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PRINTED: 12/11/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: BO JACK

ALTERNATE NAMES:
PURPLE MILL PROJECT

MOHAVE COUNTY MILS NUMBER: 757

LOCATION: TOWNSHIP 12 N RANGE 15 W SECTION 22 QUARTER W2
LATITUDE: N 34DEG 22MIN 09SEC LONGITUDE: W 113DEG 48MIN 48SEC
TOPO MAP NAME: CASTANEDA HILLS - 15 MIN

CURRENT STATUS: OTHER

COMMODITY:
UNKNOWN

BIBLIOGRAPHY:
ADMMR BO JACK FILE

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
KINGMAN RESOURCE AREA
2475 Beverly Avenue
Kingman, Arizona 86401

IN REPLY REFER

3802(026)
MPO-86-K-

September 4, 1986

DECISION

Mr. Jerry Maccioli
Bluff Company
350 E. Desert Inn Road.
Las Vegas, Nevada 89109

Decision
EA-AZ-026-86-38
MPO-86-K-04(w)

APPROVAL OF MINING PLAN OF OPERATIONS

On August 11, 1986, Mr. Jerry Maccioli representing Bluff Company, of Las Vegas, Nevada, filed a Mining Plan of Operations to conduct trenching and sampling of a body, located in the SW¼ of Section 22, T. 12 N., R. 15 W., G&SRM, Mohave County, Arizona.

The site in question is located approximately ¼ mile inside the southern boundary of the Aubrey Peak WSA 2-54. The location within a WSA necessitates the development of a comprehensive environmental assessment to evaluate the impacted resources and to mitigate those impacts to cause the activities to conform with the Interim Management Plan covering Wilderness Study Areas.

Evaluation of the project showed it to fall within the non-impairment constraints of the I.M.P. and 43 CFR 3802.

It is recommended that MPO-86-K-04(w) be approved due to the lack of significant disturbance providing that all of the following stipulations are specifically adhered to.

A. The Plan of Operations and reclamation outlined in the MPO should be adhered to. Prior to any deviation from the existing Plan, this office should be notified with an amendment to the Plan at least thirty (30) days prior to beginning such operations.

B. The following measures were developed as a result of the EA process, and should therefore be adhered to in order to minimize damage to the natural environment.

1. The access route must be confined to existing trails and wash bottoms.

2. Cuts and trenchs must be confined to existing bluffs, and all trenchs must be sloped to allow wildlife to escape. All trenching and excavation activity must be accomplished from the wash floor.

3. Removal or "blading" of wash bottom vegetation is not permitted except where vehicular passage is completely blocked by same. Were blading is required, it must not result in a track wider than that necessary to accomodate project vehicles.

4. The tops of the bluffs must not be bladed clear of vegetation.

5. No activities are to be allowed between March 1 and July 15 each calendar year. This is a critical lambing period for Bighorn Sheep.

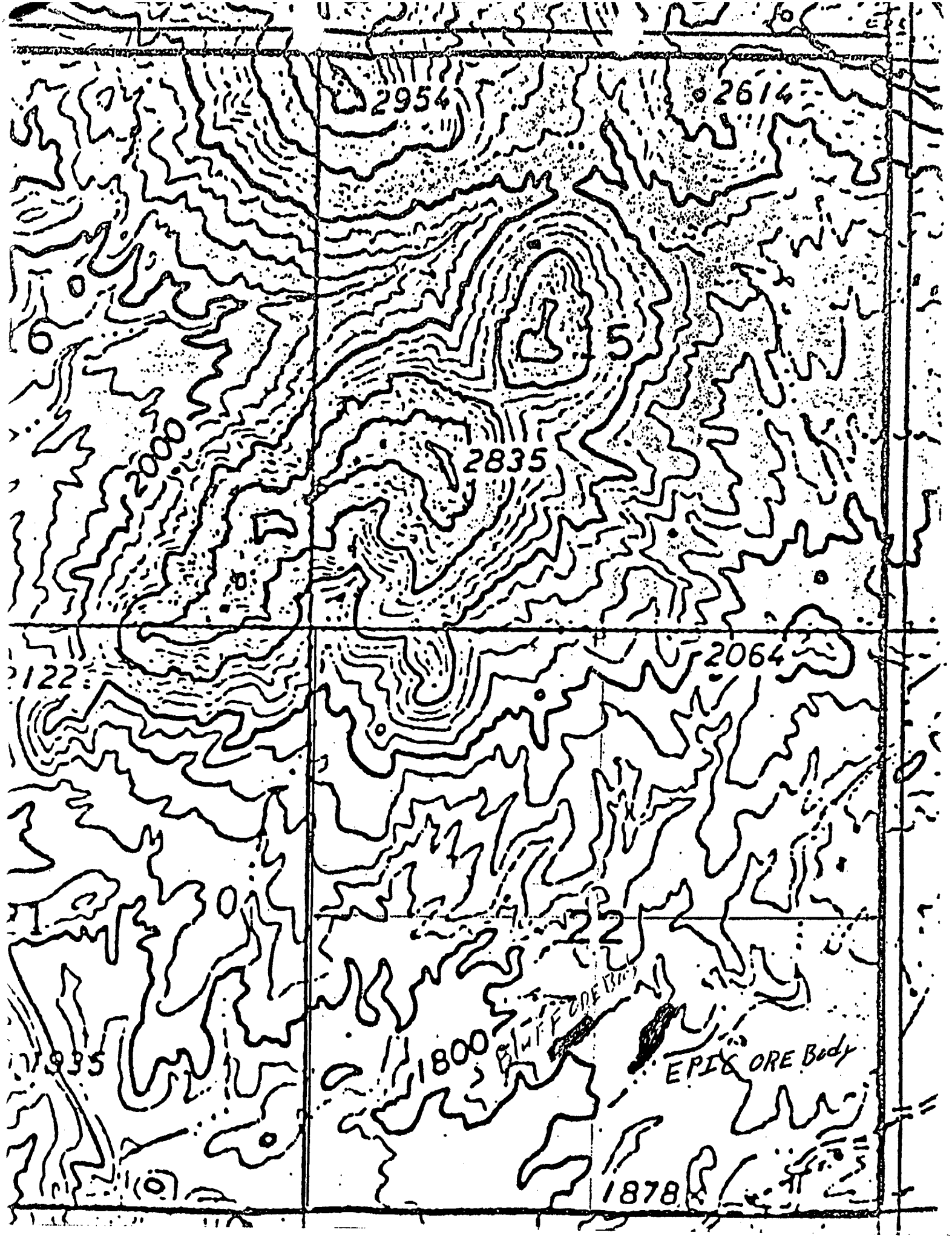
6. All State-protected trees and cactus species should be avoided during the operation. These plants include Ironwood, Smoketree, Palo-verde, Joshua tree, Saguaro, and Barrel Cacti.

The Environmental Assessment and this decision will become a permanent part of the permit and shall be complied with explicitly.

Sincerely,

Roger G. Taylor

Roger G. Taylor
Area Manager


2954
2614
2835
2064
1800
BLUFF ORE Bodies
EPIX ORE Body
1878

AGREEMENT

This agreement made and entered into on this 15th of Sept,1986 by and between [redacted] and Bluff Co Inc., a Nevada corporation.

WITNESSETH:

WHEREAS [redacted] is desirous of purchasing a twenty five (25) percent interest in the net profit of an ore milling and refining operation of Bluff Co Inc.,Known as the"Purple Mill Project".

WHEREAS Bluff Co Inc. will sell twenty five (25) percent interest in the net profit in its operation Known as "Purple Mill Project".

WHEREAS "Purple Mill Project" is guaranteed 100.000 tons of ore at Fifty Dollars (50.00) per ton from Bluff Co Inc. contract with S & F Investments(Refer to exhibt A) *

WHEREAS [redacted] will invest Two Hundred Fifty Thousand Dollars (250.000) for a twenty five (25) percent interest of the net profit of "Purple Mill Project" of the Bluff Co Inc..

NOW THEREFORE and in consideration of mutual covenants,terms and agreements are hereinafter set forth, it is mutually agreed as follows:

A.- [redacted] agrees to pay Bluff Co Inc. Two Hundred Fifty Thousand Dollars(250.000).

1. For this payment to Bluff Co Inc., [redacted] will recieve thirty (25) percent of the net profits from the mining and milling operation Known as "Purple Mill Project". This project will purchase ore, mine ore, transport ore,construct and operate a mill capable of processing and refining 50 tons of ore per day, for the recovery of precious metals. Mineral ore will be purchased from Bluff Co Inc. from the ore that they purchase from S & F Investments property BO-JACK#33A AND #34A in THE W1/2 Sec 22 T12N R15W Owens Mining district,Mohave County, Arizona. The cost to "Purple Mill Project" is Fifty (50.00) Dollars per ton.(Exhibit A)

2. Net profits are defined as revenues after the Fifty (50.00) dollars per ton of ore purchased price,mining cost,transporting cost,milling cost,refining cost and administrative costs as normally recognized in the mining industry, are deducted.

3. [redacted] will fund the entire sum of Two Hundred Fifty (250.00)Thousand Dollars to Bluff C0 Inc. by Nov 1st,1986.

4. [redacted] agrees that upon funding Two Hundred Fifty

* No exh. supplied.

(250.000) Thousand Dollars to Bluff Co Inc., that Bluff Co Inc. has ninety (90) days to construct a mill and begin operations for the "Purple Mill Project".

B - In return for TWO HUNDRED FIFTY (250.000) THOUSAND DOLLARS, Bluff Co Inc. agrees to grant to [redacted] twenty five (25) percent interest in the net profits of the milling and refining project named and known as "Purple Mill Project".

1. Net profits are defined as revenue after Fifty (50.00) dollars per ton purchase price of ore,mining cost, transporting cost, milling cost, refining cost and administrative costs as normally recognized in the mining industry, related to the "Purple Mill Project" are deducted.

