



CONTACT INFORMATION

Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

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07/25/91

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: HOMESTAKE

ALTERNATE NAMES:

PORTLAND

YAVAPAI COUNTY MILS NUMBER: 13A

LOCATION: TOWNSHIP 12 N RANGE 9 W SECTION 21 QUARTER S2
LATITUDE: N 34DEG 21MIN 42SEC LONGITUDE: W 113DEG 11MIN 50SEC
TOPO MAP NAME: MALPAIS MESA SW - 7.5 MIN

CURRENT STATUS: DEVEL DEPOSIT

COMMODITY:

GOLD

BIBLIOGRAPHY:

USGS MALPAIS MESA SW QUAD
METZGER, O.H. GOLD MINING AND MILLING IN THE
WICKENBURG AREA USBM IC 6991 P 74-75
WORKINGS ALSO IN NW QTR. SEC. 28
ADMMR HOMESTAKE FILE

R

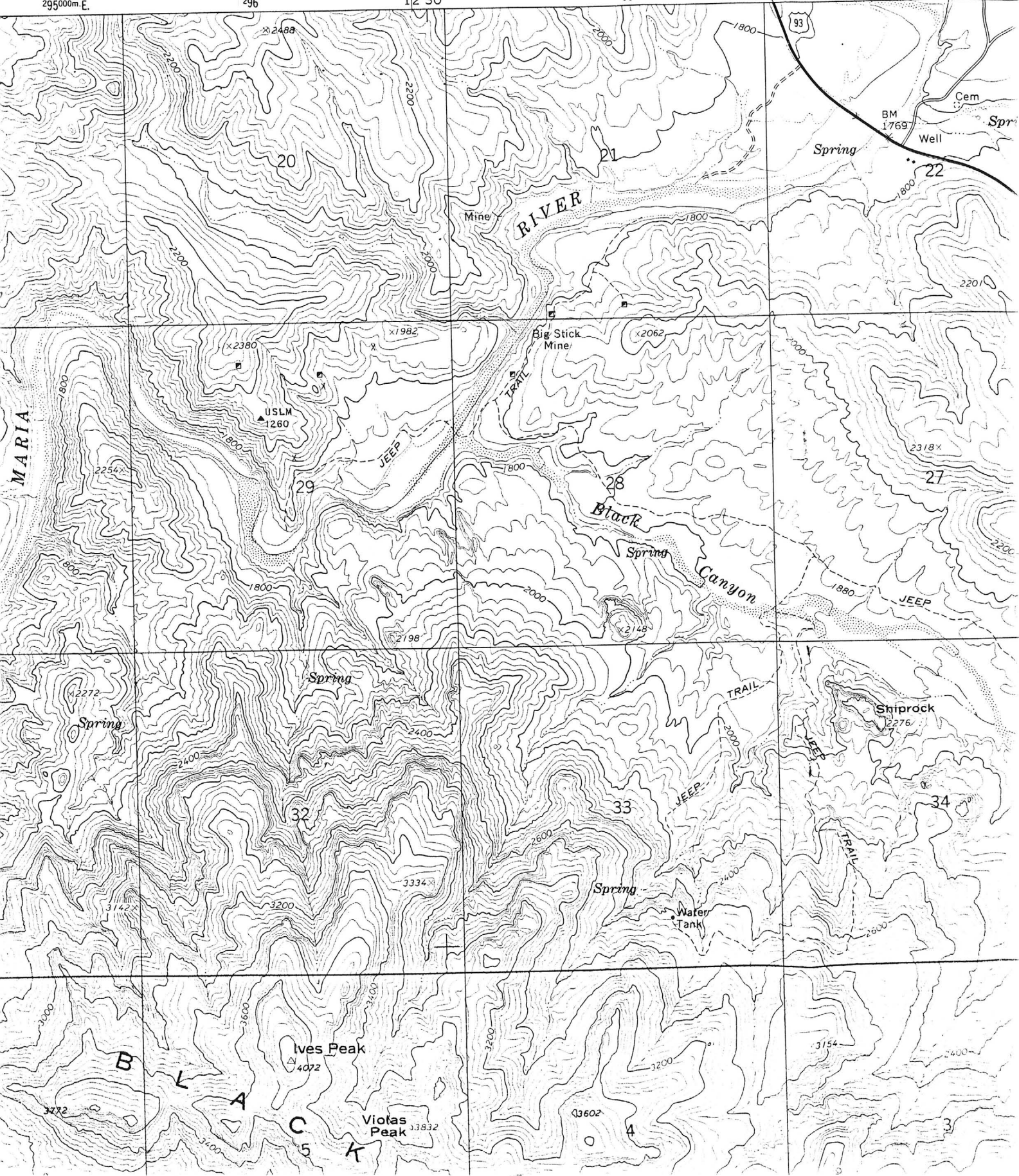
295000m.E.

296

12'30"

298

KINGMAN 90 MI. WIKIEUP 36 MI. 3352 I NW (THORN PEAK)



MARIA

RIVER

Black Canyon

Ives Peak 44072

Violas Peak 33932

Shiprock 2276

BM 1769

B

L

A

C

K

4

3

20

21

22

29

28

27

32

33

34

USGS MRDS DDS 20

PRINTED AUG/1999

RECNO M800176
 REC_TYPE S
 REP_DATE 81 11
 FIL_LINK USBM 004 025 1139
 REP LARABA, PETER (DEWITT, ED)
 REP_AFF ABGMT
 DIST CROSBY DISTRICT
 COUNTY YAVAPAI
 STATE_CODE AZ
 CTRY_CODE US
 PHYS 12
 DRAIN 15030203
 LAND_ST 30
 QUAD1 MALPAIS MESA SW (1967)
 Q1_SCALE 24000
 ELEV 1820 FT
 UTM_N 3804260
 UTM_E 297870
 UTM_Z +12
 TOWNSHIP 012N
 RANGE 009W
 SECTION 21
 SECT_FRACT SW OF SW OF SW OF SE MERIDIAN GILA
 AND SALT RIVER
 POSITION 5.3 MILES S-SW OF THORN PEAK
 LOCATION SHAFT IS TO THE EAST OF THE BIG STICK MINE SHAFT
 SITE HOMESTAKE MINE
 LAT 34.3617
 LONG -113.1978
 CTRY_NAME UNITED STATES
 COMMOD AG AU
 ORE_MAT UNKNOWN, PROBABLY GOLD
 MAJOR AU
 MINOR AG
 PROD S
 LOC_STRUCT VEINS OFTEN ARE LOW-ANGLE, DIPPING LESS THAN 40 DEGREES STATUS
 8
 NAT_DISC B
 YRFST_PROD 1942
 YRLST_PROD 1942
 OWNER T.E. THOMPSON (1942), ALEX LUCY (1950'S)
 OPER ARIZONA HOMESTAKE MINING CO. (1950'S)
 DEP_TYPE VEIN
 DEP_FORM TABULAR
 DEPTH_BOT 140
 D_B_U FT
 MAX_LEN 200
 M_L_U FT
 MAX_WID 140
 M_W_U FT
 MAX_THICK 8
 M_T_U FT
 DEP_SIZE S
 STRIKE N 30 E

DIP 55 TO 60 E
QUAD250 PRESCOTT
DEPTH_WK 140
D_W_U FT
LEN_WK 300
L_W_U FT
OV_LEN_WK 200
O_L_U FT
OV_WID_WK 10
O_W_U FT
OV_AREA_WK 2000
O_A_U FT
DWORK_COM LEVELS AT 50, 100 FT
MIN_AGE TERT UNDATED, BUT PROBABLY MID-TERTIARY
NORE_MINS QUARTZ
ORE_CNTL FAULTING, SHEARING
REG_STRUCT MINOR FOLIATION IN SCHIST TRENDS NE; IGNEOUS ROCKS MASSIVE ALTER NONE
CONC OXIDATION AT NEAR SURFACE
HRU_AGE PROT U/PB GREATER THAN 1770 MILLION YEARS
HRU_NAME HILLSIDE MICA SCHIST (MUSCOVITE SCHIST)
NAME LARABA, PETER (DEWITT, ED)
DATE 11/01/81
ARU_AGE PROT UNDATED, BUT PROBABLY 1700-1780 MILLION YEARS
OLD|CRET-TERT UNDATED; MAY RANGE FROM LATE CRETACEOUS TO MID-TERTIAR
ARU_NAME NO FORMAL NAMES FOR GRANITE, QUARTZ MONZONITE|RHYOLITE AND
MORE MAFIC DIKES (UNNAMED)
CONT_CODE NA
GEOL_COM DEPOSIT IS LOW-ANGLE QUARTZ VEIN WHICH CUTS PROTEROZOIC
IGNEOUS ROCKS. TERTIARY IGNEOUS ROCKS MAY BE PRESENT LOCALLY ALONG
QUARTZ VEINS OR MAY BE ABSENT
GEN_COM INFO.SRC : 1 PUB LIT; 2 UNPUB REPT
REF USBM I.C. 6991, P. 74-75|USBM-ABGMT FILE DATA|AZ DEPT. MIN
RESOURCES FILE DATA
CONT_NAME NORTH AMERICA
STATE_NAME ARIZONA
WORK_TYPE U
COMMODO_TYP M
DATE_ISSUE 95/5/18
PROF_ID 100
PROF_LOC 100
PF_COMMOD 100
PROF_EXPL 75
PFDESC_DEP 50
PFDESC_WRK 100
PROF_GEOL 92
PROF_REF 100
PROF_ALL 79
HR_AGE_MV PROT,TERT UNDATED, BUT PROBABLY 1700 - 1780 MILLION YEARS OLD ; UNDATED-
MAY BE TERTIARY
HR_TYPE_MV GRANITE, QUARTZ MONZONITE, MUSCOVITE SCHIST; RHYOLITE PORPHYRY
AR_AGE_MV PROT,TERT UNDATED, BUT PROBABLY 1700-1780 MILLION YEARS OLD; UNDATED-
MAY BE TERTIARY
AR_TYPE_MV GRANITE, QUARTZ MONZONITE
TYPE R
AFFIL ABGMT
DEP_CODE 11000

HUC

15030203

REFERENCE 1 F1 < USBM I.C. 6991 74-75 >

REFERENCE 2 F2 < USBM - ABGMT FILE DATA >

REFERENCE 3 F3 < AZ DEPT. MIN RESOURCES FILE DATA >

REFERENCE 4 F4 < >

U.S. CRIB-SITE FORM
RECORD IDENTIFICATION

RECORD NUMBER B10 < > RECORD TYPE B20 < X.I.M. > DEPOSIT NUMBER B40 < >

REPORT DATE G1 < 8.1.11 > INFORMATION SOURCE B30 < 1.2 > FILE LINK IDENT. B50 < USBM-004 085 1139 >

REPORTER(SUPERVISOR) G2 < LARABA PETER (last, first, middle initial) > (DEWITT ED (last, first, middle initial) >

REPORTER AFFILIATION G5 < ABGMT > SITE NAME A10 < HONESTAKE MINE >

SYNONYMS A11 < >

LOCATION

MINING DISTRICT/AREA A30 < CROSBY DISTRICT >

COUNTY A60 < YAVAPAI > STATE A60 < AZ > COUNTRY A40 < U.S. >

PHYSIOGRAPHIC PROV A63 < 1.2.1 >

DRAINAGE AREA A62 < 1.5.0.3.0.2.0.3.1 >

QUADRANGLE NAME A90 < MALPAIS MESA SW > (1.9.6.7.) >

SECOND QUAD NAME A92 < > (>

ELEVATION A107 < 1.8.2.0.F.T >

LAND STATUS A64 < 3.0.F. >

QUADRANGLE SCALE A100 < 2.4.0.0.0 >

SECOND QUAD SCALE A91 < >

UTM

NORTHING A120 < 3.8.0.4.2.6.0 >

EASTING A130 < 2.9.7.2.7.0 >

ZONE NUMBER A110 < 1.2 >

ACCURACY

ACCURATE ACC (circle)

ESTIMATED EST < >

GEODETC

LATITUDE A70 < > N >

LONGITUDE A80 < > W >

CADASTRAL

TOWNSHIP(S) A77 < 0.1.2.N. >

SECTION(S) A79 < 21 >

SECTION FRACTION(S) A76 < SW OF SW OF SW OF SE >

MERIDIAN(S) A81 < GILA AND SALT RIVER >

RANGE(S) A78 < 0.0.9.W. >

POSITION FROM NEAREST PROMINENT LOCALITY A82 < 5.3 MILES S-SW OF THORN PEAK >

LOCATION COMMENTS A83 < SHAFT IS TO THE EAST OF THE BIG STICK MINE SHAFT >

* ESSENTIAL INFORMATION
+ ESSENTIAL SOMETIMES OR HIGHLY RECOMMENDED

COMMODITIES PRESENT C10 <AG, P.A.D. >
 ORE MINERALS C30 <UNKNOWN, ABLY GOLD >
 COMMODITY SUBTYPES C41 < >
 GEN. ANALYTICAL DATA C43 < >
 COM. INFO. COMMENTS C50 < >

* SIGNIFICANCE

	PRODUCER	NON-PRODUCER
MAJOR PRODUCTS	MAJOR <AU >	MAIN COMMODITIES PRESENT C11 < >
MINOR PRODUCTS	MINOR <AG >	MINOR COMMODITIES PRESENT C12 < >
POTENTIAL PRODUCTS	POTEN < >	
OCCURRENCES	OCCUR < >	OCCURRENCES OCCUR < >

