.69	(\$15,864)	0
100/36	2390	0.115	275	588	0.027	16	2978	0.098	291	276	375	\$103,571	138	4.50	\$621	1.57	58.07	59.64	(\$73,426)	0
100/37	12320	0.169	2082	3031	0.027	82	15351	0.141	2164	2056	375	\$770,893	1028	4.50	\$4,625	2.27	58.07	60.34	(\$150,797)	0
	257992		98206	63466		1714	321458		99920	94924		\$35,596,527.38	47462		\$213,579				\$15,531,584	85763

Phase II - 24.6 Percent Dilution

BHARRI DOLBAR & COMPANY, INC.

Block	GOLD												SILVER			Royalty & Sales (4.5%) \$/ton	Mining Mill, etc. \$/ton	Total Cost/ton	Stope Value	Oz Mined Gold
	Reserves			Dilution			Diluted Tons			Recoverable Ounces	Price \$/oz	Value	Recoverable Ounces	Price \$/oz	Value					
	Tons	Grade	Ounces	Tons	Grade	Ounces	Tons	Grade	Ounces											
500/32	2900	0.206	597	713.4	0.027	19	3613	0.171	617	586	375	\$219,686	293	4.50	\$1,318	2.75	58.07	60.82	\$1,229	617
500/21	17650	0.210	3707	4341.9	0.027	117	21992	0.174	3824	3633	375	\$1,362,204	1816	4.50	\$8,173	2.80	58.07	60.87	\$31,641	3824
500/16	6230	0.287	1788	1532.58	0.027	41	7763	0.236	1829	1738	375	\$651,720	869	4.50	\$3,910	3.80	58.07	61.87	\$175,354	1829
500/15	4730	0.302	1428	1163.58	0.027	31	5894	0.248	1460	1387	375	\$520,081	693	4.50	\$3,120	3.99	58.07	62.06	\$157,417	1460
500/06	6960	0.354	2464	1712.16	0.027	46	8672	0.289	2510	2385	375	\$894,212	1192	4.50	\$5,365	4.67	58.07	62.74	\$355,504	2510
500/05	15385	0.442	6800	3784.71	0.027	102	19170	0.360	6902	6557	375	\$2,458,965	3279	4.50	\$14,754	5.81	58.07	63.88	\$1,249,216	6902
600/27	7630	0.193	1473	1876.98	0.027	51	9507	0.160	1523	1447	375	\$542,664	724	4.50	\$3,256	2.58	58.07	60.65	(\$30,716)	0
700/33	5480	0.272	1491	1348.08	0.027	36	6828	0.224	1527	1451	375	\$543,979	725	4.50	\$3,264	3.61	58.07	61.68	\$126,110	1527
700/22	24440	0.219	5352	6012.24	0.027	162	30452	0.181	5515	5239	375	\$1,964,608	2819	4.50	\$11,788	2.92	58.07	60.99	\$119,097	5515
700/18	2410	0.262	631	592.86	0.027	16	3003	0.216	647	615	375	\$230,648	308	4.50	\$1,384	3.48	58.07	61.55	\$47,212	647
700/17	3910	0.294	1150	961.86	0.027	26	4872	0.241	1178	1117	375	\$418,776	558	4.50	\$2,513	3.89	58.07	61.96	\$119,421	1178
700/08	9940	0.322	3201	2445.24	0.027	66	12385	0.264	3267	3103	375	\$1,163,762	1552	4.50	\$8,983	4.25	58.07	62.32	\$398,851	3267
700/07	22933	0.390	8944	5641.518	0.027	152	28575	0.318	9096	8641	375	\$3,240,518	4321	4.50	\$19,443	5.13	58.07	63.20	\$1,453,941	9096
700/35	7340	0.370	2716	1805.64	0.027	49	9146	0.302	2765	2626	375	\$984,872	1313	4.50	\$5,909	4.88	58.07	62.95	\$415,109	2765
700/43	5230	0.274	1433	1286.58	0.027	35	6517	0.225	1468	1394	375	\$522,889	697	4.50	\$3,137	3.63	58.07	61.70	\$123,937	1468
700/45	3590	0.345	1239	883.14	0.027	24	4473	0.282	1262	1199	375	\$449,728	600	4.50	\$2,698	4.55	58.07	62.62	\$172,312	1262
	146758		44413	36102		975	182860		45388	43118		\$16,169,310	21559		\$2,698				\$4,915,634	43864

Phase III - 24.6 Percent Dilution

BEIRE DOLBEAR & COMPANY, INC.