2. When the sum of Two hundred Fifty (250.000) Thousand Dollars is released to Bluff Co Inc. it is agreed that Bluff Co Inc. will purchase ore,mine,transport,construct and operate a mill capable of processing and refining fifty (50) tons of ore per day for the recovery of precious metals. Bluff Co Inc. also commits a reserve of one hundred thousand (100.000) tons of ore, or until the ore reserves are depleted,(which ever is greater), from ore body located on mining claim known as BO-JACK 33A and 34A in the W 1/2 Sec 22 T12N R15W Owens Mining District, Mohave County, Arizona.(Refer to Exhibit A)

4.Bluff Co Inc. agrees to employ an accounting firm to handle the daily accounting procedures and audit the books of the milling and refining operation known as "Purple Mill Project".

5.Bluff Co Inc. agrees to make a distribution on the last day of every month in United States Dollars,or in kind. A written notice must be given to Bluff Co Inc. thirty (30) days prior to distribution date for net profits to be paid in kind.

6. In addition [redacted] or her agent will have continual access to the books of the "Purple Mill Project" operation upon serving due notice to the accounting firm. Also [redacted] or her agent will have physical access to the milling and refining operation,operated by "Purple Mill Project". Strict accordance with all saftey regulations must be adhered to.

C - All covenants,terms or agreements in this contract are to be in compliance with the ore purchasing contract between Bluff Co Inc. and S & F Investments attached to and made part of this agreement. (Exhibit A) *

D - In the event of any " act of god", or the act of any County,State or Federal agencies that would prevent Bluff Co Inc. from continuing the mining, hauling and refining of the ore from the BO-JACK #33A and #34A located in W1/2 of Sec 22 T12N R15W Owens Mining District, Mohave County, Arizona, the Bluff Co Inc. will be held harmless during these interuptions of the project.

* No Ex A has been supplied.

E - Both [redacted] and Bluff Co Inc. acknowledge that [redacted] is a sophisticated investor. Also [redacted] acknowledges the speculative risk of this mining project known as the "Purple Mill Project".

F - [redacted] and Bluff Co Inc. agree that the Bluff Co Inc. retains ownership and management controls in the "Purple Mill Project".

G - This agreement may not be assigned by either party without the written approval of [redacted] and Bluff Co Inc.

H - The purpose of this contract is a "NET PROFIT" purchase agreement. It is understood that the "NET PROFIT" purchaser's do not have or assume any liabilities beyond their Two Hundred Fifty (250.000) Thousand Dollar investment.

IN WITNESS WHEREOF, the said parties hereto set their hands and seal the day and year first writtren above.

Gerald Maccioli

Gerald Maccioli
President:Bluff Co Inc.

[redacted]

RESUME
OF
QUALIFICATIONS

EDGAR M. CHAMBERS

2108 Teakwood
Austin, Texas
78758

SUMMARY

Birth Date: February 25, 1932
Place of Birth: San Antonio,Texas U.S.A.
Wife: Patricia
Childern: Sheri Susan,Stephen Booker

Over 25 years of Mining Engineering experience.

Specialization:
- Feasibility Studies
- Project Development
- Project Management
- Chief Design Engineer
- Consultant Engineering Services

EDUCATION

Bachlor of Arts: Trinity University 1956
Business Administration,Pre-Law

Bachlor of Science: Colorado School of Mines 1962
Mining Engineer

EXPERIENCE BACKGROUND

Feb. 1982 to present

ED CHAMBERS & ASSOCIATES
Mining Consultants,specializing in feasibility studies,exploration and development,and operations of precious metals in Western United States,Canada,Mexico,Central and South America.

Sept. 1980 to Feb.1982

NAVAJO REFINING and METALS CORPORATION
Montrose,Colorado
Position: Vice-President
Duties: Responsible for construction of gold and silver refinery,and acquisition of material for the refinery.
Employees: 47

Jan. 1978 to Aug. 1980

INTERCONTINENTAL RESOURCES SERVICES Inc.
Tampa, Florida
Position: Excutive Vice-President
Duties: Responsible for acquisition of mining properties in Mexico,Central and South America.
Employees: 20

EXPERIENCE BACKGROUND (Cont.)

Jan. 1976 to Dec. 1978	H.J.BAKER New York,New York Position: General Mgr. Duties: Responsible for operating and managing 52 phosphate mines in the El Abra Reef,in the state of Tamaulipas,Mexico. In charge of loading and shipping by rail from Tamwien,Tamaulipas,to Lerado, Texas, and by ship from Tampico,Mexico, to ports on the east coast of the United States. Employees: 750
Feb. 1974 to Jan. 1976	WORLD WIDE FINANCE L.T.D. London, England, Milan, Italy Position: Director Duties:Development of the mineral reasources in the third world countries of Central Africa.
April 1972 to Feb. 1974	WOODS-TUCKER LEASING Co. Hattesburg,Miss.(First National Bank) Alanta, Geo. Position: Regional Mgr. Duties: Managing Leasing operations in Texas,Louisana,Oklohoma, Arkansas, New Mexico, and Arizona. Employees: 110
Jan. 1970 to April 1972	ANTOMONIAS MINERALES de GUERRERO S.A. Mexico D.F., Mexico Position: General Mgr. Duties: Directing and operating three Antomony mines in Guerrero, Mexico, and supervising the shipments of ore from Mexico to Europe. Employees: 650
May 1964 to April 1972	MINERALES de La MONTANAS S.A. Chihuahua, Chihuahua, Mexico Position: President

EXPERIENCE BACKGROUND (Cont.)

May 1964 to April 1972

Duties: Supervising a mining consultant firm in feasibility studies,and project development for mining projects in the country of Mexico.
Employees: 15
Partial list of clients: ASARCO,PHILLIPS BROTHERS,(ENGELHARD), TEXAS GULF SULFUR, NORANDA LTD, INTERNATIONAL NICKEL CO., ANACONDA COPPER,SAN FRANCISCO del ORO, FRESNILLO CO,La PERLA S.A.,KENNECOTT COPPER CORP.,HUDSON BAY MINING and SMELTING CO., NEWMONT MINING CORP., CARTER OIL CO., BRAZZODURO s.r.i. ,THE MIDAF GROUP, and SUNSHINE MINES LTD.

Aug. 1958 to Dec. 1966

CIA MINERIA de LA MARQUILLA S.A.
Chihuahua, Chihuahua, Mexico
Position: President
Duties: Operating and supervising a gold mine located in Morris, Chihuahua, Mexico
Employees: 60

MILITARY BACKGROUND

Feb. 21, 1951 to April 19, 1954

United States Navy

Honorable Discharge

PROFESSIONAL AND SCIENTIFIC AFFILATIONS

Society of Mining Engineers of the A.I.M.E.

PUBLICATIONS

"GOLD and SILVER of the Western SIERRAS", 1967. Mexican Institute of Mining Engineers. A brief history of the gold and silver mines in the Sierra Madre Occidental mountains.

"BARITE, MEXICO and the WORLD", 1972. Fomento Minero Y Industrial. A detailed description of the major barite deposits in Mexico, and the future need for Pemex to develop its own industry in relation to its expanding petroleum industry.

Ed Chambers & Associates
Mining Consultants
700 E. Flamingo, Suite G-110
Las Vegas, Nevada 89109
(702) 796-1427

Gil Payne
President U. P. C.
P, O. Box 13338
San Antonio, Texas 78213

October 23, 1986

Dear Mr. Payne,

Since my original inspection and subsequent report on a certain gold prospect, located in Mohave County, Arizona, belonging to EPIC Corp. of Las Vegas, Nevada, I have had an opportunity to visit the claims on several more occassions, and have had the opportunity to work with the material under laboratory conditions for the last sixty (60) days.

Our visits to the property has enforced our opinion as to the origin of the geological formation as well as of the mineralization of the area. One important fact has become evident in our observations in the laboratory. The fact is that beside the gold in the material, all six (6) of the platinum ore are present in the material in various amounts.

We have not determined the exact method that will be used in the final flow sheet for maxium recovery, due the difficulty of seperating the members of the platinum group ores.

We are however, confident that the original plant design can and will recover ore with a minimum value of $600.00 per ton. This value may be somewhat conservative, but because of the richness of the material, any higher estimate at this time would not be within good professional practices.

The discovery of Rhenium (Re) in the material, (see Beckman Report), in the authors opinion may be the reason the ore will not reflect the gold values in a standard fire assay, however, pre-treatment of the ore will eliminate the rhenium and enhance the recovery of gold and platinum.

The following list are the metals present in the ore, with the symbol and present price of the metals.

METALS	SYMBOL	PRICE PER OZ.
Gold	Au	$430.00
Silver	Ag	5.20
Platinum	Pt	598.00
Pallndium	PD	136.00
Iridium	Ir	400.00
Rhodium	Rh	1200.00
Ruthenium	Ru	75.00
Osimium	Os	75.00
*Rhenium	Re	115.00

*Re capture Au and Ag in fire assay.

Over 300 chemical assays have been made by EPIC Corporation indicating the above listed metals in the ore, in various amounts. Accredated Assay Firms have treated the ore using different methods, (see assay results).

I am using three assays that were made by Nova Metals of Dallas, Texas, Reed Engineering of Costa Mesa, California, and Beckman Industrial Corporation of Fullerton, California.

(A) On Janurary 29, 1986 Reed Engineering ran a fire assey on head ore ground to minus 300 mesh and recovered thefollowing results:

Sample #	Au oz./ton	Ag. oz/ton
1	1.08	3.79

Current values:

(Au)	1.08 oz./ton	$464.40
(Ag)	3.79 oz./ton	19.71
Total Value		$474.11

(B) On March 24, 1986 Nova Metals ran three aqua rega tests for Au and Ag with the following results: (see assay).