* PRODUCTION

	PRODUCER	NON-PRODUCER
PRODUCTION (YES) (circle)	PRODUCTION SIZE (SAL) (MED) (LGE) (circle one)	PRODUCTION UND NO (circle one)

* STATUS

	PRODUCER	NON-PRODUCER
STATUS AND ACTIVITY A20 <H >		STATUS AND ACTIVITY A20 < >

DISCOVERER L20 < >
 YEAR OF DISCOVERY L10 < > NATURE OF DISCOVERY L30 YEAR OF FIRST PRODUCTION L40 <1942 > YEAR OF LAST PRODUCTION L45 <1942 >
 PRESENT/LAST OWNER A12 <T.F. THOMPSON (1942), ALEX LUCY (1950's) >
 PRESENT/LAST OPERATOR A13 <ARIZONA HOMESTEAK MINING CO. (1950's) >
 EXPL./DEV. COMMENTS L110 < >

DESCRIPTION OF DEPOSIT

DEPOSIT TYPE(S) C40 <VEIN >
 DEPOSIT FORM/SHAPE A10 <TABULAR >
 DEPTH TO TOP M20 < > UNITS M21 < > MAXIMUM LENGTH M40 <200 > UNITS M41 <FT >
 DEPTH TO BOTTOM M30 <140 > UNITS M31 <FT > MAXIMUM WIDTH M60 <140 > UNITS M61 <FT >
 DEPOSIT SIZE M15 <SMALL > M16 <MEDIUM > M17 <LARGE > (circle one) MAXIMUM THICKNESS M50 <8 > UNITS M51 <FT >
 STRIKE M70 <N 30 E > DIP M80 <55 TO 60 E >
 DIRECTION OF PLUNGE M100 < > PLUNGE M90 < >
 DEP. DESC. COMMENTS M110 < >

DESCRIPTION OF WORKINGS

Workings are: SURFACE M120 UNDERGROUND (M130) BOTH M140 (circle one)
 DEPTH BELOW SURFACE M160 <140 > UNITS M161 <FT > OVERALL LENGTH M190 <200 > UNITS M191 <FT >
 LENGTH OF WORKINGS M170 <300 > UNITS M171 <FT > OVERALL WIDTH M200 <10 > UNITS M201 <FT >
 DESC. OF WORK. COM. M220 <LEVELS AT 50, 100 FT > OVERALL AREA M210 <2000 > UNITS M211 <FT >

GEOLOGY

* AGE OF HOST ROCK(S) K1 <P.R.O.T., T.E.R.T., UNDATED, BUT PROBABLY 1700-1750 MILLION YEARS OLD; UNDATED - MAY BE TERTIARY >
 * HOST ROCK TYPE(S) K1A <GRANITE, QUARTZ MONZONITE, MUSCOVITE SCHIST; RHYOLITE DORNIWAY >
 * AGE OF IGNEOUS ROCK(S) K2 <P.R.O.T., T.E.R.T., AS LINE K1 >
 * IGNEOUS ROCK TYPE(S) K2A <GRANITE, QUARTZ MONZONITE >
 * AGE OF MINERALIZATION K3 <T.E.R.T., UNDATED, BUT PROBABLY MID-TERTIARY >
 * PERT. MINERALS (NOT ORE) K4 <QUARTZ >
 * ORE CONTROL/LOCUS K5 <FAULTING, SHEARING >
 * MAJ. REG. TRENDS/STRUCT. N6 <MINOR FOLIATION IN SCHIST TRENDS NE; IGNEOUS ROCK MASSIVE >
 * TECTONIC SETTING N15 < >
 * SIGNIFICANT LOCAL STRUCT. N70 <VEINS OFTEN ARE LOW-ANGLE, DIPPING LESS THAN 40 DEGREES >
 * SIGNIFICANT ALTERATION N75 <NONE >
 * PROCESS OF CONC./ENRICH. N80 <OXIDATION AT NEAR SURFACE >
 * FORMATION AGE N85 <P.R.O.T., UNDATED, BUT PROBABLY GREATER THAN 1770 MILLION YEARS >
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 * SECOND FM AGE N95 < >
 * SECOND FM NAME N98A < >
 * IGNEOUS UNIT AGE N99 <P.R.O.T., UNDATED, BUT PROBABLY 1700-1750 MILLION YEARS OLD >
 * IGNEOUS UNIT NAME N99A <NO FORM. NAMES FOR GRANITE, QUARTZ MONZONITE >
 * SECOND IG. UNIT AGE N99B <C.R.E.T.-T.E.R.T., UNDATED; MAY RANGE FROM LATE CRETACEOUS TO MID-TERTIARY >
 * SECOND IG. UNIT NAME N99C <RHYOLITE AND MDAE MAFIC DIKES (UNNAMED) >
 * GEOLOGY COMMENTS N99D <DEPOSIT IS LOW-ANGLE QUARTZ VEIN WHICH CUTS PROTEROZOIC IGNEOUS ROCKS. TERTIARY IGNEOUS ROCKS MAY BE PRESENT LOCALLY ALONG QUARTZ VEINS OR MAY BE ABSENT >

GENERAL COMMENTS

GENERAL COMMENTS GEN < >

UNRECD. JUNE 7, 1990

OUT OF COMPLIANCE

OREX 1-888-749-OREX

GREG FINNEY - WARRANT INFO CASE

INFO PUBLIC BOOK - COLUMBI

LOOK AT IT NOW - PROMISED TO
PAT INFO.

DEQ

STATISTICS AND HIGHLIGHTS

PR - GREG FINNEY

PAT FINNEY - DEQ
HOME STAKE MINE

OR (ARIZ) SANTA MARIA

1989, SEPT. 26

SEMI ACTIVE NO HOT NEW DATA

P.M. MINING

L. W. McMICHAEL

520 - 299 - 3272

P.M. MINING ^{CO. INC.} THOMAS MILLS

1202 S. AVENUE 21ST ST. E.

SPRINGVILLE TX 75092

P.M. MINING

L. W. McMICHAEL, JR.

3939 E. CORONA DR.

TUCSON AZ 85718-1511

LAT 34 21' 46" LONG 113 11' 52"

GWATLING - 0077-13 T12N, 9W, 21 CED

DEQ INV. #102 OSI CN HORN LCH

LIME EVAP. BASIN

UNRECD. JUNE 7, 1990 OUT OF COMPLIANCE

Arizona Department of Mines and Mineral Resources
Verbal Information Summary

**Mine(s): Homestake (f), Waters (f) and, Alec Lucy's
Development Co. (f) and Turnbaugh (f)
County: Yavapai
Location: T12N, R9W, Sec.**

Date: December 13, 1999

Engineer: Nyal Niemuth

The following information was reported to Nyal Niemuth at ADMMR's office by Don Blackburn and his son, Jeffrey L. Blackburn, V.P. of Operations, Orex Gold Mines Corp., 521 ½ W. Wickenburg Way, Suite B, Wickenburg, AZ 85390, Ph.: 520-668-0460, fax 520-668-0474, www.orexgold.com NASDAQ OTC BB:ORXX.

The Blackburns provided a map showing topography and mining in the area, including claims of SMR Corporation and others, copy attached.

They described three projects that Orex either is involved with or will be soon. These are the gold/silica vein properties in the Santa Maria area, a vanadium/uranium project in Utah and a titanium project in Wyoming.

They are planning to startup the titanium mine in Wyoming in the spring of 2000. The titanium content was unknown but it is part of the 18% heavy metals incorporated into a sandstone. They were not sure of the mineralogy, i.e. how much occurred as ilmenite or rutile. A \$150,000 plant will recover the minerals.

The vanadium properties are also uranium-bearing and were acquired as they were dropped by other companies and are all closed. They are 50% partners with International Uranium and when produced, ore will go to International Uranium's mill at Blanding Utah. The main mine is the Rim, but others are permitted, including the Jim Boy 1 and 2. This project will become Orex Minerals Corp. a wholly owned subsidiary of Orex Gold.

Orex entered into agreements with the Blackburn's Santa Maria Mining company during the March-May 1999 period. Orex's share price was \$7.00 per share then. It now trades at \$0.15 to 0.20 per share. The Santa Maria properties were acquired in a tax free share exchange of 5 million shares for a 100% interest in 14 claims. In a separate second transaction, they received 8 million shares for the D and H property; also know as Arch Minerals Corp. Orex plans to change its name to remove the word gold from it. They have an idea and the property and now will do exploration and metallurgy.

They reported spending \$1 million on exploration, but not doing any drilling. Based on underground sampling the grade averages 0.27 oz/ton gold and 0.43 oz/ton silver and about 85-92% silica. No sample description, location or assay data was available for inspection, but they promised it would either be in the SEC filing or they would supply it for ADMMR's files. No tonnages, lengths or depths were reported although a variety of impressive widths up to 40' were mentioned. The Santa Maria veins are reported to contain 92% silica that is worth \$100 to 500 per ton depending on the fineness of grind and the silica grade. Much work remains to be done on identifying markets.. Orex will be filing a 10-SB with the Securities and Exchange Commission detailing the properties' data and Orex's plans for them. They promised to provide ADMMR a copy of the report. They plan to add the Waters Sunset property to their Santa Maria Project and reported to have the Sawyer exploration data on it. Don Blackburn and Bobby Westbrook are 50-50 partners in the unpatented claims of the Waters Sunset at Santa Maria (Westbrook owns the patented claims). It is scheduled to become part of the Santa Maria project later.

Don Blackburn reported that he has lots of mining experience. Among the projects reported he or his company did the drilling for ???? at the Anderson Mine. Resumes for both of the Blackburn's and others joining Orex will be part of the SEC 10-SB filing. The Blackburns are now the major shareholders of Orex and have placed 4 of the 7 board members. Jeffrey Blackburn serves as one these 4. They desired a NASDAQ OTC company, not a pink sheet company, as a vehicle to raise money for their mining projects.

They reported mining and shipping 1,000 tons from the Homestake property as Santa Maria Mining in 1995 to 1996 to Phelps Dodge for smelter flux. They related that the gold must not go through a 150 mesh screen as the smelters will only pay for a portion of the gold. They also reported mining and milling 5,000 tons, some by agitation leach and some by heap leach. The recovery was not very good due to the gold being too coarse. They have used Chris Stalnaker's mill as well as the Black canyon mill for the gravity tests. Stalnaker has helped at their Homestake mill also. They have not, however, gotten good gravity recovery either. They did not mention the possibility that the actual gold grade could be lower than they report to explain the poor recoveries by the various recovery methods.

Don Blackburn reported he was excited about the silica, not the gold. They will just recover it with the other 8% of the "contaminant" metals including silver. They estimate it will cost \$58 per ton to upgrade the silica content to 99.5% at a grind of minus 200 mesh by conventional grinding and floatation. This estimate does not include underground development, mining costs, nor capital costs.

The Blackburn's complained how the company was being run, but would not report on who the officers were or what mining experience they had. They explained that the board thinks things will be better now. They did report new staff will be hired to work on design of the recovery plant and metallurgical recovery. Contrary to reports that they conducted Haber recovery demonstration at the mine, they reported none had taken place at the mine or anywhere else. Demonstration tests using aqua regia were conducted at Chuck Porter's mill in the Bradshaw Mountains and Jim McCall's mill north of Tonopah. They are not sure if they will use chlorine, the Haber process, cyanide or what method they will use to recover the gold and other "contaminate" metals.

They report that the mine is fully permitted despite not knowing what recovery and processing methods will be used. They report they won't need an ADEQ Aquifer Protection Permit as they have an old GWQP. As everything will be recovered and sold, they plan to operate as zero discharge facility and will not require a tailings facility.

Gold and Silica Project

Yavapai County, Arizona



The Santa Maria Project Executive Summary

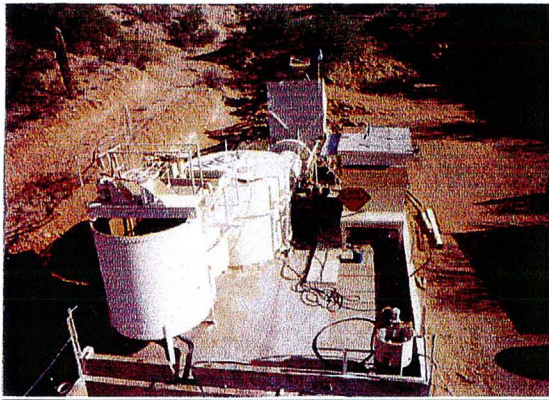
This summary report has been prepared to assist in the evaluation of the Santa Maria Project as a precious metal mining operation. The purpose of the summary is to give a clear understanding of the geology and history of mining operations undertaken on the property and to provide an overview of the economic potential that exists on the Santa Maria property.

Description

The Santa Maria Project is a mineral and precious metals mining venture located in the Eureka Mineral Province of Yavapai County, Arizona. The province is approximately 25 miles in length and extends from the 1 million ton per year Cyprus/Climax "Bagdad" Mine on the north to the 100,000 ton per year Republic "Goldfields" Congress Mine in the south.

There is a rich history of gold mining activities in the Santa Maria area. Several large mining companies have done extensive exploration in the area. The project lies approximately at the center of the province and is not in an environmentally sensitive area.