Block	GOLD												SILVER			Royalty & Sales (4.5%) \$/ton	Mining Mill, etc. \$/ton	Total Cost/Ton	Slope Value	Oz Mined Gold
	Reserves			Dilution			Diluted Tons			Recoverable Ounces	Price \$/oz	Value	Recoverable Ounces	Price \$/oz	Value					
	Tons	Grade	Ounces	Tons	Grade	Ounces	Tons	Grade	Ounces											
900/44	572	0.390	223	141	0.027	4	713	0.318	227	216	375	\$80,826	108	4.50	\$485	5.13	58.07	63.20	\$36,265	227
900/34	9800	0.214	2097	2411	0.027	65	12211	0.177	2162	2054	375	\$770,316	1027	4.50	\$4,622	2.86	58.07	60.93	\$30,985	2162
900/23	4436	0.163	723	1091	0.027	29	5527	0.136	753	715	375	\$268,089	357	4.50	\$1,609	2.20	58.07	60.27	(\$63,406)	0
900/10	1800	0.154	277	443	0.027	12	2243	0.129	289	275	375	\$103,012	137	4.50	\$618	2.08	58.07	60.15	(\$31,273)	0
900/09	2701	0.177	478	664	0.027	18	3365	0.147	496	471	375	\$176,706	236	4.50	\$1,060	2.38	58.07	60.45	(\$25,665)	0
900/46	1144	0.183	209	281	0.027	8	1425	0.152	217	206	375	\$77,289	103	4.50	\$464	2.45	58.07	60.52	(\$8,521)	0
900/47	5896	0.431	2541	1450	0.027	39	7346	0.351	2580	2451	375	\$919,245	1226	4.50	\$5,515	5.66	58.07	63.73	\$456,540	2580
900/48	2748	0.259	712	676	0.027	18	3424	0.213	730	693	375	\$260,057	347	4.50	\$1,560	3.44	58.07	61.51	\$51,012	730
900/49	3360	0.155	521	827	0.027	22	4187	0.130	543	516	375	\$193,485	258	4.50	\$1,161	2.09	58.07	60.16	(\$57,226)	0
900/53	1924	0.121	233	473	0.027	13	2397	0.102	246	233	375	\$87,489	117	4.50	\$525	1.65	58.07	59.72	(\$55,158)	0
900/55	1628	0.261	425	400	0.027	11	2028	0.215	436	414	375	\$155,204	207	4.50	\$931	3.46	58.07	61.53	\$31,331	436
900/56/57	2010	0.443	890	494	0.027	13	2504	0.361	904	859	375	\$321,972	429	4.50	\$1,932	5.82	58.07	63.89	\$163,894	904
900/58/59	4820	0.689	3321	1186	0.027	32	6006	0.558	3353	3185	375	\$1,194,504	1593	4.50	\$7,167	9.00	58.07	67.07	\$798,844	3353
900/60/61	3000	0.223	669	738	0.027	20	3738	0.184	689	654	375	\$245,430	327	4.50	\$1,473	2.97	58.07	61.04	\$18,726	689
900/62	7850	0.280	2198	1931	0.027	52	9781	0.230	2250	2138	375	\$801,612	1069	4.50	\$4,810	3.71	58.07	61.78	\$202,144	2250
900/63	4584	0.284	1302	1128	0.027	30	5712	0.233	1332	1266	375	\$474,633	633	4.50	\$2,848	3.76	58.07	61.83	\$124,318	1332
900/64/65	7620	0.270	2057	1875	0.027	51	9495	0.222	2108	2003	375	\$750,979	1001	4.50	\$4,506	3.58	58.07	61.65	\$170,142	2108
900/66	8992	0.198	1780	2212	0.027	60	11204	0.164	1840	1748	375	\$655,550	874	4.50	\$3,933	2.65	58.07	60.72	(\$20,811)	0
900/68	3340	0.180	601	822	0.027	22	4162	0.150	623	592	375	\$222,081	296	4.50	\$1,332	2.42	58.07	60.49	(\$28,307)	0
900/69	2220	0.587	1303	546	0.027	15	2766	0.476	1318	1252	375	\$469,497	628	4.50	\$2,817	7.68	58.07	65.75	\$290,431	1318
	80445		22562	19789		534	100234		23096	21941		\$8,227,978.79	10971		\$49,368				\$2,084,265	18089

Total all Phases 147716