Sample #	Au. oz./ton	Ag. oz./ton
2	1.32	.63
6	1.10	.56
7	.73	3.76
Average	1.05	1.56

Current Values:

(Au)	1.05	$481.50
(Ag)	1.56	8.11
Total Values		$459.61

(C) On August 23, 1986 Beckman Industrial Corporation ran a Plasma Emission Spectroscopy. (see report) This test was done to determine the platinum families and content of each on four samples. The test showed the presence of Rhenium in quanities, large enough to interfer in the recovery of Au in the test. The test results were in parts per million (ppm). I have converted ppm to ounces per ton, 34.286 ppm=1 oz./ton.

Oz. per ton

PT	Au	Pd	Ag	*Re	Ir	Rh	Ru	Os
.10	.10	.10	.10	2.05	2.07	.10	.10	.86
.10	.10	.10	.10	2.33	1.81	.10	.10	1.39
.10	.10	.10	.10	1.86	1.29	.10	.10	1.65
.10	.10	.10	.10	2.45	1.49	.10	.10	1.02
Average								
.10	.10	.10	.10	2.17	1.67	.10	.10	1.23

Current Values:

(PT)	.10	$ 59.80
(Au)	.10	43.00
(Pd)	.10	13.60
(Ag)	.10	.52
*(Re)	2.17	281.75
(Ir)	1.67	668.00
(Rh)	.10	120.00
(Ru)	.10	7.50
(Os)	1.23	92.25
Total Values		$1286.42

These test indicate gold and silver values in excess of 1oz/ton in test (A) and (B) done with Aqua Rega eliminating the (Re) interference.

Test (C) indicated the platinum families with interference of (Re) in the gold recovery.
With the recovery of 1oz. of Au, coupled with the recovery of the platinum families, plus the recovery of the (Re) we would have a head ore with the possible recovery of approximatelly $1700.00 per ton, therefore, it is the authors opinion, bearing in mind the difficulty ofseparating the members of the platinum group ore, that EPIC Corporations original plant should be able to recover a minimum of $600.00 per ton invalues.

Please feel free to contact me, if I can be of anyfuther service to you.

Sincerely yours,

Edgar M. Chambers

NOVA METALS

P.O. Box 4820 • Dallas, Texas 75208
214/943-9530

July 17, 1986

Mr. Thomas R. Kelly
Mr. Edward R. Stein
1571 Raindance
Las Vegas, Nevada 89109

Dear Sirs:

Nova Metals Inc. has evaluated your ore samples from properties you control in western Arizona and is interested in developing a recovery system for economical extraction of precious metals ~~from any ores of similar nature.~~

Nova Metals Inc. now operates a commercial system that recovers platinum and palladium from controlled feed stock at a 92% - 94% recovery efficiency. This system has the ability to recover all noble metals and has as high an affinity for gold as it does for platinum group metals.

The system is composed of leach tanks, clarification and filtering systems, ion exchange units, and final refining technology involving solvent extraction to produce pure metal products. You must supply grinding capability.

We suggest that the system be designed to be expanded in unitized portions so as to allow it first to be proven commercial, then expanded to whatever size required with the minimal cost. As you know, every ore has its own needs. However, this system is almost foolproof. The ion exchange resins used in this system are selective for the noble metals, thus allowing recovery of any noble metal solubilized

Our limited leach tests have shown excellent recovery from the small samples we received from you, by using a sulfuric acid/hydrochloric acid mix with lithium chloride as a digester and our ion exchange resin as a collector. More testing on a larger scale is necessary to be certain if this system is totally viable.

Nova Metals Inc. is interested in working with you to develop and operate an economical refining system for your ore. We believe you will be surprised at how low the cost is to construct a plant using this technology and how easy it is to operate. If your ore will carry consistent values, our system could be your total answer.

Please consider our system. We are willing to work with you as consultants or we will construct a plant to meet your needs.

Thank you.

Jerry R. Pinkston
President
Nova Metals Inc.

/b

NOVA METALS

P.O. Box 225038
Dallas, Texas 75222-5038
214/943-9530

EPIC

March 24, 1986

Mrs. Karen Bains
136 Harrigan Court
San Antonio, Texas 78209
512-824-9256

Dear Mrs. Bains,

I have evaluated the samples you sent me and have found they do not respond to classical fire assay techniques.

The method I used to determine the precious metals contained in these samples was as follows:

1. Grind the material to minus 100 mesh.

2. Heat in 3:1 HNO_3 for three hours at 80° C.

3. Filter.

4. (a) Heat the residue in Aqua Regia for two hours at 80° C.

   (b) Adjust PH. of the HNO_3 solution to approximately 10 and add Na_2S to drive all metals to the sulfide form. The PH. was then adjusted to approximately 4 to redissolve the base metals, and the remaining metal sulfides were filtered for evaluation. The PH. was again raised to 10 and the remaining sulfides were filtered. Both sulfides were then sintered and scarified with test lead, then cupelled to recover any precious metal.

5. Filter the Aqua Regia.

6. (a) Fire assay the residue for precious metal content.

   (b) Boil the Aqua Regia solution to near dryness to expell HNO_3, then dilute with distilled water. The procedure described in 4(b) was repeated on the Aqua Regia solution and both portions of sulfides scarified and cupelled to determine precious metal content.

7. All beads from the cupells were combined with test lead and recupelled to give a composite bead, whose weight was recorded.

8. Pure silver in quantities of 10:1 of the weight of the lead was added to the test lead and the bead and the sample recupelled.

9. The resulting bead was then <u>parted</u> with 6:1 HNO_3 to give the gold values.

The following are the values I feel represent a verifiable quantity of precious metals contained in the samples you sent me.

	Gold oz/ton	Silver oz/ton
#2	1.32	.63
#6	1.10	.56
#7	.73	3.73

As I stated, I would like to have additional samples of the ore, to try to determine why the chemical leaching and sulfide precipitation method produced a higher result than the classical fire assay.

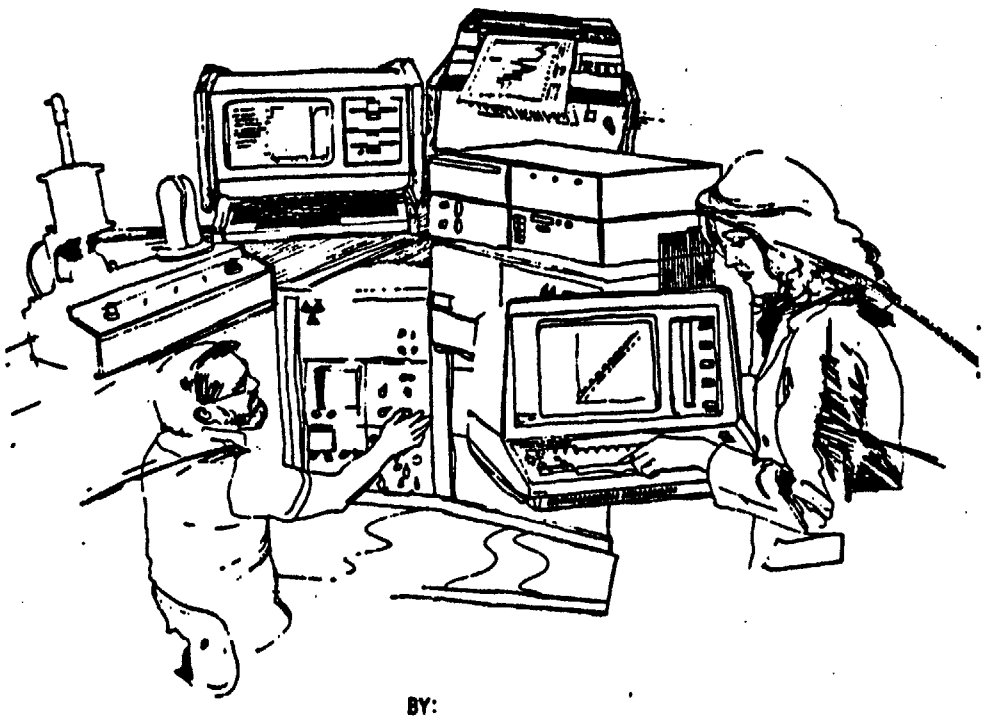
Thank you.

Jerry R. Pinkston

JRP:mb

Jerry R. Pinkston

DETERMINATION OF PRECIOUS METAL ANALYSIS VIA PLASMA EMISSION SPECTROSCOPY



BY:

ROBERT H. METTER

Beckman Industrial™

Beckman Industrial Corporation • A Subsidiary of Emerson Electric Company
4141 Palm Street • Fullerton, California 92635 • (714) 447-2335; Telex: 188795

The test results reported herein are based on analysis and testing of samples submitted by Customer and the report is prepared for the exclusive use of Customer only. BECKMAN INDUSTRIAL CORPORATION MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, and assumes no legal liability whatsoever as to the accuracy or usefulness of any information contained in this report.

Beckman Industrial™

ANALYTICAL SERVICES
TEST REQUEST

REQUEST NO. 13293

CLIENT	DIVISION/OPERATION	CHARGE NO.	TELEPHONE NO. (Include Area Code)	DATE
Bill Holden	USRDC	1299-285-9	(714) 754-0966	8-20-86

SAMPLES: ☐ LIQUID ☒ SOLID ☐ GAS ☐ PASTE

DESCRIPTION:

Powders - SN-084
-085
-086
-087

~~Fire Assay Beads~~
~~- Large Black~~
~~- Small Black~~
~~- Large Gold~~
~~- Small Gold~~

not EPIC material

NATURE OF ANALYSIS AND INFORMATION DESIRED:

Determine Au, Ag, Pt, Pd, Rh, Ru, Ir, Re, Os.
Determine composition of the powders and beads.