There are two properties owned by Orex Gold Mines Corporation. The Santa Maria Mine property consists of 14 unpatented lode-mining claims covering approximately 280 acres. The Santa Maria Mine is fully permitted and has an approved mining plan for production. The mine is currently on active standby awaiting process testing results. The Arch Claims group covers 200 acres and consists of 10 unpatented claims.



Overview—Santa Maria Mine Claims

Two mines have been developed and commercially produced gold and silver—the Santa Maria Mine and the Big Stick Mine. The Santa Maria Mine site is fully permitted and is currently in a process testing phase. A 100 ton per day mill and cyanide leach operation on site is currently being modified to accommodate chlorine leach, flotation, and gravity processing methods. A substantial amount of capital was spent on exploration and development of a 250 foot shaft and 600+ feet of drifting and stoping as well as mine infrastructure.

All of the geological and analytical work that has been completed shows that the Santa Maria property contains substantial quantities of quartz vein material containing 82.5% to 99.9% silica (SiO_2). Although quartz is a common mineral, vein deposits of this grade and quality are quite rare. The vein material also contains 0.25 ounces per ton gold, 0.42 ounces per ton silver, and 0.34% copper.

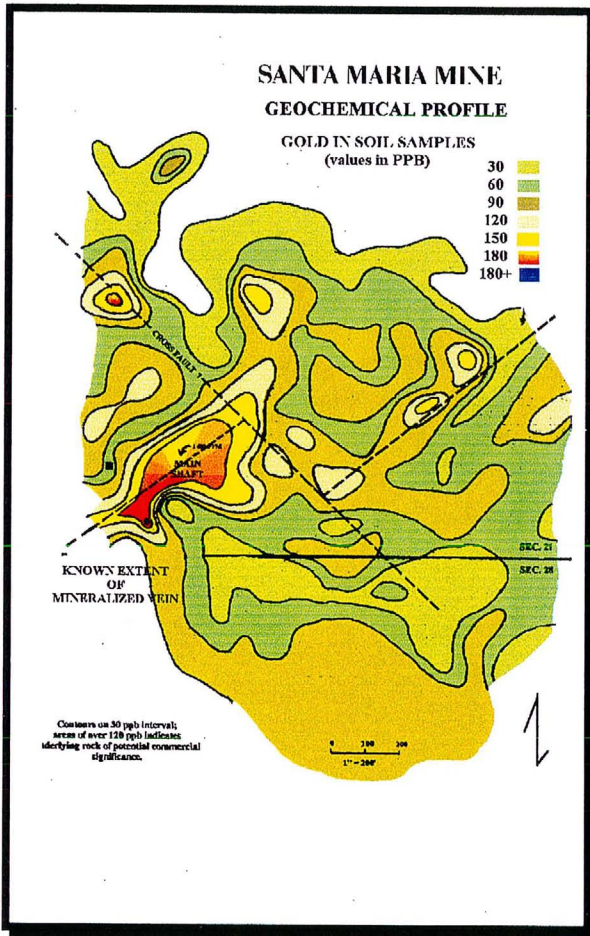
Unlike sampling small portions of the vein, the above assay results are from 220 tons of vein material that were shipped to the Phelps-Dodge Hidalgo Smelter in July and August 1996. Several independent consultants also analyzed an additional sample, referred to as the composite. The composite was composed of 10-15 pounds from each blast for a distance of over 100 feet along the strike at the 200 foot level of the Santa Maria Mine. A total of 650 tons of ore was mined for this composite.

The smelter settlement sheets confirm the precious metals potential on the property. Independent assays also confirm this content within a reasonable certainty. Research has been and is continuing to be done regarding the treatment and processing requirements to recover the precious metals in an environmentally friendly process.

Substantial investment has been made to mine the precious metals on the Santa Maria property. A great deal has been revealed about the nature and extent of mineralization on the property. Efforts were made over at least 100 years to exploit the mineral potential that exists. Many of the assays and geological reports are of significant value in estimating ore reserves and other criterion to assess the value of the property.

Every effort has been made to accurately interpret this data.

The Quantec IP geophysical report is the most informative recent data that has been received on the Santa Maria silica potential. This data indicates that several anomalies were discovered on the property with characteristics of large mineralized zones extending to depth. Although the three dimensional maps have not as yet been completed, the Geochemical Profile Map is included in this report.



The Enyart Report states that “there is a considerable length of explored and partially developed vein system. It totals about 18,000 feet.” Furthermore, the report states “For the purpose of estimating inferred ore ‘known mineralization’ is projected over a total of 1000 feet measured along the dip of the system.” The vein systems are known to exceed 4000 feet in depth at both the Congress mine and the Bagdad mine.

From a review of the drilling, sampling, and geological mapping, the metals potential can be safely estimated by using an average vein width of 6 feet of mineralized vein. In the Enyart report “Ore Reserve Estimate—Proven and Probable Ore Blocks,” vein thickness for the mineralized portions were well within this range. Additionally, his reserve estimate for the property was approximately 509,000 tons of inferred ore, containing 143,480 ounces of gold and included only the Santa Maria vein. The House report on the Waters-Sunset claims adjacent to and a continuation of the Santa Maria vein system also indicates the same width average of mineralized portions of the Waters-Sunset vein.

Using the vein thickness estimate, the inferred reserves would be approximately 13.8 million tons. The material would grade 0.25 ounce per ton gold, 0.42 ounce per ton silver, and 0.34% copper. These estimates are based upon the Phelps-Dodge Smelter assay and payment settlement sheets for Lot 8001.

The Santa Maria claims offer an excellent opportunity for development of existing reserves as well as exploration targets from the Geochemical and Geophysical data for future operations. The additional incentive of being permitted and capable of quickly resuming mining and milling operations will save costly and time consuming delays associated with the permitting process.

Overview—The D&H Claims

The D&H Claims have not had the benefit of detailed Geological mapping or drilling exploration. There is, however, extensive development of shafts, audits, and test pits. Most of the previous workings were developed nearly 100 years ago. There are several reports that were obtained from archives as well as a Reconnaissance Geology Investigation by the Arizona Department of Mineral Resources.

The properties cover a Geological anomaly known as the “Turnbaugh Ledge.” The ledge is a continuous vein averaging approximately 35 feet in width and traceable for approximately 12,000 feet with approximately 8,000 feet being apexed by the Arch claims. The vein dips at an angle of between 30 and 60 degrees. There is also a good possibility, based upon the aforementioned reports, that a large

“disseminated type” deposit may be associated with the vein system.

Assays from operations in the late 1920's to the early 1930's include values for gold between 0.50 to 13.7 ounces per ton. Silver appears infrequently within this vein. The values appear to increase with depth and are fairly consistent throughout the strike of the vein. Secondary enrichment, below the water level, has also been noted in workings below this level.

Three shafts are on the D&H property and are in excess of 500 feet in depth. Drifting and stoping indicates that reserve estimates of 18 million tons of proven and probable ore grade material exists to 500 feet in depth. Further exploration may lead to development of this ledge to a depth of 4000 feet or deeper and would significantly increase reserves on the properties.

In the words of Ken Phillips, Mineral Resources Engineer for the State of Arizona Department of Mines and Mineral Resources, “It is my thought that the gold vein system is part of a very long, very deep single vein system with district size potential.”

OVERVIEW - SILICA (QUARTZ) and MARKETABILITY

Silica (SiO_2) is the most common mineral (approximately 12% by volume) in the earth's crust, and due to weathering, on the earth's crust as sand, gravel and soil. Suffice it to say that silica and the silicate minerals in all their forms make up 95% of the earth's crust.

Although normally clear or white, it is found in a broad range of colors due to impurities commonly found within it. It is the impurities that are found in the quartz that make most deposits of silica materials of little economic importance. Many mineral impurities cannot be separated from the silica matrix by conventional milling and processing technology.

The quartz produced from the Santa Maria mining operations easily falls within the “flux” market for smelting operations, although the market is considered “low end” and much of the precious metals' value would not be recovered. This market would not support mining operations due to shipping costs and associated expenses due to the remote locality of the mine.

The nearest smelter, the Asarco Hayden Smelting Plant in Hayden Arizona, is 140 miles from the mine site. Currently, the market for this grade of quartz material is \$35- \$50/ ton and there is interest expressed by several smelters to purchase Santa Maria material for this purpose.



The “higher end” silicon chemical markets are much more lucrative, and require very little additional cost to enter. Silicon chemicals can be divided into two groups - one that follows the silica sand/ sodium silicate route and the other that follows the lump quartz/ silicon metal route.

The necessity of milling the Santa Maria quartz for the removal of the precious metals would preclude entering the lump quartz/ silicon metal route due to physical specifications. The process utilizes an electric arc furnace that cannot tolerate fine material. This market is, however, less restrictive in the quality of quartz used and may vary considerably depending on the end use (steel alloying, aluminum production and refining, or chemicals) and individual customer specifications.

The ferrosilicon market could be explored if assay values fall within the specifications for unmilled quartz vein material and precious metal values do not support the milling and processing of low grade ore recovered from mining operations.

This market is rapidly expanding, and demand will certainly drive prices upward in the future.

The Santa Maria quartz is quite remarkable in that it has not been evaluated for its potential of supporting gold and silver mining activities. The recovery of precious metals has always been the main focus of these activities, at the Santa Maria and other nearby mining operations.

Considering the economic value of silica, the Santa Maria mine should be operated as a silica mine and not as a precious metal operation. The value of the metals associated with the silica only make the project that much more attractive as a commercial venture.

The revenue projections are based upon the value of recoverable and salable commodities as proven by the Phelps Dodge Hidalgo smelter runs, and show the economic importance of silica in the profitability of mining operations on the Santa Maria Property.

The sodium silicate group of products includes such items as sodium silicates, potassium silicates, soda-alumina silicates, calcium silicates, silica gels, precipitated silicas, and synthetic silicas. Though more restrictive in the quality of the quartz used in these products, the assay values indicate that Santa Maria quartz vein material can readily enter this market. From this route it can enter "higher end" silica markets that include:

- **Detergents- Domestic and Industrial washing powder.**
- **Chemicals- silica gels, desiccants, matting agents, water treatment, welding rod coatings, and froth flotation agents used in mineral beneficiation.**
- **Fumed silica - used in paints, adhesives, cosmetics, rubbers, pharmaceuticals, and other industrial applications.**
- **Precipitated silicas and silicates - for rubber reinforcement, functional fillers for inks', adhesives, sealants, and toothpaste, carriers for pesticides, and extenders in emulsion paints.**

The "higher end" market is the most prominent silica market, with average prices ranging from \$175- \$250/ ton for 99.0- 99.8% SiO₂ and less than 0.06% Fe₂O₃. Silica that grades less than 0.006% Fe₂O₃ fit within specialty glass markets with prices ranging from \$250- \$750/ ton.

The Santa Maria quartz will be able to enter the "higher end" market with some additional research and development of processing methods that are currently being evaluated. The Santa Maria quartz is currently carrying 0.072% Fe₂O₃, 2.98% Al₂O₃, and 1.55% K₂O. The silica content is 95.16% and initial testing indicates that both the Al₂O₃ and K₂O can be removed with an additional cost of approximately \$3.00/ ton.

The "highest end" market represents a very small part of silica production and markets. In this grade silica stringent specifications require 99.9% SiO₂ and less than a few parts per million of contaminants. This grade of quartz is utilized as natural crystals, crushed quartz, and quartzite, as fine ground silica, and as naturally occurring quartz sand.

The optical properties of the quartz crystal make it unusually suitable for high quality lenses, lens components, wedges, plates, and prisms. The piezoelectric properties of quartz make it

indispensable in communication (fiber optics), time control, and other electronic devices (semiconductors, etc.). These uses require the best colorless and defect free crystals, which are usually cultured. "Lascas" is the SiO₂ feed stock material used to culture these crystals.

Lascas is quartz crystal and crystalline material of extremely high chemical purity (impurities measured in parts per million). For producing 1 kilogram of as-grown quartz between 1.3 and 1.4 kilograms of lascas is required. Lascas is the most prominent of the products that enter the "highest end" market.

The Santa Maria quartz vein material has yet to be purified to a level that would allow it to enter this market. There is, however, considerable reason to believe that the quartz can be cleaned to the more stringent specifications required.

The average price of lascas consumed by the five cultured quartz crystal growers in the US during 1990 and 1991 was \$0.85/ kg, roughly \$773/ ton (Ober., 1991). United States production of lascas amounted to 423 tons in 1990, and US producers of synthetic crystals used about 564 tons during that time. Production was 425 tons in 1991, and consumption was 550 tons (Ober., 1992). The average price paid for the imported lascas to cover the demand was \$1.84/ kg., or approximately \$1,673/ ton.

The average 20 - 30% shortfall in production vs. demand during the 1990- 1991 time frame is probably not representative of the current market due to the accelerated growth of the fiber optic, silicon chip manufacturing sectors, and other advanced technology markets. Although no statistics are currently available to support this conclusion, trends for the period from 1986 through 1990 would suggest it to be the case.

The highest grade silica can sell for up to \$8,000/ ton, although there is very little of this material used in industry, and is usually sold by the gram or pound to a small market. Products in this classification are commonly used in liquid chromatography and chemical separation, photovoltaic power systems (solar cells), infrared optical systems, integrated circuits and semiconductors. Santa Maria quartz may find this market place with proper research and development of the silica potential that exists.