☐ SEDIGRAPH	☐ S.E.M. PHOTOGRAPHS	☐ DIFFERENTIAL THERMAL ANALYSIS (DTA)
☐ METALLOGRAPHY	☐ LIQUID CHROMATOGRAPHY	☐ THERMOGRAVIMETRIC ANALYSIS (TGA)
☐ REFRACTOMETER (RI)	☐ INFRARED SPECTROSCOPY (IR)	☐ THERMOMECHANICAL ANALYSIS (TMA)
☐ AIR PYCNOMETER	☒ PLASMA SPECTROSCOPY (PES)	☐ X-RAY ENERGY SPECTROMETRY (XES)
☐ SIEVE ANALYSIS	☐ BROOKFIELD VISCOMETER	☐ FERRANTI-SHIRLEY VISCOMETER
☐ X-RAY DIFFRACTION (XRD)	☐ B.E.T. SURFACE AREA	☐
☐ OPTICAL PHOTOGRAPHS	☐ DIFFERENTIAL SCANNING CALORIMETRY (DSC)	☐

PROCEDURE

1. Weighed out approximately 0.5 gm of sample.
2. Placed sample into 23 ml Parr acid digestion bomb w/4.5 ml aqua nasty.
3. Placed bomb into a 200°C oven for a minimum of 10 hours.
4. Filtered samples and diluted to 50 ml.
5. Followed standard start-up and operating procedures for the PES.
6. Used the following analyte lines:

Pt - 265.9 Nm	Pd - 340.4 Nm	Rh - 369.2 Nm
Au - 267.5 Nm	Re - 221.4 Nm	Ru - 349.9 Nm
Ag - 328.6 Nm	Ir - 292.5 Nm	Os - 228.2 Nm

7. Ran XES on SN-84-87.

RESULTS

Figure 1 - XES results of powder SN-084.

Figure 2 - XES results of powder SN-085.

Figure 3 - XES results of powder SN-086.

Figure 4 - XES results of powder SN-087.

Table 1 - Summary of PES elemental data.

ESTIMATED DATE OF COMPLETION	DATE OF COMPLETION	LOGIN	LOGOUT	ANALYST
8-31-86	8-23-86	8-20	8-31	Robert H. Metter

511-5373

SEP. 5, 1986 Figure I Head ore - west side ore body

SPECTRUM 13293-084

ENERGY	COUNTS	X-RAY LINES
1.22	1042.	MG KA1, MG KA2,
1.47	34740.	AL KA1, AL KA2,
1.73	145718.	SI KA1, SI KA2,
2.29	2557.	S KA1, S KA2,
3.31	28880.	K KA1, K KA2,
3.68	48678.	CA KA1, CA KA2,
4.01	5819.	CA KB1,
4.48	7005.	TI KA1, TI KA2,
5.89	1670.	MN KA1, MN KA2,
6.39	16662.	FE KA1, FE KA2,
7.05	2172.	FE KB1,

*APP

SPECTRUM 13293-084 SEP. 5, 1986

STANDARDLESS ANALYSIS
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT	PRECISION 2 SIGMA	K-RATIO	ITER
MG KA	0.60	0.83	0.06	0.0045	
AL KA	11.46	14.24	0.24	0.1024	
SI KA	41.77	49.88	0.47	0.3813	
S KA	0.83	0.87	0.07	0.0071	
K KA	10.00	8.58	0.25	0.1107	
CA KA	17.22	14.41	0.34	0.1920	
TI KA	3.08	2.16	0.17	0.0323	
MN KA	1.18	0.72	0.13	0.0130	
FE KA	13.85	8.31	0.46	0.1566	4
TOTAL	100.00				

NORMALIZATION FACTOR: 0.784

[redacted]

SEP. 5, 1986 Fig 2

SPECTRUM 13293-83

Head ORE-East side ore body

ENERGY	COUNTS	X-RAY LINES
1.02	1293.	NA KA1, NA KA2,
1.23	2569.	MG KA1, MG KA2,
1.46	29859.	AL KA1, AL KA2,
1.73	216208.	SI KA1, SI KA2,
3.31	31878.	K KA1, K KA2,
3.66	5994.	CA KA1, CA KA2,
4.51	2289.	TI KA1, TI KA2,
6.39	18666.	FE KA1, FE KA2,
7.05	2405.	FE KB1,
8.02	416.	CU KA1, CU KA2,

*APP

SPECTRUM 13293-83 SEP. 5, 1986

STANDARDLESS ANALYSIS
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT	PRECISION 2 SIGMA	K-RATIO	ITER
NA KA	0.50	0.69	0.05	0.0030	
MG KA	1.16	1.51	0.08	0.0094	
AL KA	9.90	11.62	0.22	0.0937	
SI KA	58.41	65.87	0.54	0.5611	
K KA	11.57	9.37	0.27	0.1222	
CA KA	1.74	1.38	0.11	0.0189	
TI KA	1.19	0.79	0.11	0.0130	
FE KA	15.14	8.59	0.47	0.1745	
CU KA	0.39	0.19	0.10	0.0043	7
TOTAL	100.00				

NORMALIZATION FACTOR: 0.775

*

Nitric Bath 30 min.

SEP. 5, 1986

SPECTRUM 13293-86

ENERGY	COUNTS	X-RAY LINES
1.02	3051.	NA KA1, NA KA2,
1.46	31268.	AL KA1, AL KA2,
1.73	262453.	SI KA1, SI KA2,
3.31	28700.	K KA1, K KA2,
4.49	2724.	TI KA1, TI KA2,
6.40	7259.	FE KA1, FE KA2,
7.04	919.	FE KB1,
8.08	238.	CU KA1,

*APP

SEP. 5, 1986

SPECTRUM 13293-86

STANDARDLESS ANALYSIS
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT	PRECISION 2 SIGMA	K-RATIO	ITER
NA KA	0.82	1.09	0.07	0.0058	
AL KA	9.54	10.62	0.21	0.0983	
SI KA	70.21	75.11	0.60	0.6976	
K KA	11.42	8.78	0.29	0.1121	
TI KA	1.35	0.85	0.12	0.0138	
FE KA	6.43	3.46	0.32	0.0701	
CU KA	0.22	0.10	0.08	0.0024	9
TOTAL	100.00				

NORMALIZATION FACTOR: 0.812

IDE

Figure 4

20% HCl Bath - 15 min.

SEP. 5, 1986

SPECTRUM 13293-97

ENERGY	COUNTS	X-RAY LINES
1.02	2758.	NA KA1, NA KA2,
1.46	30208.	AL KA1, AL KA2,
1.73	232328.	SI KA1, SI KA2,
3.31	28776.	K KA1, K KA2,
4.50	2774.	TI KA1, TI KA2,
6.39	6042.	FE KA1, FE KA2,

%APP

SPECTRUM 13293-87 SEP. 5, 1986

STANDARDLESS ANALYSIS
(ZAF CORRECTIONS VIA MAGIC V)

ELEMENT & LINE	WEIGHT PERCENT	ATOMIC PERCENT	PRECISION 2 SIGMA	K-RATIO	ITER
NA KA	0.85	1.12	0.07	0.0061	
AL KA	10.11	11.25	0.23	0.1050	
SI KA	69.08	73.85	0.62	0.6859	
K KA	12.58	9.66	0.31	0.1239	
TI KA	1.77	1.11	0.14	0.0181	
FE KA	5.61	3.01	0.32	0.0611	8

TOTAL 100.00

NORMALIZATION FACTOR: 0.811

TABLE 1

Concentration (ppm)

SAMPLE	Pt	Au	Pd	Ag	Re	Ir	Rh	Ru	Os
84	<10	<10	<10	<10	70.4	71.1	<10	<10	29.3
85	<10	<10	<10	<10	79.8	62.1	<10	<10	47.8
86	<10	<10	<10	<10	63.6	44.2	<10	<10	56.5
87	<10	<10	<10	<10	83.9	51.2	<10	<10	35.1
~~Large Black~~	125	86.8	44.5	<10	284	178	51.5	73.6	163
~~Small Black~~	124	43.9	31.2	<10	271	229	55.5	60.1	210
~~Large Gold~~	<10	<10	<10	602	<10	29.9	<10	<10	49.1
~~Small Gold~~	<10	<10	<10	533	217	124	<10	<10	139

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(512) 467-0051

EPIC CORPORATION

1571 Raindance
Las Vegas, Nevada

Confidential Report
Gold Prospect
Mohave County, Arizona
June, 1986

TABLE OF CONTENTS

Introduction 1

Location 2

Geological Formation 2

Metallic Occurrence in Prospect 3

Prospect 4

Measurement 5

Mineralization 5

Recommendations 8

Conclusion 10

Location Maps 11

Geological Maps 14

Sandstone and Sedimentary Cycle 17

Cutting and Trenching 19

Core Drilling Pattern 20

Laterization As A Possible Contributor To Gold Palcers

Tonnage Estimate Map ..... Back Flap

Panoramic View ..... Back Flap

Introduction

I was retained by the Epic Corporation of Nevada to inspect, measure and estimate the tonnage of a gold prospect located in Mohave County, Arizona. I arrived in Las Vegas June 1, 1986. We traveled by a four wheel drive vehicle to the prospect on Monday, June 2, where we were met by a geologist from the Bureau Land Management's Office from Kingman, Arizona. Observations made in this report consist of eight hours inspection of the prospect and two days of examination of ore samples taken from the prospect and examined at corporate headquarters in Las Vegas.

Location

The property is located on BLM land approximately 41 miles south/southeast of Yucca, Arizona, in Township 12 north, Range 15 west, in the southeast quarter of Section 22 (see map).

The property is accessible by a county road that leads to Alamo Lake State Park. A four wheel drive vehicle is needed to travel the last three miles to reach the prospect, as the present road follows dried out creekbeds. The creekbeds seem to be, for the most part, disseminated sandstone and gravel which overlays solid limestone. The overburden in the creekbeds are washes varying in depth from 18 inches to 2-1/2 feet, where tested.

from figure

Due to the fact that the Bureau of Land Management is considering classifying this land as a Wildlife refuge, and unless proven mineral values can be verified, they are hesitant to allow new roads to be constructed at this time. If the BLM remains ademant on this point, the property could only be mined about eight months each year, as the annual rainfall of 6 to 8 inches occurs during a four-month period and the drainage from the nearby mountains would make the present road impassible.

Geological Formation

The property, in the opinion of the author, is an ancient seabed and later deep water basin formed by the belt group during the lower Cambrian period through the late paleozoic period (see figure 1, 2 and 3). The sedimentary record of the late paleozoic conditions in the Codillera is much more complete than that of early paleozoic south of the Columbian plateau the deep water basin in Nevada continued to receive shales and cherts of the Havallah and Schoonover formations. The area was exposed to heavy volcanism over the next 27 million years through the Oligocene, Miocene, late Miocene and through the Pilocone until about 3 million years ago (see figure 4, volcanic occurrences).

As deep water basins began to subside and metamorphism took place, minerals held in solutions in layers (laterization) reprecipitated into newly formed quarts and feldspar crystals that contained ferrious particles such as hematite and dolomite.

Some rocks are formed when limestone disturbed and disrupted fragments are moved and redeposited. The substance of such rocks are chemical precipitation but the textures of the structures are those water layed clastics.

The possibility of laterization as a contributor to gold placers, although not totally accepted in the scientific field, may explain the origin of microscopic and submicroscopic gold deposits that are now found throughout Nevada and Arizona (see laterization as a possible contributor to gold placers).

Metallic Occurrence in Prospect

he deposit seems to be a classic sedimentary conglomerate in the category of einstates whose primary elements are silicon whose typical minerals are quartz hert, alkalic feldspar, muscovete, and garnet with the representations of rock ing arkose sandstone. The deposit appears to be felsic (light colored quartz d feldspar) with mafic ignious rocks that contain dark colored ferromangnesium at is prevalent throughout Arizona and Southern Nevada. The presence of natite and dolomite reenforce the theory of reprecipitation of lateritic gold osits held in solution. The definition of province of chemical segregation sedimentary cycles is beach, shore seafloors, subsiding basins, or tectonic ths.

author was shown samples taken from the surrounding sandstone conglomerates h contain the same mineralization as in the prospect. If in fact the alization is consistent throughout the basin, a gold deposit of great tude may have been discovered. We will, however, confine our observations

to the prospect rather than to speculate on the possibilities that could be developed on the surrounding area.

Prospect

The prospect is a sandstone conglomerate that has been weathered and reduced to its present size by natural grange. It lies northeast by southwest (see map). The shape somewhat resembles a carrot, or finger with the northeasterly point reaching an elevation of approximately 52 feet and with a gradual taping off with the level of the wash to the southwest. The evidence that this was once an ancient seabed is irrevocable in the fact that there is no sign of ignious rocks in the section over 2 feet in diameter. The composition of the conglomerate seems to be nondetrital sedimentary rocks consisting wholly or largely of mineral grains that have been chemically or by-chemically precipitate from aqueous solution on or near the surface of the earth. A study of the types of fossils was not possible on this inspection but some halysytes (chain corni) was observed by the author.

The northeasterly section of the prospect does show evidence of extreme heat as do all the higher elevations in the area. Surface rocks at these elevations are almost black in color indicating recent and nearby volcanic action. No lava flows where observed near the prospect, however, some evidence of lava was observed about one mile to the north of Alamo Lake Road as we were leaving the prospect.

Measurement

The prospect was measured using standard engineering procedures. The length of the prospect measured 465 yards with the maximum width being 178 yards. The depth was only calculated to the surface of the wash the angles of the slopes were calculated and in combination with the length, height, width of the prospect the result was computed to cubic yards (see map).

The result of the calculation indicated 328,668 cubic yards of material within the limits of the prospect. We assumed, for assumption purposes--although it is not verified, that 20 percent of the total is overburdened; thus we arrived with 65,732 cubic yards of overburden, which deducted from 328,660 cubic yards would yield 262,928 cubic yards of possible mineralized material. Computing the estimated weight of the material to be 110 pounds per cubic foot we arrived at a weight 2,970 pounds per cubic yard or 1.485 tons per cubic yard. 1.485 x 262,988 = 390448 tons of possible mineralized material within the limits of the measured prospect.

Mineralization

Four samples were taken by the author on the exposed slopes of the prospect. Each sample weighed approximately 2 pounds. All samples remained in the author's possession. On Tuesday, June 3, 1986, the samples were taken to the corporate headquarters and ground until 95% of the material would pass through a 200 mesh

screen. Each sample was passed through a sample splitter and a sample was chosen at random and studied under the microscope at 30, 60, 110, 170 powers. All studies indicated the presence of metal, and it was identified as gold. Under high magnification the gold appears to be coating and enclosed in quartz and feldspar crystals although some free gold is evident, which was probably freed by the grinding process.

Under the microscope there appears to be about 5% black particles. Assaying this material as is in a fire assay only indicates only a trace of gold. Therefore the interfering black particles have been identified by the author as ferromanganese that is so prevalent in most gold orders in Arizona and southern Nevada. In these types of ore bodies past records indicate in order to recover the noble metals the material must be pre treated to eliminate interfering ferromanganese before standard chemical methods of recovery may be used.

The past procedures by Epic Laboratories has been to treat the ore by means of grinding the material until 95% will pass through a 400 mesh screen. At that time three ounce samples had been given a nitrate acid bath for one to two hours then filtered and washed down by distilled water and dried. The material was then given another nitric bath which as cooked from one to two hours, dried, and examined through a microscope. Under magnification the residue appears to be a white bleached out material mixed with brilliant gold colored metals. The material was then given an aqua-regin treatment that dissolved all of the metals into solution. Upon examination of the residue under the microscope no metals are visible. Various reagents were used to drop out the lead, zinc, and silver, and the remainder was treated and separated and a gold ball of 98% AU resulted.

Over 100 assays were taken by Epic using these methods. The lowest result in their laboratory was 12.8 ounces AU per ton. The author under no circumstances believe these values to be correct. We feel that probably because of the size of the original samples, any large particle of gold in the sample could cause these high results.

Several samples have been sent to independent laboratories and when the above treatments were used results of 1.8 2.5 ounces AU per ton were achieved. It must be noted that none of the outside labs ground the order more that 100 mesh. It also becomes evident that the finer the material is ground the more gold that is freed for recovery.

The author did see the results of one spectrographic analysis that showed 1.08 ounces per ton that was performed by the Reed Engineering Company of California. The same assay showed 7% iron and manganese.

The author's experiment on the four samples that were taken were performed on a sample picked at random being #4. We were attempting to treat the material with a solution of 20% hydrochloric acid to see if we could remove the ferromanganese by a simple bath and render the material more suitable to a less complicated recovery process. A one ounce sample was cooked in hydrochloric acid for a period of one hour, dried and viewed under the microscope. The results showed that all the gold and ferromanganese had dissolved. The next sample was treated to a hydrochloric bath for 15 minutes and the results showed that the majority of the metal remained in tack and that all of the ferromanganese had gone into

ensure proper sampling

solution. Viewed under a microscope, it is the author's personal opinion that the remaining metals should fire assay over 1 ounce of AU per ton.

Recommendations

It is of prime importance to determine if the mineralization content is constant throughout the prospect, the proof of the mineralization throughout the prospect would tend to indicate that the the same type of mineralization has occurred throughout the basin.

Close cooperation with the BLM is encouraged in order to establish a commercial mineral deposit on government land. This will require that suitable permits will have to be granted for the equipment that is necessary to sample the prospect. Two methods should be considered at this time.

1. Cutting and trenching. No less than three cuts should be made across the entire width of the prospect (see map). The overburden should be moved to determined the depth of the deposit. Three trenches should be made approximately 10 feet deep, two length wise, and one across the width at the northeasterly tip of the prospect (see cut and trench map) Close attention should be made as to not disturb the sequora cactus (see map. Equipment needed for the trenching and cutting would be a D8 or D9 with a wide blade or its equivalent. A back hoe with a 10 foot arm, and a small compressor with a drill.

An independent engineering firm should be retained to ensure proper sampling procedures are observed. A representative of the BLM should be on site during

entire [illegible] the gold content in determi[illegible]

the entire operation to ensure that the operation complies and meets the environmental procedures and standards. The samples should be split and one portion should be supplied to the BLM for its examination and verification.

The above method would probably require a period of two weeks before completion, and would ascertain the extent of the mineralization of the prospect, and would give the indication of the commercial value of the prospect.

II. Core Drilling - A preliminary drilling program could be instituted as a second method to determine the mineralization of the prospect. This procedure is preferred by the author and could be completed in three to four days. A core barrel of 5 feet is recommended with a maximum drilling depth of 60 feet on the northeasterly end of the prospect, and a minimum depth of 5 feet on the southwesterly end of the prospect.

We have taken the liberty of laying out a prepared drilling pattern that would require 33 drill holes (see map). An independent engineering firm should be retained to ensure proper procedures are observed and a representative of the BLM should be present during the drilling program.

We feel that the BLM would prefer that the drilling method be used as it would be within certain ecological and environmental guidelines. We feel the core should be split with analysis being made of each 2-1/2 ft. section. We are convinced that this method would give a clear picture of the mineralization of the prospect as well as a better picture of the gold content in determining the value of the entire prospect.