Nyal Niemuth

From: Nyal Niemuth <njn22r@hotmail.com>
To: John Dowis <dowis.john@ev.state.az.us>
Sent: Tuesday, October 26, 1999 9:50 AM
Subject: Orex Mining

October 26, 1999

John Dowis
APP unit
Az Dept. Environmental Quality

Dear John:

Has DEQ issued an APP or other permission to construct or operate to Orex or Don Blackburn for the "construction" of this mill at the Homestake Mine, Yavapai Co. T12N, R9W Sec 21 or lat / long 34-21-42 / 113-11-50 ?
Mill is reported to be a Haber process demonstration unit.

To gauge activity at the mine review these photos of the mill at:

<http://orex.homepage.com/santamaria.html>

Thanks,

Nyal Niemuth
Mining Engineer
Az Mines and Mineral Resources

JAS

BRIEF ASSESSMENT OF SANTA MARIA-HOMESTAKE PROJECT

YAVAPAI COUNTY, ARIZONA, JAN. 1, 1993

by

GENE ENYART

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SUMMARY

The area discussed is about two miles long and a half mile wide, straddling the Santa Maria river, a mile west of Hwy 93, in Arizona.

Pre-Cambrian metamorphics are cut by at least two sets of faults mineralized with gold. Large volumes of low tenor appear to be possible but are not known. Small shoots of moderately high grade, about 0.4 opt, are known. One such is partially developed in the Santa Maria-Homestake (SM-H) mine, which is also the site of the mill discussed here.

Near the main shaft of the SM-H mine 5660 tons at .35 opt is in the proven and indicated categories.

On the entire property 65,600 tons at .32 opt are considered proved and indicated, with an additional 509,650 tons at .28 opt inferred.

The mill as it stands can extract gold, but for significant production requires additional development. What is needed is an expansion of permitted leach pad of about 10,000 ft² and its accompanying pond. This would enable mining and milling of about 750 tons/mo with little more than the present equipment and crew

A truncated procedure is planned, which will allow producing very soon although in a temporarily inefficient mode, pending acquisition of more pad and setting up an agglomeration process.

LOCATION AND GEOLOGY

The property straddles the Santa Maria river, starting about a mile west of Hwy 93 and extending southwest about two miles. Land surface is mostly between 1700 and 2300 feet above sea level. Temperatures range from below freezing to over 110°F in summer. It is arid. Plants include paloverde, creosote bush and cacti.

Outcropping rock is pre-Cambrian older than 1.5 billion years, and metamorphosed, consisting of granite, granite-gneisses, schists and quartzites, all extensively intruded by pegmatites. Relatively recently--in Mid-Miocene--tuff, ash and lava have covered the old rock and now have been eroded off again in large part, leaving "islands" of these young volcanics.

So far as I know now, gold mineralization is not significant in the volcanics here--although in this same geologic province I have seen significant gold in the young rhyolites--and so the emphasis in evaluation will be on understanding the metamorphics.

Faults show that they have been subjected to early and late tension and to compression, and so relative movements include normal gravity slide and also nearly horizontal thrust displacement. (This keeps a geologist entertained.) Mineralizing solutions rose on openings in fault systems, often altering rock minerals adjacent.

In addition to quartz, these solutions deposited iron, lead, copper, silver and gold minerals. Sulfides were an important part in at least one mineralizing pulse and probably are common at depth in the fault systems. Mostly, near surface, the metallics, excepting gold and silver, are oxidized by meteoric waters reacting with sulfides. Dating of mineralization emplacement has not been done. The suite suggests at least three pulses. I suspect the latest was related to Miocene introduction of rhyolite.

Two fault sets or more carry commercially significant ore.

Judging from mining history, two other consultant's reports and my spot checks in the vicinity of the SM-H mine, this kind of environment extends two miles westerly and a half mile wide. Vertical extent is not known, but the range in surface occurrence together with mining and drilling data indicate at least a thousand feet.

Mining has been confined to grades of about .4 to .8 opt. So far as we know now, shoots of such tenor are measured in tens and (less often) hundreds of feet in length along strike, widths of from a foot to a few feet and with vertical dimension tested little. Because such vein deposits typically are higher grade in shoots that rake at an angle down the fault plane, it is important to learn about the zoning, vertical extent and periodicity as well as the usual tenor of the shoots.

If these same mineralized fault systems are looked at with a criterion for ore grade being set at .25 opt (or even as low as .05 opt for some widths) because of milling or mining innovations and market fluctuations, then the zones of interest are considerably enlarged. How they would appear we do not know, because they have not been explored or developed with such grades in mind. Nor have quite different systems, say stockworks, been sought.

Reserves in the immediate vicinity of the main shaft of the SM-H mine above the 150 foot level and based on Sawyers Consultants samples are:

Assured 1850 tons with 580 oz (.31 opt)

Probable 1850 tons with 300⁺ oz (about .17 opt)

See Ore Blocks sketch

Results of sampling done by John Pierson for FMC corporation in 1987 and going to lower levels enlarge the picture.

Apart from a sample of ore in the chute (near where we are mining now) which ran .256 opt, and three samples selected on the hanging wall which assayed .188, 1.260 and .278 opt, the remaining 15 samples were across the vein and averaged .41 opt Au.

With these data we can extend the calculation to the bottom level. They also have the effect of thickening the lower zone and raising the grade. (One sample in the shaft about 30 feet above the back of the lowest drift was 10.1 feet of .996 opt.) Recalculating using these data:

Block 8 goes from 460 tons with 138 oz to 831 tons with 482 oz.

Block 9 goes from 548 tons with 164 oz to 839 tons with 355 oz.

Block 11, not calculated before has 1597 tons with 502 oz.

Block 12, " " " " 694 tons with 197 oz.

Block 4 would be somewhat higher in grade using Pierson's and my data.

Because these samples shift the "center of gravity" of mineralization to the southwest--agreeing much better with my theory of a shoot of high-grade raking down the fault plane--Block 10 is weakened and should be deleted in this calculation. That removes 1000 tons (possible) with 150 ounces. Overall the effect is an additional 1953 tons with 1084 oz, or a total of 5663 tons and 1977 oz (grade of .35 opt) about half of which may be considered proved and half indicated.

Additional tonnage is indicated lower in the system and also to the northeast and southwest. It is undeveloped.

RESERVES IN P. M. MINING/GOLDRIDGE INC. AREA.

Using data developed by Sawyer Consultants, Inc. and by John Pierson with FMC, I have made a first approximation of reserves in the area controlled by Don Blackburn and P. M. Mining/Goldridge, Inc. Claims cover about two square miles. The area considered for this calculation is about two miles long and a half mile wide.

Although it is reasonably well explored it is far from developed, and so reserves are not well-defined. Nevertheless, the hunter needs to decide whether it is appropriate to go ready for bear or carrying a 410.

At the SM-H mine, over a length of 800 feet surface samples (10) averaged 2.2 feet at .189 opt. This is in an unfaulted part of the vein including the main shaft. Near the shaft over 5000 tons at .35 opt is partially developed. Possibly a like amount has been removed, from a length measured along the fault of about 150 feet. Because sampling has indicated that this fault is mineralized generally and because high grade mineral exists at each end we may assume two more shoots similar to the one being mined, or 20,000 tons additional indicated reserves to 200 feet below surface.

East about 1400 feet from the SM-H shaft, a hill top exhibits high-grade (.5 opt) float vein material. Southwest on a strike like that of the SM-H vein is an altered zone which assayed .095 opt over a width of 30 feet grab-sampled. Because these two occurrences are about 600 feet apart and one is high grade and presumably narrow while the other is of low grade and wide, it is difficult to assess. I think 6000 tons at .25 opt indicated can be safely assigned to it. There is the possibility here, as there is in two other known occurrences, for open pit low-grade.

Across the Santa Maria from the SM-H shaft is the Weepah mine. A small tonnage of high-grade has been shipped from it, but too little information is available now to permit estimating indicated ore.

Southwest of the SM-H mine are two shafts on the Big Stick vein-- which probably is the same vein offset to the west--in and near which mineral is consistent but mostly of low grade. Probably minable tonnage can be developed in this stretch, but it remains to be done.

On the south Big Stick vein segment samples over 130 feet averaged 2.4 feet at .775 opt. Extending this to 200 feet in depth and with mining width of 3 feet indicates 6000 tons at .62 opt (3720 oz). In this same area an altered gneiss sampled over a width of 12 feet went .127 opt. This suggests possible large tonnage of low-grade here.

We may use the 2nd level of the Waters mine as a sample of that vein because it is the largest test along that system. One continuous shoot sampled over 150 feet averages 2.57 feet wide at .27 opt. A second, slightly offset by faulting, is 90 feet long--probably more when the faulting is understood correctly--and averages 3.8 feet wide at .207 opt. Together, and taken 500 feet down the vein, these would yield 27,954 tons with 6723 ounces (avg. .24 opt) indicated.

Summing up proved and indicated ore:

Location	Tons	Ounces Au
Eastern SM-H	6000	1500
SM-H near shaft (P)	5663	1977
" east and west of shaft (I)	20,000	7000
South Big Stick	6000	3720
Waters (near river)	<u>27,954</u>	<u>6723</u>
	65,617	20,920 (.32 opt)

As can be seen on the Veins, Faults and Workings map, there is a considerable length of explored and partially developed vein system. It totals about 18,000 feet. About 10% of it has been developed to some extent. This provides one measure of undeveloped potential.

On these vein systems significant gold mineralization has been seen in surface shows, mine workings and drill holes over about 1000 feet vertically, and so I assume that generally deposition of gold here occurs over that range. It may be more. For the purpose of estimating inferred ore known mineralization is projected over a total of 1000 feet measured along the dip of the system. This would always be less than 1000 feet vertical.

Inferred Ore

Location	Tons	Ounces
Waters (near river)	28,000	6,700
Eastern SM-H	24,000	6,000
SM-H near shaft	22,650	7,900
" E & W of "	80,000	28,000
S. Big Stick	24,000	14,880
Northern Waters	56,000	13,400
Southern Waters	50,000	11,600
SW of Big Stick	25,000	15,000
Other mineralized systems	<u>200,000</u>	<u>40,000</u>
	509,650	143,480



ROSE MOFFORD, GOVERNOR
RANDOLPH WOOD, DIRECTOR

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

LARRY McMILLAN
CARL OLSON - MINE FOREMAN
LARRY PROUIT

HOME STAKE

YAVAPAI
(MIL) 13A

K MB

NOTICE OF INTENT TO ISSUE A GROUNDWATER QUALITY PROTECTION PERMIT(S)

Pursuant to Arizona Administrative Code, Title 9, Chapter 20, Article 2, the Director of the Arizona Department of Environmental Quality intends to issue a Groundwater Quality Protection Permit(s) to the following applicant(s), subject to certain special and general conditions.

Public Notice No. 57-89AZGW
Carl's Santa Maria Mine
PN Mining Corporation
3939 East Coronado Drive
Tucson, Arizona 85718

On or about
June 15, 1989

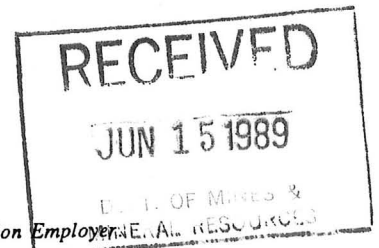
Home Stake Mine

Groundwater Quality Protection Permit No. G-0077-13

This facility is a small precious metals mining and recovery facility located about 36 miles southeast of Wikieup, Arizona, in Yavapai County, along the south side of Highway 93 near the highway crossing of the Santa Maria River. This facility will utilize primarily a tank leach system, but is also designed for heap leaching small quantities of low grade ore. Cyanide solution will be the lixiviant. A maximum of 20 tons of ore per day will be processed. The closed circuit tank leach system will be mounted on six (6) inch concrete with containment freeboard. The heap leach and barren pads shall be six (6) inch concrete with geomembrane underliners plus leak detection systems. The pregnant and barren solution ponds will have double liners of geomembrane plus leak detection systems. All solutions will be recycled. There shall be no discharge of cyanide to the surface or subsurface.

The permit and related material are available for public review Monday through Friday, 8:00 a.m. to 5:00 p.m. at Arizona Department of Environmental Quality, Water Permits Unit, 2005 North Central Avenue, Phoenix, Arizona 85004.

Persons may submit comments or request a public hearing on the proposed action, in writing, to ADEQ at the above address within thirty (30) days from the date of this notice. Public hearing request must include the reason for such request.



The Department of Environmental Quality is An Equal Opportunity Affirmative Action Employer

REPORT ON THE GEOLOGICAL MAPPING AND SAMPLING PROGRAM

SANTA MARIA - HOMESTAKE MINE PROPERTIES

Yavapai County, Arizona

Winter 1985-86

David S. Gray

April 15, 1986

Paula Davis

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Location

The Santa Maria-Homestake mining properties are located in T12N, R9W, sections 21, 28, with additional portions of section 29. Sections 21 and 28 are state land with 20 acres of BLM land held by 2 unpatented claims in section 21, and 60 acres of BLM land held by 6 unpatented claims in section 28. Additional BLM land is held in section 29 with 8 unpatented claims. The properties are on the Santa Maria River directly south of Highway 93 and 37 miles northwest of Wickenburg, Arizona.

Accessibility

Access to the properties is excellent. A dirt road 2 1/4 miles east of the Santa Maria near highway marker 163 leads south from the pavement and northwest to the mines. The main workings of the Big Stick Mine is approximately 3 miles from the highway and is immediately accessible by the excellent dirt road. All the mines except the Weepah are accessible by road.