Conclusions

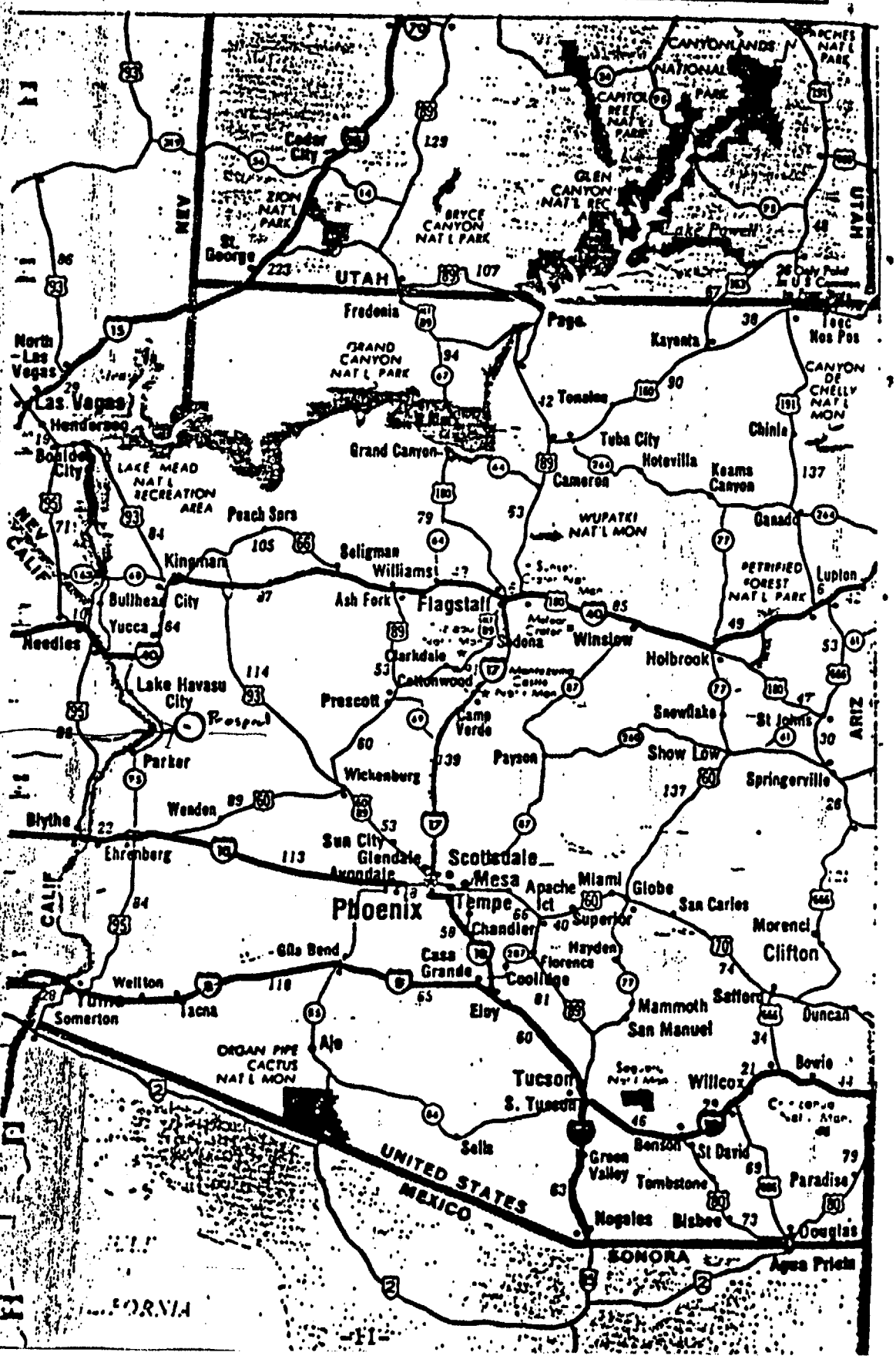
Although the author's examination of the prospect was limited, the two days spent in Epic's laboratory studying the metal content of the samples under microscope has convinced me that at least from the samples we took, from our examination, that they contained substantial amounts of gold.

Whether the mineralization is only surface deep, indicating that it was deposited by the natural drainage of the basin, or whether the prospect was mineralized throughout, indicating the reprecipitation of gold can only be ascertained by thorough sampling and assaying of the entire prospect.

The possibility of the proof of the later should be the prime project to be undertaken by the company. Because if reprecipitation is homogeneous throughout the prospect then we could assume that the same type of mineralization has taken place throughout the entire basin, and a deposit of gold of immense magnitude could have been discovered.

Edgar M. Chambers
M.E.

6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CAPITOL REEF NAT'L PARK
GLEN CANYON NAT'L REC AREA
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Cedar City
ZION NAT'L PARK
St. George
BRYCE CANYON NAT'L PARK
UTAH
NEV
Fredonia
Page
Kayenta
Tsaile
Nes Pos
North Las Vegas
Las Vegas
Henderson
Boulder City
LAKE MEAD NAT'L RECREATION AREA
GRAND CANYON NAT'L PARK
Grand Canyon
Tonalea
Tuba City
Hotevilla
Cameron
Keams Canyon
CANYON DE CHELLY NAT'L MON
Chinle
WUPATKI NAT'L MON
Ganado
Peach Springs
Seligman
Kingman
Williams
Ash Fork
Flagstaff
Sedona
Winslow
PETRIFIED FOREST NAT'L PARK
Lupton
Bullhead City
Yucca
Needles
Clarkdale
Cottonwood
Holbrook
Lake Havasu City
Prescott
Camp Verde
Snowflake
St Johns
ARIZ
Parker
Payson
Show Low
Springerville
Wickenburg
Wenden
Blythe
Ehrenberg
Sun City
Glendale
Avondale
Scottsdale
Mesa
Tempe
Phoenix
Apache Jct
Miami
Globe
San Carlos
Superior
Morenci
Chandler
Hayden
Florence
Clifton
Gila Bend
Casa Grande
Coolidge
Wellton
Yuma
Tacna
Somerton
Eloy
Mammoth
Safford
San Manuel
Duncan
Ajo
ORGAN PIPE CACTUS NAT'L MON
Tucson
S. Tucson
Willcox
Bowie
Sells
Green Valley
Benson
St David
Tombstone
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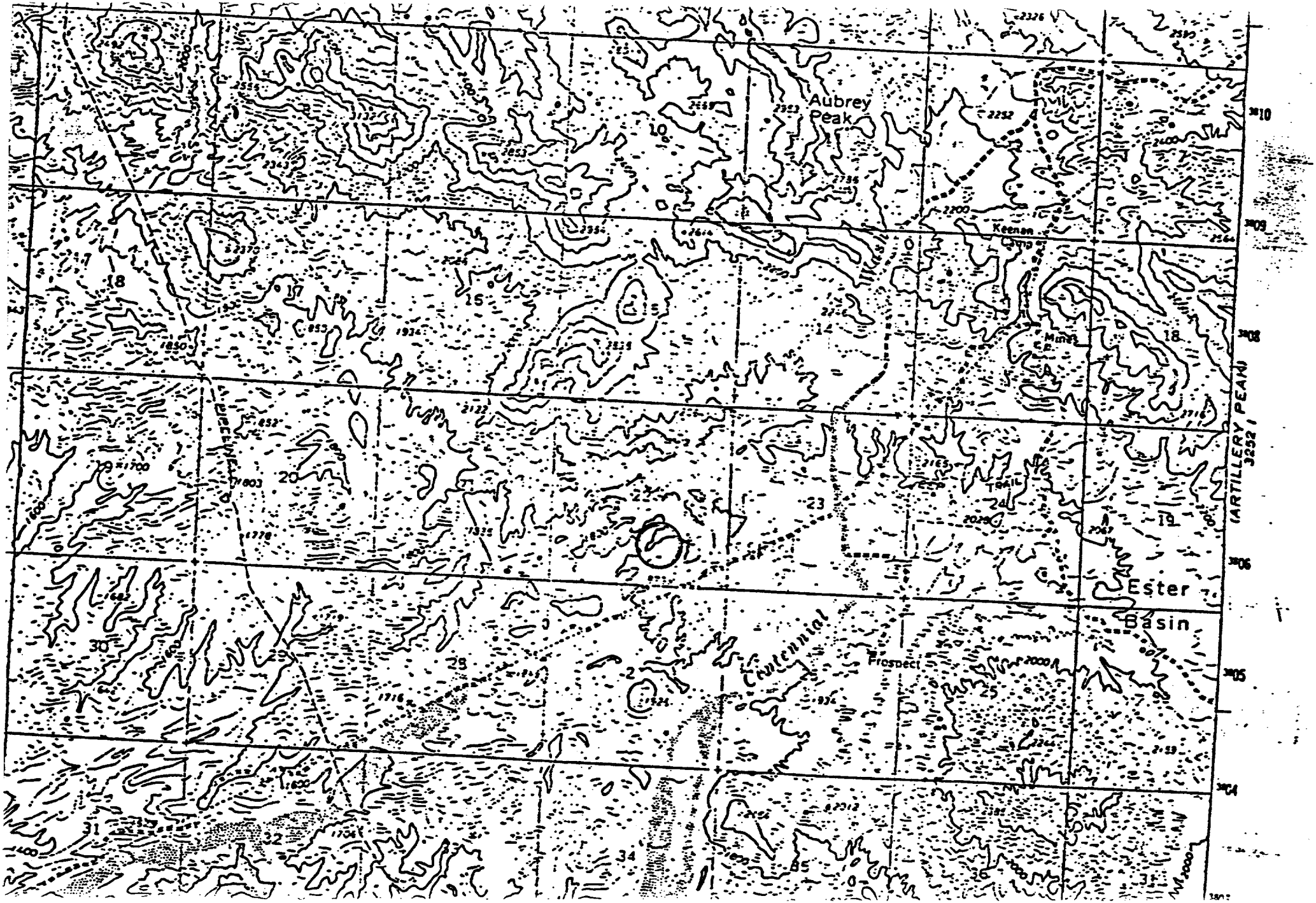
Nogales
Bisbee
Douglas
UNITED STATES
MEXICO
SONORA
Agua Prieta
CALIF
NEV
CALIFORNIA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Mine
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1880
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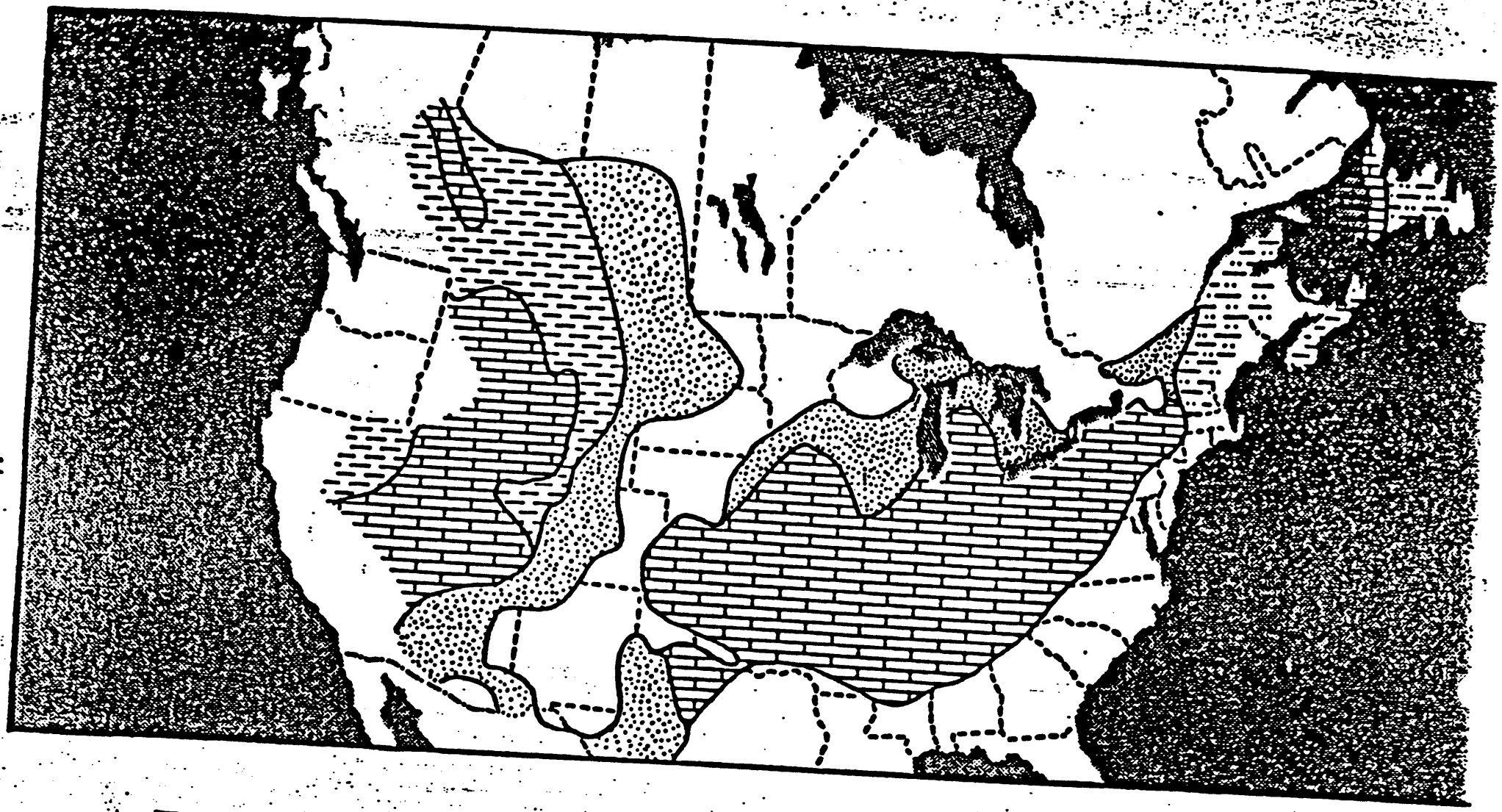