Climate

The area is in the Sonoran desert zone of Arizona. The vegetation is the typical assemblage of saguaro, cholla, and prickly pear cactuses mixed with palo verde, mesquite, and creosote bushes. The desert climate is hot in the summer and mild in the winter allowing for year round operations.

General Setting

Rocks of paleozoic and mesozoic age are missing from the Santa Maria-Homestake Mine area. The region has a large pile of Tertiary (miocene) silicic volcanic rocks composing the Black Mountains overlying a precambrian terrane.

Immediately south of the mineralized areas in section 28 is the contact into the volcanic cover. On elevated benches at spots along the river, the precambrian bedrock is covered with old river gravels.

Granitic Gneisses

The host rocks for the mineralization are a series of granitic gneisses and biotite schists thought to be between 1.7 and 1.8 billion years old. The gneisses are foliated to weakly foliated muscovitebiotite quartzofeldspathic rocks, locally pegmatitic. Throughout the gneisses are scattered numerous xenoliths of biotite-quartz schist. The xenoliths are often up to dimensions of 150 feet long, 10 to 15 feet wide and are commonly in clusters. The foliations and lenticular biotite-quartz schist xenoliths generally trend north to northeast. The mineralized veins generally crosscut the grain of the gneisses.

Tertiary Volcanics

Immediately to the south of the mineralized areas is the contact into the volcanic pile of the Black Mountains. These are lavas and volcanoclastics at least 2,000 feet

thick and are presumably of miocene age. They post date the period of intense extensional listric faulting well exposed in the mountains to the south and west. They appear to be affected by some rotation associated with Basin and Range style normal faulting. How serious Listric and Basin and Range faulting affects the precambrian terrane immediately to the north where the properties are is uncertain, but appears to be minimal.

River Gravels

The Santa Maria River has left some extensive and elevated benches of old river gravels. The northern part of section 21 has such a bench and the Riverbend Exposure is truncated by another bench. There is a small bench where the road forks at the minesite covering the northern extension of the Millsite Vein and a larger one directly across the river in section 29. Even on the higher hills in the northwestern part of section 21 can be found rounded boulders. These may be what is left of older dissected alluvial fans.

Mineralization

General

The gold mineralization on the Santa Maria River properties occurs as auriferous quartz veins in the granitic gneiss terrane. The veins are 70-90% quartz, the remainder

being a variable content of limonite pseudomorphs after pyrite, hematite or specularite. Minor chalcopyrite is present and a small amount of secondary copper has been observed but is negligible. Halotrichite has been seen on the Riverbend Exposure and on the 100 foot level of the Homestake shaft. Also in the 100 foot level, small amounts of wulfenite is present.

The quartz is invariably stained and coated with limonite along fractures and gold is often visible as thin plates on these sites. The limonite pseudomorphs after pyrite are typically as scattered blebs approximately 1/8 of an inch in size, but larger grains and aggregates have been noticed up to an inch in long dimension. Some pyrite has been observed unaltered, but what is usually seen is limonitic boxwork and cubic pyrite sites in the quartz.

Except in the Homestake vein, specularite is not as ubiquitous as the limonite pseudomorphs but when present is commonly as grains up to 1/2 inch. More rarely and particularly in the Homestake vein specularite aggregates have been seen several inches in size.

The orientations of the quartz veins is variable. The larger more persistent trends such as the Big Stick, Homestake, Millsite, and Weepah trends are northeast, but trends of east northeast and eastwest have been seen in small test pits throughout the area. These are often

believed to be offshoots from main vein systems into both the foot and hanging walls.

At the Weepah, Riverbend, and South Big Stick locales, veining of white and black calcite and small amounts of chalcedonous quartz are present. This minor veining appears to be much later than the quartz veining. It cuts across the vein trends at a rough northwest orientation and appears to be a loose fracture filling. Its presence is puzzling.

In several places, two episodes of mineralization have been observed. In general, the locales coincide with high grade zones and locally intense hematitic alteration. This association is particularly obvious in the trenched zone on the South Big Stick vein, and in the southerly drift on the 100 foot level of the Homestake shaft workings. Associated with these relations are subparallel, post-vein emplacement faults. Slippage occurred on either the hanging or footwall contacts or as a "reseaming" within the quartz vein itself. Horizontal slickensides are common.

A paragenetic sequence is unknown at this point. However, the presence of veins, with limonite pseudomorphs after pyrite and more rarely unaltered pyrite, and veins with specularite suggest some kind of change in the nature of the mineralization. A few rare specimens with fresh specularite occupying a cubic site suggests a change from a system with adequate sulfur to a sulfur poor system favoring oxides. This may also explain the presence of hematitic

alteration associated with some of these zones. It is likely the second period altered previous iron sulfide to limonite, with the presence of hematite, in addition to depositing specularite (and magnetite?).

Apparently supergene alteration is not extensive. Fresh specularite is quite common on the Homestake and Big Stick trends in outcrop. The mines are generally quite dry.

Alteration

Alteration of the granitic gneiss around the veins is highly variable. Silicification is common directly adjacent to the veins in the form of vein and veinlet swarms angling away from the main vein into the gneissic wall rock. This has been observed to be from 2 to 3 feet to 20 to 25 feet in width. It is common to see selvages of the gneiss and biotite schist floating in both the main vein and in highly injected wall rock.

Sericitization occurs in large areas surrounding the Big Stick, Homestake, and Riverbend Exposure trends. Where it occurs it appears to be both extensive and wide, but not continuously parallel with the vein structure. In two major locales the sericitization of plagioclase feldspar seems to have occurred without development of sulfides.

These areas are:

- 1) A zone sandwiched between the south end of the Big Stick trend and the north end of the Millsite vein trend.

The exposure can be seen on the road dropping down into Black Canyon Wash to the recent Millsite, and

2) An area around the Homestake shaft. Due to the varying quality of the exposures and the apparent gradational nature of the alteration it is unknown just how extensive these zones are. More detailed mapping would be necessary. It is possible the alterations associated with the veins are superimposed on a retrograde alteration ubiquitous in the gneiss.

An anomalous zone at least 30 feet wide characterized by sericitic, hematitic, and chloritic (?) alteration can be seen roughly 600 feet up the draw from the north exposures of the Homestake vein. A grab sample from dugout spots at least 30 feet wide on the alteration assayed 0.095 oz/ton Au and 0.1 oz/ton Ag. It appears to be on strike with a zone of float leading northeast to sample 7642 on float assaying .502 oz/ton Au and 1.00 oz/ton Ag.

The Riverbend Exposure and the vein exposures near the east side of section 21 show similar alterations, but the sericitization was apparently accompanied by the development of limonite. Haloes of limonitic staining, hematitic alteration, manganese remobilization, and quartz veinletting surround all the fractures in the granitic gneiss. The depth of penetration is gradational from entirely altered rock to haloes one to two inches deep. It is unknown how wide the zone of alteration around the Riverbend Exposure

actually is. To the immediate west is the river itself and to the east from the top of the cliff, it is covered by river gravels. To the north and south, bends in the river cut the exposure off.

Similar alteration assemblages and patterns occur over a much larger area in the east portion of section 21.

Big Stick Veins

There are numerous old diggings on the Big Stick vein trend. The most extensive are two inclines 1200 feet apart that dip moderately to the east. The northern incline or Big Stick Incline #2 just below the collar dips at roughly 44° , the vein has a similar dip. Approximately 60 feet down, the incline continues, but the vein shallows out to roughly 10° and is exposed in the back of the incline. The incline stops at approximately 80 feet down where the back was carved away to reach the shallowly dipping vein.

Four channel samples were taken on the vein down this incline. Samples 7590 and 7591 divided the vein into two distinct seams at a point roughly 35 feet down where a doghole was started to the south. Sample 7590 is on the lower seam, it is 2.6 feet wide, shows some copper, and assays at .022 oz/ton Au. The upper seam (7591) is 1.8 feet wide, and assays .132 oz/ton Au. Sample 7592 was taken on the lower seam another 15 feet down from the doghole. This was roughly 2.0 feet wide, also shows traces of copper, and

assays .068 oz/ton Au. The fourth sample (7593) was taken across the entire structure roughly 25 feet down from the collar. The two seams are evident, total 3.5 feet wide, and assays .217 oz/ton Au. Mineralization of gold may be stronger towards the hanging wall.

The Big Stick trend around Incline #2 is actually a vein swarm. The vein exposure in the incline can be seen in exposure for approximately 400 feet. To the west of the incline a second vein can be seen in outcrop and extending roughly 200 feet to the north where it is exposed in the road where it curves around the point. Several smaller veins into the hanging wall from the incline can be seen trending roughly 200 feet to the north also. The average grade of 8 channel samples taken on vein material around Incline #2 are .094 oz/ton Au and .323 oz/ton Ag. Vein width averages 3.08 feet. All ten samples taken on this vein trend average .1016 oz/ton Au and .301 oz/ton Ag.

There is apparently no continuous vein structure striking south to Big Stick Incline #1, however, an undeveloped parallel vein, roughly 150-200 feet to the east, does strike south nearly the full distance. Four samples on this vein average .099 oz/ton Au and .318 oz/ton Ag. The vein is essentially undeveloped except for a test pit on the old rail bed above the existing road. Samples 7602 and 7666 were taken on the vein here. The samples are contiguous and total 7.4 feet wide. Sample 7602 was taken on a portion of

the vein with abundant specularite in milky, vitreous quartz. Sample 7666 was taken on a vuggy, hematitic rich portion of the vein to the footwall also containing specularite. The presence of abundant specularite is in contrast to the veins exposed in the two Big Stick Inclines.

Due to the dozer work around Big Stick Incline #1, outcrops of the vein are not visible. However, a test pit, roughly 400 feet north of the incline, indicates a vein of similar northeast orientation may be present. Big Stick Incline #1 also has the most extensive underground workings on the Big Stick trend. The incline dips to the southeast at 42° and stays at roughly the same dip to an approximate 200 foot level. Here it appears to be filled with water. Descriptions on file with the Department of Mineral Resources say that a drift extends to the north 166 feet at the 200 foot level (Federal Bureau of Mine IC 6991). At the 100 foot level, there is a drift to the south approximately 133 feet in length. Nine samples were taken down to the 100 foot level and in the southerly drift at this level. Eight are channel samples and one is a character sample on a hematitic filled fault structure. The eight channel samples average 0.051 oz/ton Au, 0.095 oz/ton Ag, and average 4.4 feet in width. The absence of specularite in this vein may be significant to its low grade character.

A shaft of unknown depth is situated 700 feet south of the Big Stick Incline #1. This zone of workings consists of

the shaft which is at least 50 feet deep, small scale stoping leaving a pillar at the collar of the shaft, and trenching of the vein at least ten feet deep for roughly 75 feet to the north. The trenching leaves a "pillar" and then is trenched for another 20 feet.

Significant gold values were obtained on all samples taken on these workings. The total length of the South Big Stick vein is approximately 350 feet with a small 60 foot incline on the north end. Twelve channel samples taken on accessible vein outcrops over the entire length average .388 oz/ton Au and .284 oz/ton Ag. The width averages 2.34 feet. In addition, in the vicinity of samples 7719 and 7720, sample 7719 is a chip sample 12 feet wide taken on altered gneiss on the same strike, with visible gold, that assayed 0.127 oz/ton Au and 0.11 oz/ton Ag.

In the vicinities of samples 7581 and 7582, in the trenched zone, gold is visible, and specimens are easy to collect. The length of vein only around this trenched area and the South Big Stick shaft averages .775 oz/ton Au over widths averaging 2.4 feet. The length is 130 feet. The South Big Stick vein is steep and within the shaft stays at a 61° east southeast dip. The footwall shows extensive silica flooding, much more so than the hanging wall. The hanging wall contact of the vein appears to have had some slip on it and there is probably a relationship between the higher grade gold and this hanging wall movement. The gold

mineralization appears to be stronger to the hanging wall although two samples on an offshoot vein into the footwall to the southwest and leading down to the river ran 0.186 oz/ton Au and 0.152 oz/ton Au (7722, 7721). In addition, a sample of the silicified, injected footwall rock ran .039 oz/ton Au over four feet wide from the vein. This zone, however, is up to 20 feet wide. This sample and the previously mentioned sample 7719 suggest that mineable widths could be more than four feet wide and perhaps even strippable.

Sample 7723 (.110 Au, 0.06 Ag) was taken on a southern extension of the main South Big Stick vein. Although the vein pinches out between this sample and the shaft, it suggests that the vein may continue to the south along the river. This sample was not included in the average calculation for the 12 channel samples previously mentioned. Although the main vein does appear to pinch out in this area (where the old ore chute still stands), the southwesterly offshoot appears to continue for this interval. In the vicinity of samples 7672 and 7673, the vein has a small en echelon jump of a few feet to the west.

Homestake Shaft

The Homestake shaft has the most extensive workings on the property and is located approximately 1200 feet east northeast of Big Stick Incline #2. The vein is easily

traced from the shaft 400 feet in a N40-45E direction where it is exposed in the wash bottom and goes under some local alluvium. It is unknown how far the vein structure may persist into the hill to the north. At a hilltop roughly 1400 feet to the northeast of the shaft, a good looking zone of float was sampled that assayed 0.502 oz/ton Au. It is possible that this is another vein of similar trend approximately 800 feet to the east of the Homestake. This interpretation is supported by the presence of a sericitic and hematitic alteration zone in the draw approximately 800 feet to the east from the Homestake shaft. A character sample of this alteration at least 30 feet wide assayed .095 oz/ton Au.