Sandstone

Shale

Limestone and dolomite

Geosynclinal deposits

FIGURE 1 **Facies of the Upper Cambrian Series in central North A**

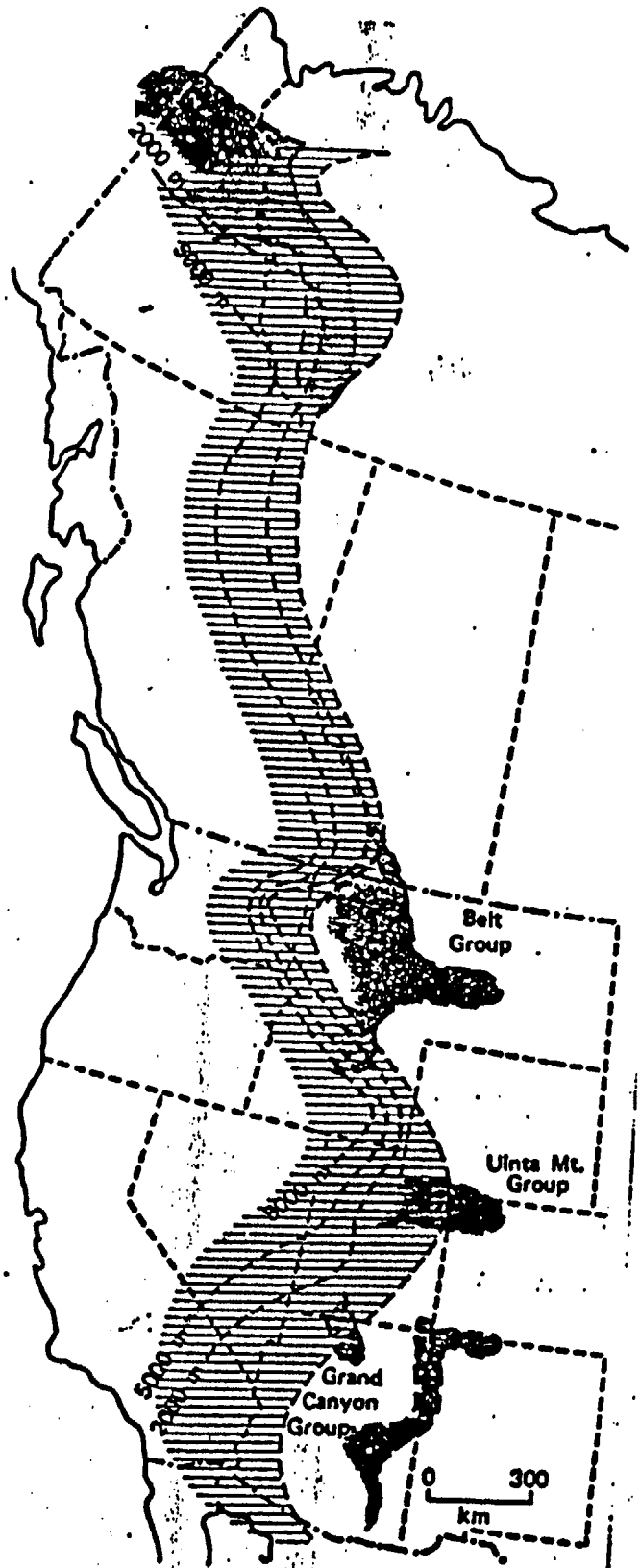


FIGURE 2 Isopach map of Lower Cambrian, Ediacaran, and Hadrynian rocks with the areas of occurrence of Belt Group and equivalent rocks superposed. (After J. H. Stewart; courtesy of the Geological Society of America.)

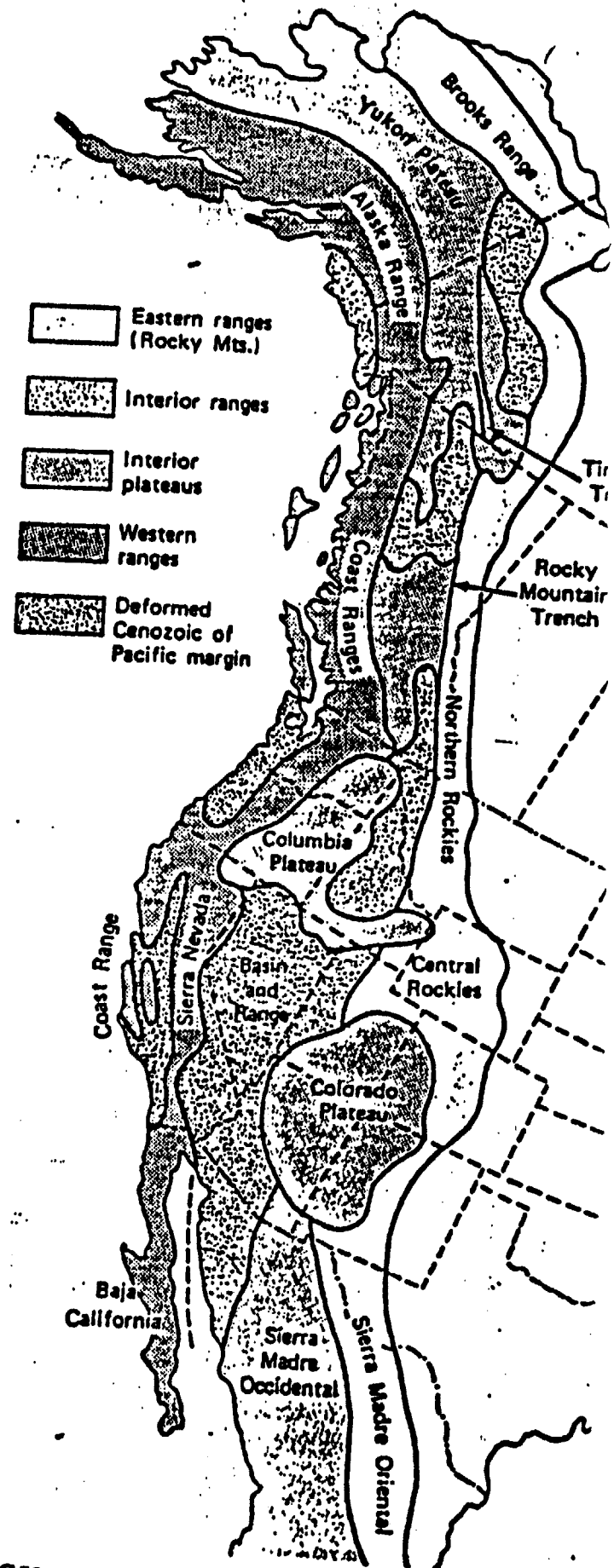


FIGURE 3 Maj

FIGURE 4 : Plate relationships and volcanism along the western side of the North American plate in late Mesozoic and Cenozoic time. The Cordilleran subduction zone is indicated by the hachured lines. Areas of volcanism are indicated by the colored pattern; the darker shade represents andesitic calc-alkaline volcanics, the lighter shade, basaltic volcanics. (Compiled from several sources, mainly T. Atwater, P. Lipman, H. J. Prosiks, R. L. Christiansen.)