The Homestake shaft was entered and sampled. It was found to have the most extensive workings on the property. At what is approximately the 50 foot level, a drift extend roughly 50 feet to the north and has a small stope almost reaching the surface. At approximately the 100 foot level, drifts extend 125 feet to the north and 90 feet to the south. The northerly drift has two small stopes and a more extensive sloping raise with a chute. Small scale stoping was done up this raise and probably reaches the 50 foot level. The Homestake shaft reaches a depth of roughly 200 feet where a drift extends 51 feet to the north.

The vein is exposed in the entire workings down the shaft. It was observed to range from 1.5 feet to 10 feet in

width. The average width of the channel samples is 4.29 feet. The average for the 15 underground channel samples is .411 oz/ton Au and .261 oz/ton Ag. In addition, several select samples were taken on the 100 foot level. Three samples were selected from the hanging wall of the vein. The vein is horizontally slickensided on both the foot and hanging walls in places, particularly the former. The hanging wall is heavy with specularite and shows some halotrichite and wulfenite present. Samples 7699, 7701, and 7707 assayed .188, 1.260, and .278 oz/ton Au, respectively. Sample 7698, at 0.256 oz/ton Au was grabbed from the chute in the north drift on the 100 foot level.

The average for 10 channel samples taken over 800 feet of strike on the surface is 0.189 oz/ton Au and .0258 Ag. The average width of the channel samples is 2.2 feet. The channel samples were taken where outcrops and old workings make the vein accessible. On two of them the entire vein width is not accessible. The sampling interval is not continuous over the entire strike but float samples fill in some blank areas. The average for 25 channel samples taken on the entire Homestake vein average 0.316 oz/ton Au and 0.260 oz/ton Ag. Average width on all the channel samples is 3.45 feet.

On the southern end of the known extent of the vein 400 feet to the southwest of ^{the} shaft, is a small crosscut into the vein. It goes in 45 feet in a southeasterly direction and

makes a T with drifts on the vein. The northerly drift is about 15 feet long with the vein at the face. The vein was sampled at this face and on the back at the center of the T. The vein assayed 0.026 (7725) and 0.469 (7724) oz/ton Au respectively. The south drift may go for 25 feet with the vein visible, but the presence of a substantial pile of cholla cactus segments brought in by a pack rat denies access to this drift.

Specularite is characteristic in the Homestake vein. Quartz is the predominant mineral with specularite as the iron oxide up to 15%. The quartz is milky white and massive with fresh specularite and smaller amounts of limonitic coatings. In places, the quartz can be quite vuggy and has bright red hematite shot through it.

Two samples of quartz float with specularite on strike to the south assayed 0.066 (7659) and 0.14 (7697) oz/ton Au. This suggests the vein is probably continuous between the Homestake shaft and the cross cut on the known south end of the vein. Three samples of the sericitized gneiss around the shaft and small adits to the north assayed nil.

Weepah Vein Structure

The Weepah structure exhibits some characteristics atypical of the area in general. Trending northeast from a long mineralized zone in sections 20 and 29 is a belt of altered rock, test pits, and quartz veins that have

significant gold values. Although in the canyon south and southwest of the Weepah (No. 4) tunnels a fault, probably a Basin and Range normal fault, is exposed, it does not appear to significantly disturb the Weepah trend.

From the area of the upper Weepah tunnel northeast and down the slope to a side canyon an altered zone is exposed. Chloritic, hematitic, and sericitic alteration of the granitic gneiss in zones up to 10 to 11 feet wide, accompanied by smaller amounts of quartz define the zone. To the southwest the zone is defined by small test pits on quartz veins and further southwest by mines on quartz veins. The Weepah structure also dips to the east although locally is reported to dip steeply to the west.

Samples of quartz vein material on this trend in section 21 average .235 oz/ton Au and .256 oz/ton Ag. Samples on the same trend directly to the southwest in section 20 average 0.325 oz/ton Au and 0.168 oz/ton Ag. Widths on these quartz vein swarms is unknown. Samples of altered rock on this trend in section 21 average .034 oz/ton Au and .245 oz/ton Ag. Sampled widths on the alterations are between 2 and 8 feet and average 4.17 feet. Observed widths are wider than sampled widths.

Unfortunately, the upper Weepah incline is not open for mapping and sampling. The old reports on the Weepah gold claims, describe the workings as having a 100 foot shaft with inaccessible lateral workings. This suggests a quartz

vein may be present similar to the southern Weepah workings in section 20. The lower Weepah incline appears to be on an entirely different shear structure trending more easterly. Samples 7630 through 7633 were taken on this shear and show it to be weakly mineralized averaging 0.029 oz/ton Au and 0.023 oz/ton Ag. It is between 1 and 2 feet wide. It is possible, however, that the bottom of the incline may intersect the Weepah structure. It was not accessible due to the presence of a skunk.

Riverbend Exposure

The Riverbend exposure is in the southwest corner of section 21. It is a small window of bedrock exposed through the cover of river gravels. It is a cliff paralleling the river approximately 400 feet long and 0 to a typical 35 to 40 foot height.

Exposed are several anastomosing quartz veins cutting through altered granitic gneiss. The alteration of the gneiss is discussed in the section on alteration. The veins vary in width from 0 to 15 feet. Towards the south of the exposure there are several veins anastomosing in and out of a thick vein emplaced directly above a low angle fault. The veins have a shallow dip in the east direction; however, the fault surface is difficult to determine due to the two dimensional nature of the exposure. It may have a more northeasterly dip. It is possible that the veins and the

fault are related. To the north along the exposure the fault dives below the river and the quartz veins become a longer and more consistent vein about 4 feet wide. There are several small adits going in on this structure. Offsetting both the low angle fault and the veins above it are some small high angle north northwest trending faults. The offset is in small increments, but the brecciation can be wide.

Eleven samples were taken on this outcrop (7608-7618). Six were taken on veins and four on altered granitic gneiss. One sample was taken on an extremely altered dike at the north end of the exposure. The average for the vein samples is .028 oz/ton Au and .148 oz/ton Ag. The average for the altered rock is .044 oz/ton Au and .122 oz/ton Ag. The average of them all including the altered dike is .035 oz/ton Au and .136 oz/ton Ag.

Given the rather consistent and disseminated distribution of the gold, the dimensions of the sampled exposure and the lack of any constraints on the size of the mineralized area, this is a target for a bulk tonnage gold deposit.

Millsite Vein

Exposed on the hill to the east and south of the recent Millsite is another quartz vein with a strike length of at least 800 feet. At the time of this writing, due to access

difficulties to the vein, only three samples have been taken of the quartz structure itself. These three samples averaged .279 oz/ton Au and .92 oz/ton Ag with an average width of 1.1 feet.

More work is intended on this vein at the time of writing. Several exposures need to be cleaned out and made safe for mapping and sampling.

History of Production

Old reports and shipping records in the files at the Department of Mineral Resources in Phoenix Arizona were examined for additional information. The shipping records roughly confirm the grades obtained in this sampling program. Descriptions of the earlier mining efforts and their techniques are quite interesting in light of what we know today about the property and the ores.

Apparently, very little is known about early operations in the area. Earliest indications suggest the gold bearing quartz veins were not claimed until the 1890's. At that point ore was hauled by burro to arrastres on the river.

Homestake Shaft

The earliest physical description of the Homestake shaft available is in the United States Department of the Interior Information Circular 6991, entitled "Gold Mining and Milling in the Wickenburg Area, Maricopa and Yavapai Counties, Arizona," and dated February, 1938. In November of 1936, the shaft was 140 deep on the vein with 50 and 100 foot levels developed. At this time the 50 foot level had drifts extending 50 feet to the north and 10 feet to the south. The 100 foot level had drifts extending 130 feet to the north and 60 feet to the south. A slope was started in the north drift of the 100 foot level, with widths of 4 to 8 feet, and a maximum height of 35 feet. Operations at this

APPENDIX

Weepah Mine

As late as 1958 the Weepah structure was held with five unpatented lode claims called the Weepah Golds #1 through #5. In 1962 section 21 was added to Arizona State Trust lands, which includes the northern end of the Weepah vein structure probably held previously by the old Weepah Golds #4 and #5. By 1971, Galagher had staked the portion of the Weepah vein structure in section 20 with the Blue Chip claims. In 1984 these claims were purchased and are now held by Terramar Resources of Vancouver, Canada.

Records on file with the Department of Mineral Resources described several underground workings on high grade veins of quartz that are on what was the old Weepah Golds #1 and #2. In addition, they describe Weepah Gold #4 as having a 100 foot shaft with inaccessible lateral workings. This is undoubtedly the workings of the Weepah in section 21. Unfortunately, these workings are not accessible at this time. The present sampling on the surface, however, certainly demonstrates significant gold mineralization.

In November of 1934, a shipment totalling 34.056 dry tons was made to Magma Copper Company of Superior, Arizona. The shipment was valued at 0.80 oz/ton Au and 0.40 oz/ton Ag. See the Appendix with the shipping records. It is unknown exactly where on the Weepah structure the shipment came from, it may be from only one of the mines, or it could be a composite from several.

time ceased in July, 1936, when the 35 ton/day mill burned down.

Further operations commenced in 1942 as is evidenced by shipping reports to the Congress Mining Corporation (see Appendix with shipping records). ^{SIX} Five shipments totaling ~~152,132~~ _{184,940} dry tons and averaging ~~0.404~~ _{0.381} oz/ton Au were made between January 5 and April 22, 1942. It is highly likely that operations ceased with Federal War board Order L-208 in 1942.

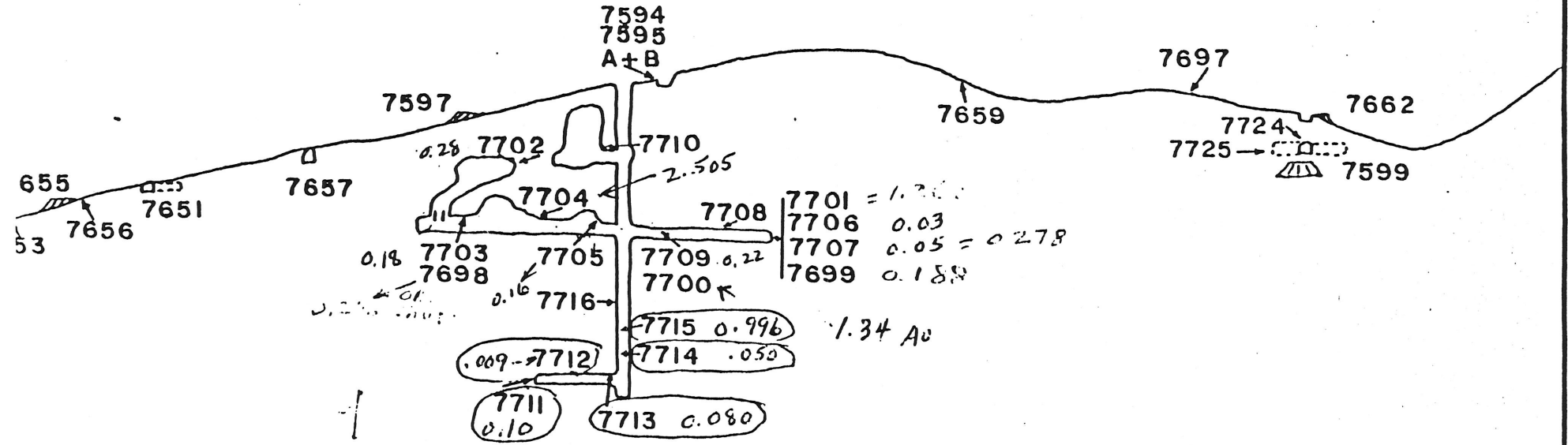
The present lease holders entered the shaft for sampling and detailing the workings in March, 1986. It is possible that this entry is the first since it was closed. The 1942 effort had sunk the shaft to 200 feet and drifted 51 feet to the north. Most of the mining at this time came from a slope developed to the north on the 50 foot level. It is roughly 40 feet long by 40 to 45 feet high. In addition a sloping raise was driven up from near the north end of the 100 foot level to approximately the 50 foot level.

In 1981-82, Little Margie Mining processed approximately 8000 tons from the Homestake dump and is reported to have recovered values averaging 0.1 oz/ton Au (pers. comm. Dave Laxton).

Homestake Shaft and Vein Longitudinal Section

NORTH

S



JOB NO.	
CHKD. BY	
DRN. BY D. Gray	
DATE 3/5/86	
SCALE 1" = 100'	
DWG. NO.	

Big Stick Incline #1 Channel Samples

Sample No.	Au oz/ton	Ag oz/ton	Width
7584	0.069	<.1	3.0'
7585	0.021	0.19	3.5'
7727	0.042	<.01	2.7'
7728	0.063	0.04	4.5'
7730	0.029	<.01	4.0'
7731	0.156	0.39	3.0'
7732	0.007	<.01	7.0'
7733	0.023	<.01	7.5'
<u>8</u>	ave. <u>0.051</u>	ave. <u>.095</u>	ave. <u>4.4'</u>

Big Stick Incline #2 Channel Samples

7667	0.091	0.08	2.0'
7596	0.052	0.66	3.1'
7593	0.217	0.38	3.4'
7590	0.022	0.52	2.6'
7591	0.132	0.30	1.8'
7592	0.068	0.10	2.0'
7588	0.105	0.20	5.7'
7669	0.064	0.34	4.0'
<u>8</u>	ave. <u>.094</u>	ave. <u>.323</u>	ave. <u>3.08'</u>
7668	0.245	0.29	
7589	0.020	0.14	
<u>10</u>	ave. <u>0.102</u>	ave. <u>0.301</u>	

East or Offset Big Stick Vein

7601	0.134	0.84	
7602	0.139	0.06	4.4'
7666	0.059	0.01	3.0'
7670	0.065	0.36	2.0'
<u>4</u>	ave. <u>0.099</u>	ave. <u>0.318</u>	

South Big Stick Vein

7578	1.411	0.44	3.3'
7579	0.138	0.19	2.2'
7580	0.798	0.61	1.5'
7581	1.269	0.56	1.7'
7582	0.260	0.58	3.2'
7571	0.141	0.17	2.0'
7672	0.120	0.29	1.5'
7673	0.039	0.28	2.0'
7718	0.027	<.01	1.5'
7717	0.109	0.11	5.0'
7721	0.186	0.09	2.2'
7722	0.152	0.08	2.0'
<u>12</u>	ave. <u>0.388</u>	ave. <u>0.284</u>	ave. <u>2.34'</u>

Homestake Shaft Underground Channel Samples

7700	1.340	0.76	4.0'
7702	0.283	0.45	4.0'
7703	0.180	0.36	3.3'
7704	2.505	0.36	2.8'
7705	0.160	0.29	3.7'
7706	0.031	0.21	3.2'
7707	0.051	0.27	2.6'
7708	0.055	0.09	2.2'
7709	0.221	0.52	1.5'
7710	0.101	0.04	2.0'
7711	0.100	0.20	3.0'
7712	0.009	0.06	4.0'
7713	0.080	0.12	9.7'
7714	0.050	0.15	8.2'
7715	0.996	0.03	10.1'
<u>15</u>	<u>0.411</u>	<u>0.261</u>	<u>4.29'</u>

Homestake Vein Surface Channel Samples

7653	0.58	0.53	3.0'
7656	0.022	0.19	2.5'
7651	0.106	0.29	3.0'
7657	0.034	0.17	4.0'
7594A	0.882	1.22	1.2'
7594B	0.103	0.01	1.2'
7595A	0.033	0.14	1.1'
7595B	0.063	0.01	1.1'
7725	0.026	<.01	2.2'
7724	0.469	<.01	2.6'
<u>10</u>	<u>0.180</u>	<u>0.258</u>	<u>2.2'</u>

Homestake Alterations

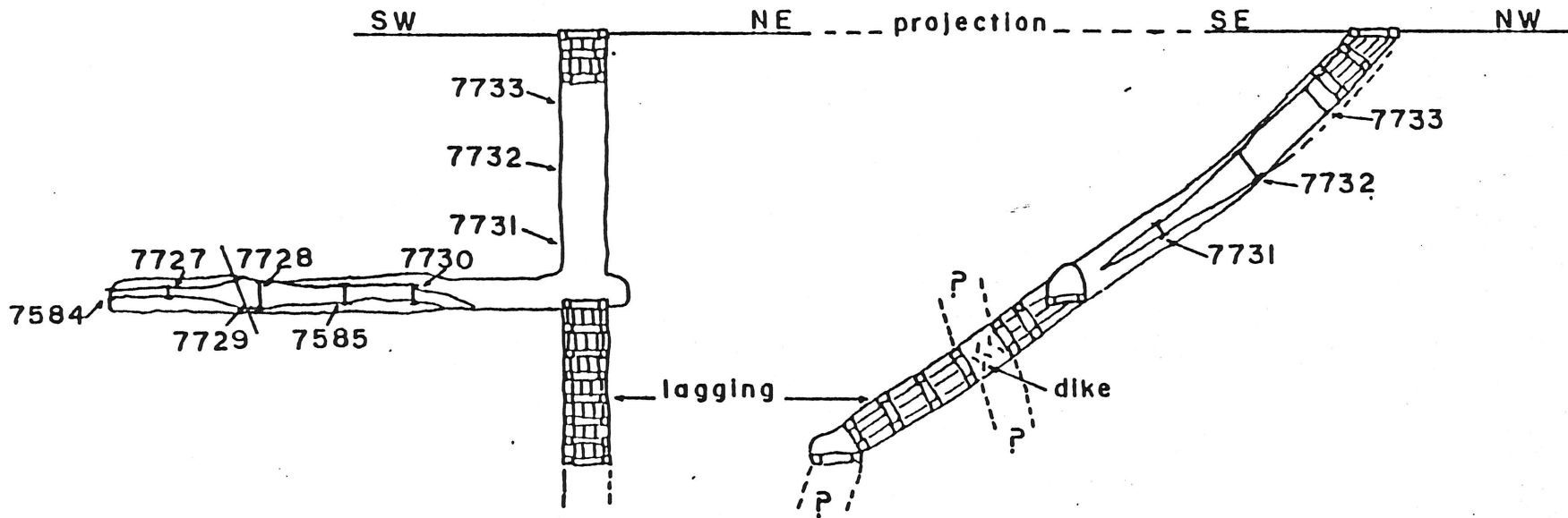
7654	<.001	0.30
7652	<.001	0.29
7658	<.001	<.01
<u>3</u>	<u>nil</u>	<u>0.20</u>

Riverbend Exposure Samples

7608	0.035	<0.01	4.0'	v.
7609	0.035	0.21	11.5'	v.
7610	0.029	<.01	4.5'	alt.
7611	0.059	0.02	2.0'	alt.
7612	0.021	0.18	--	v.
7613	0.028	0.12	--	alt.
7614	0.015	0.18	4.0'	v.
7615	0.080	0.28	2.0'	alt.
7616	0.040	0.08	5.0'	v.
7617	0.020	0.23	7.7'	v.
7618	0.022	0.18	12.0'	alt.
<u>11</u>	<u>0.035</u>	<u>0.136</u>	<u>4.79'</u>	

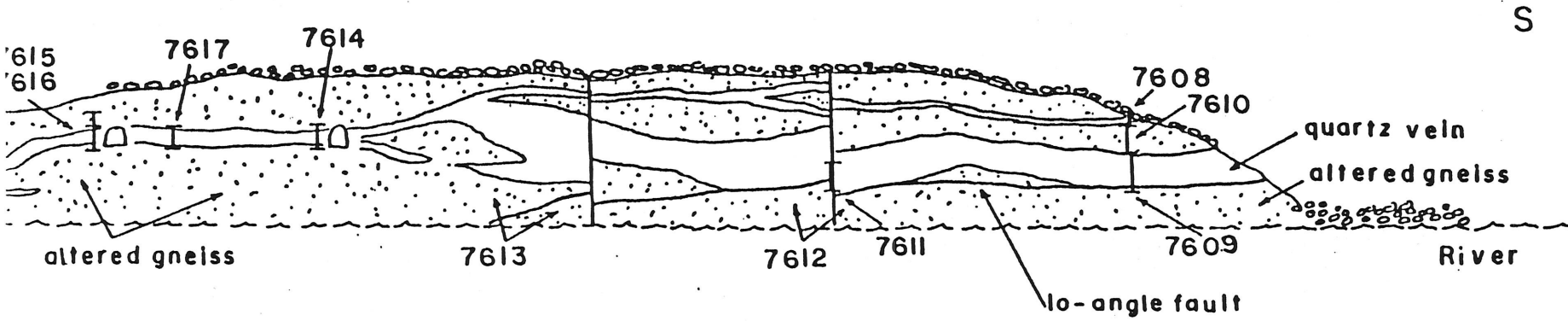
Big Stick Incline No. 1

Long Section and X-Section

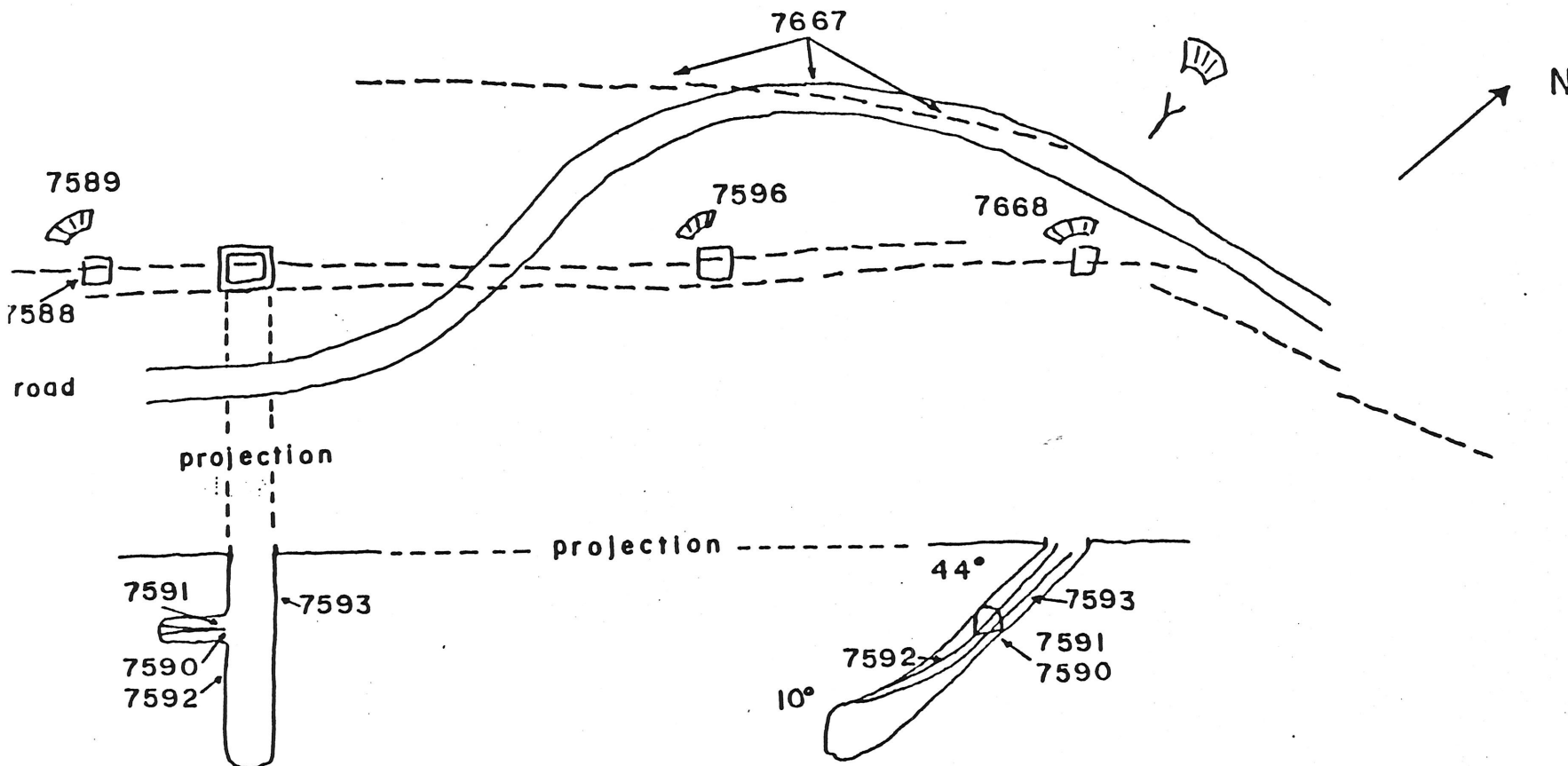


JOB NO.		
CHKD. BY		
DRN. BY D. Gray		
DATE 3/24/86		
SCALE 1"=50'		
DWG. NO.		