TABLE 8–10. Principal Sandstone Types

	QUARTZ ARENITE (ORTHOQUARTZITE)	SUBGRAYWACKE	GRAYWACKE	ARKOSE
GRAINS	Quartz, chert, ± feldspar, glauconite	Quartz + chert > lithic fragments + feldspar	Quartz + chert > lithic fragments + feldspar	Quartz, feldspar, ± muscovite flakes
MATRIX	—	Subordinate clay	Bonded by abundant micaceous minerals, chlorite,	Subordinate clay
CEMENT	Quartz, calcite, quartz overgrowths	± Quartz, calcite	Quartz overgrowths	Overgrowths, calcite
SORTING	Well-sorted	Moderately well-sorted	Sorting poor or absent	Sorting variable
ROUNDING	Rounded	Angular	Angular	Angular
BEDDING	Current bedding	Current bedding	Graded bedding	Current bedding, abrupt changes
SOURCE	Mature soils, second cycle sediments	Similar to graywacke but farther from source	Immaturely weathered regions of mild uplift	Rapidly rising granite areas
PLACE OF DEPOSITION	Beach and shelf marine deposition	Alluvial plains, deltas, lagoons, shallow sea, hence in fresh, brackish, and salt water	Marine, deep water, early geosynclinal deposition	Continental; fault troughs, alluvial fans and plains
GROSS APPEARANCE	"Clean" sands, white, gray, tan	"Dirty" sands, light to dark gray, may include red beds	Gray, dark gray, green to black	Red beds common, otherwise gray

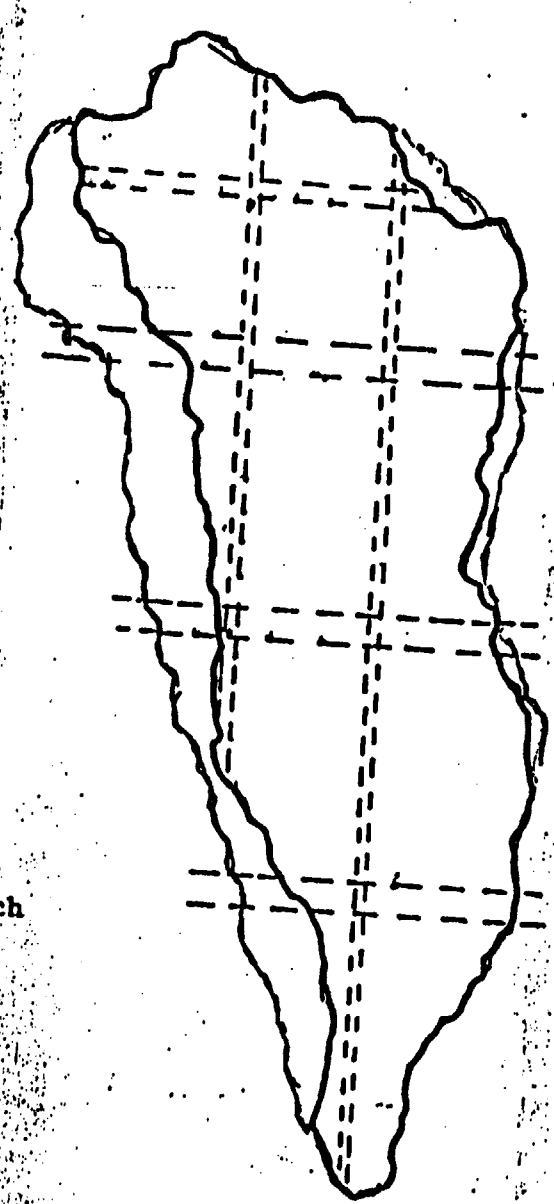
TABLE 8–4. Chemical Segregation in the Sedimentary Cycle

Categories	Elements	Typical Minerals	Representative Rocks	Provenance
Resistates	Silicon Aluminum	Quartz Chert Alkalic feldspar Muscovite Garnet	Quartzose and arkosic sandstones	Beach, shore and sea floor Subsiding basins Tectonic troughs
Hydrolysates	Aluminum Silicon	Clay minerals Muscovite Illite Chlorite (Bauxite)	Argillaceous sediments Graywacke (in part)	Sedimentary basins Sea floor Alluvial plains, etc.
Oxidates	Iron Manganese	Goethite Hematite "Limonite"	Iron ores (in part) Iron formations Residual iron ores	Aerated environments
Carbonates	Calcium Magnesium	Calcite Dolomite	Limestone Dolomite	Marine environments
Evaporates	Calcium Magnesium Sodium	Anhydrite Gypsum Dolomite Halite	Anhydrite Gypsum Dolomite Salt	Evaporation in closed basins
Reduzates	Iron Sulfur Carbon	Pyrite Marcasite Sulfur	Sulfur beds Coals	Swamps, euxenic basins
"Metasomatates"	Silicon Iron Magnesium Potassium	Quartz Hematite Dolomite Chlorite Muscovite Glauconite (?)	Cherts Iron formations Dolomite "Greensand" (in part)	Varied

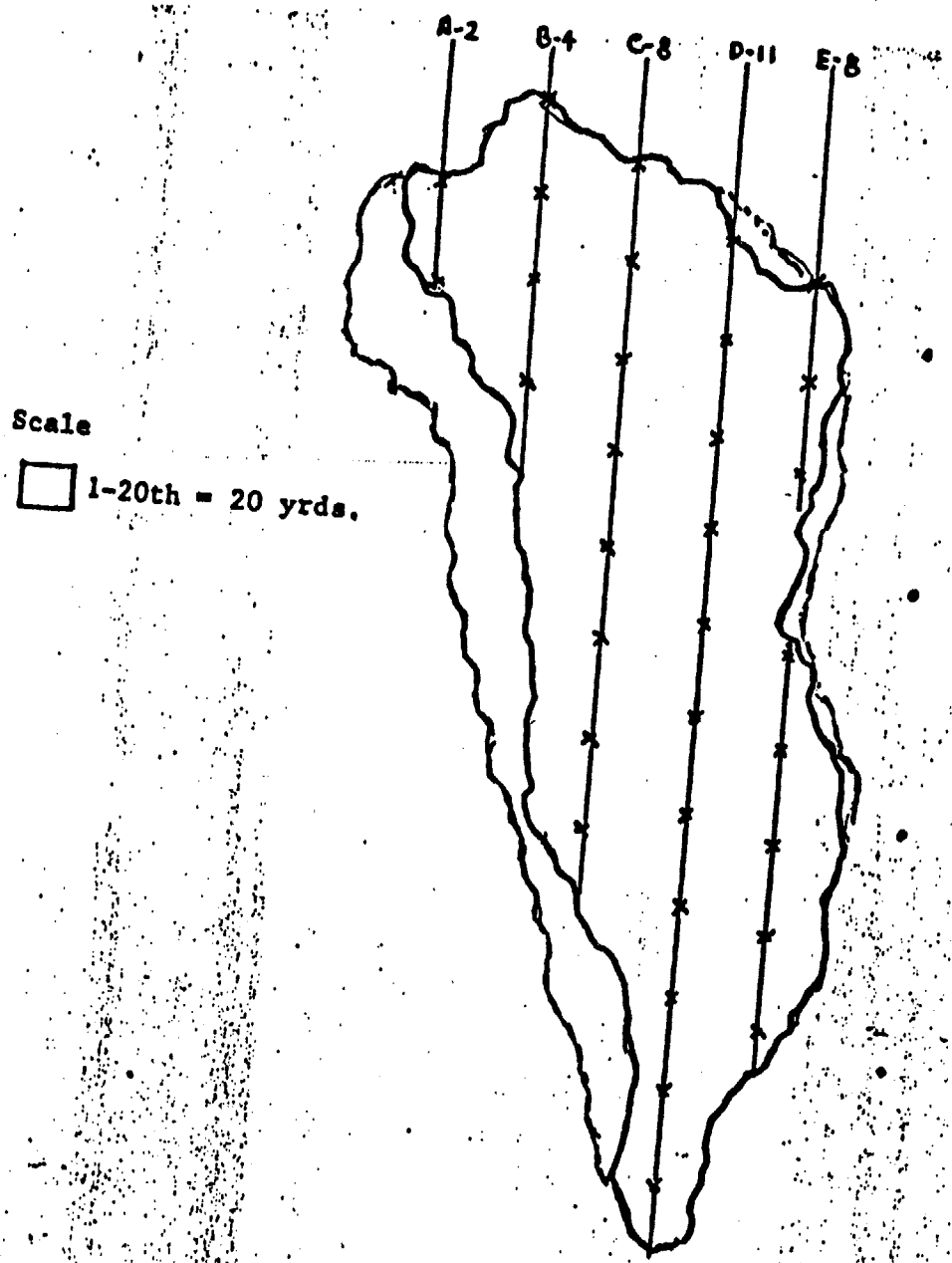
CUT AND TRENCH MAP

Scale

1-20th = 20 yrds.



Trench

Cut

CORE DRILLING PATTERN