Riverbend Exposure



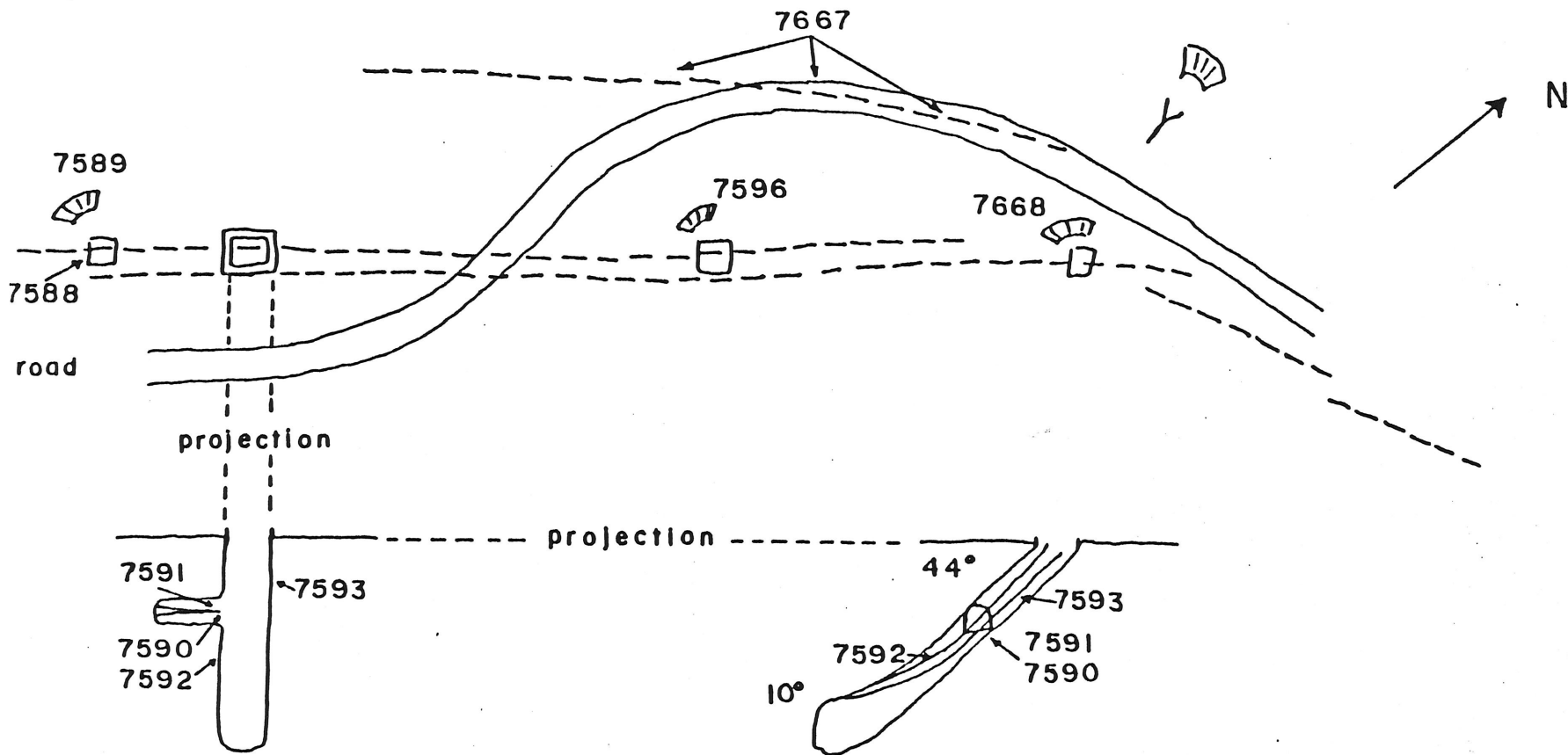
JOB NO.	
CHKD. BY	
DRN. BY D. Gray	
DATE 2/26/86	
SCALE 1" = 50'	
DWG. NO.	



Big Stick Incline No. 2

Plan View, Long Section and X-Section

JOB NO.	
CHKD. BY	
DRN. BY D. Gray	
DATE 3/6/86	
SCALE 1" = 50'	
DWG. NO.	



Big Stick Incline No. 2

Plan View, Long Section and X-Section

JOB NO.	
CHKD. BY	
DRN. BY D. Gray	
DATE 3/6/86	
SCALE 1"= 50'	
DWG. NO.	

Weepah Structure

Vein Quartz Section 21

7629	0.360	<.01
7681	0.150	0.87
7636	0.490	0.08
7637	0.370	0.07
7638	0.139	<.01
7639	0.069	<.01
7640	0.835	1.08
7641	0.042	0.21
7627	0.112	0.3
7628	0.030	<0.01
7625	0.032	0.09
<u>7626</u>	<u>0.189</u>	<u>0.33</u>
12	ave. 0.235	ave. 0.256

Alterations

7682	0.009	0.31	2.5'
7683	0.001	0.30	2.0'
7676	0.030	0.21	2.7'
7677	0.018	0.15	2.0'
7696	0.054	<0.01	6.0'
7678	0.041	0.25	4.0'
7679	0.065	0.34	4.0' add (8.0')
<u>7680</u>	<u>0.050</u>	<u>0.39</u>	<u>6.0'</u>
8	0.034	0.245	4.17'

Weepah Structure Section 20 Samples

7619	0.483	0.046	--
7620	0.043	0.62	--
7621	0.543	0.26	--
7622	0.221	0.030	--
7623	0.111	0.04	--
<u>7624</u>	<u>0.550</u>	<u>0.01</u>	<u>--</u>
6	0.325	0.168	

Settlement Sheet for Ore Purchased By:

THE CONGRESS MINING CORPORATION

Date January 5th, 1942 194 From T. E. Thompson

Our Lot No. 187 Name of Claim Arizona Homestake

Shipper's Lot No. 3 Location Eurika

31.1975 Wet Tons Less 2.7 % Moisture Leaves 30.3552 Dry Tons

Per Ton	Gold		Silver		Total
	Oz.	\$	Oz.	\$	\$
Head Assay	.298	10.43	.16	.11	10.54
Tail Assay	.018	.63			
Recoverable Value	.280	9.80			

Not over 1/2 oz. Ag.

Deductions

Treatment \$ 4.02
 Excess Cyanide Consumption _____

 Total \$ 4.02

Purchase Price Per Ton \$ 5.78

Pay Shipper:

30.3552 Dry Tons @ \$ 5.78 Per Ton \$ 175.45

Less:
 Handling and Sampling \$ 5.00
 Royalty _____
 Custom Assays _____
 Total \$ 5.00

\$ 170.45

Received on Account by: T. E. Thompson \$ 110.00

Date January 7th, 1942 194

\$ _____

\$ _____

Payment in full Received by: T. E. Thompson \$ 60.45

Date _____ 194

2

Settlement Sheet for Ore Purchased By:

THE CONGRESS MINING CORPORATION

Date January 30th 194 2 From T. E. Thompson

Our Lot No. 194 Name of Claim Homestake

Shipper's Lot No. 4 Location Eurika

25.670 Wet Tons Less 1 % Moisture Leaves 25.413 Dry Tons

Per Ton	Gold		Silver		Total
	Oz.	\$	Oz.	\$	
Head Assay	.580	20.30	.30	.21	20.51
Tail Assay	.039	1.37			
Recoverable Value	.541	18.93			

Not over 1/2 oz. Ag.

Deductions

Treatment \$ 4.83
 Excess Cyanide Consumption _____

 Total \$ 4.83

Purchase Price Per Ton \$ 14.10

Pay Shipper:

25.413 Dry Tons @ \$ 14.10 Per Ton \$ 358.32

Less:
 Handling and Sampling \$ 5.00
 Royalty _____
 6 Custom Assays @ .50 _____
 Total \$ 8.00

\$ 350.32

Received on Account by: T. E. Thompson \$ 200.00

Date 194

\$ _____

\$ _____

Payment in full Received by: T. E. Thompson \$ 150.32

Date 194

#3

Settlement Sheet for Ore Purchased By:

THE CONGRESS MINING CORPORATION

34⁰⁰
AJ

Date February 21st 194² From T. E. Thompson

Our Lot No. 202 Name of Claim Homestake

Shipper's Lot No. 5 Location Eurika

32.9225 Wet Tons Less .75 % Moisture Leaves 32.67558 Dry Tons

Per Ton	Gold		Silver		Total
	Oz.	\$	Oz.	\$	
Head Assay	.548	19.18	.75	.52	19.70
Tail Assay	.050	1.75	.20	.14	1.89
Recoverable Value	.498	17.43	.55	.38	17.81

Deductions

Treatment \$ 1.77
 Excess Cyanide Consumption _____

 Total \$ 4.77 \$ 17.81
 Purchase Price Per Ton \$ 13.04

Pay Shipper:

32.6756 Dry Tons @ \$ 13.04 Per Ton \$ 426.09
 Less:
 Handling and Sampling \$ 5.00
 Royalty _____
 Custom Assays _____
 Total \$ 5.00 \$ 5.00
 \$ 421.09

Received on Account by: T. E. Thompson \$ 200.00

Date 194

Paid Paul Hannon for Hauling \$2.50 per ton wet \$ 82.31

Payment in full Received by: T. E. Thompson \$ 138.78

Date March 2, 1942 194

Settlement Sheet for Ore Purchased By:

THE CONGRESS MINING CORPORATION

Date April 8 1942 From T. E. THOMPSON

Our Lot No. 220 Name of Claim Home Stake

Shipper's Lot No. 11 Location Santa Maria River

31.1975 Wet Tons Less 1.2 % Moisture Leaves 30.8236 Dry Tons

Per Ton	Gold		Silver		Total
	Oz.	\$	Oz.	\$	\$
Head Assay	.274	9.59			
Tail Assay	.021	.74			
Recoverable Value	.253	8.85			8.85

Deductions

Treatment \$ 3.88
 Excess Cyanide Consumption _____

 _____ \$ 8.85
 Total \$ 3.88 \$ 3.88

Purchase Price Per Ton \$ 4.97

Pay Shipper:

30.8236 Dry Tons @ \$ 4.97 Per Ton \$ 153.19
 Less:
 Handling and Sampling \$ 5.00
 Royalty _____
 Custom Assays _____
 Total \$ 5.00 \$ 5.00
 \$ 148.19

Received on Account by: To Paul Hannon Haul \$2.25 per wet ton \$ 70.19

Date _____ 194_____

_____ \$ 78.00

_____ \$ _____

Payment in full Received by: _____ \$ 78.00

Date _____ 194_____

Settlement Sheet for Ore Purchased By:

THE CONGRESS MINING CORPORATION

Date April 13 1942 From T. E. THOMPSON

Our Lot No. 222 Name of Claim Home Stake

Shipper's Lot No. 12 Location Eureka

33.30 Net Tons Less 1.3 % Moisture Leaves 32.867 Dry Tons

Per Ton	Gold		Silver		Total
	Oz.	\$	Oz.	\$	
93.70% Rec.					
Head Assay	.3175	11.11	0.20		
Tail Assay	.020	.70	0.12		
Recoverable Value	.2975	10.41			

Deductions

Not over $\frac{1}{2}$ oz. Ag.

Treatment \$ 1.11
 Excess Cyanide Consumption _____
 Rebate _____ .19 \$ 10.41
 Total \$ 3.92 \$ 3.92

Purchase Price Per Ton \$ 6.49

Pay Shipper:

32.867 Dry Tons @ \$ 6.49 Per Ton \$ 213.30

Less:
 Handling and Sampling \$ 5.00
 Royalty _____
 Custom Assays _____
 Total \$ 5.00 \$ 5.00

\$ 208.30

Received on Account by: To Paul Hannon for haul \$2.25 per wet ton plus \$1.20 under paid before \$ 76.13

Date 194 _____ \$ 132.17

Over payment Lot. No. 216 \$ 35.72

Payment in full Received by: _____ \$ 96.45

Date _____ 194

Settlement Sheet for Ore Purchased By:

THE CONGRESS MINING CORPORATION

Date April 22, 1942 1942 From T. E. THOMPSON

Our Lot No. 223 Name of Claim Home Stake

Shipper's Lot No. 13 Location Santa Maria River

33.0675 Wet Tons Less .8 % Moisture Leaves 32.80296 Dry Tons

Per Ton	Gold		Silver		Total
	Oz.	\$ 35.	Oz.	\$.71	
Head Assay	.268	9.38	.80	.57	9.95
Tail Assay	.016	.56	.23	.16	.72
Recoverable Value	.252	8.82	.57	.41	9.23

Deductions

Treatment \$ 3.93
 Excess Cyanide Consumption _____

 Total \$ 3.93

Purchase Price Per Ton \$ 5.30

Pay Shipper:

32.80296 Dry Tons @ \$ 5.30 Per Ton \$ 173.86

Less:
 Handling and Sampling \$ 5.00
 Royalty _____
 Custom Assays _____
 Total \$ 5.00

\$ 168.86

Received on Account by: To Paul Hannon haul \$2.25 per wet ton \$ 74.40

Date _____ 194

\$ 94.46

\$ 94.46

Payment in full Received by: _____ Less Umpire \$ 3.00

Date _____ 194

M. MA COPPER COMF.
SUPERIOR, ARIZONA

Settlement No. 468

Smelter Lot 909

DATE _____

Shipper Lot M-224

BOUGHT OF A. W. Worcester,

Classification _____

ADDRESS Wendon, Arizona.

P. M. HEDDINGTON CO. - TUCSON

CAR		WET WEIGHT			Moisture	DRY WEIGHT	N. Y. QUOTATIONS
Initial	Number	Gross	Tare	Net	%		
	174302	116200	46840	69360	1.8	68112	Date <u>Nov. 27, 1934</u>
				34.68		34.056	Copper (per lb.) _____
							Less _____
							Silver (per oz.) _____
							Gold (per oz.) <u>32.20 (92% of \$35.00)</u>

ASSAY and ANALYSIS	PAYMENTS PER TON	DEBITS	CREDITS
per <u>0.40</u> Pct.	_____ lbs. per ton, less _____ lbs. at _____ Per lb.		
gr. <u>0.40</u> Oz.	_____ oz. per ton, less _____ oz. at _____ Per oz.		
id <u>0.80</u> Oz.	<u>0.80</u> oz. per ton _____ oz. at <u>32.20</u> Per oz.		25.76
<u>4.1</u> Pct.	_____ units at _____ Per Unit.		
<u>2.1</u> "	_____ units at _____ Per Unit.		
mina <u>7.4</u> "	_____ units at _____ Per Unit.		
sa <u>77.2</u> "	_____ units at _____ Per Unit.		
phur <u>0.5</u> "	_____ units at _____ Per Unit.		
ganese _____ "	_____ units at _____ Per Unit.		
enic _____ "	_____ units at _____ Per Unit.		
imony _____ "	_____ units at _____ Per Unit.		
nuth _____ "	_____ units at _____ Per Unit.		
soluble _____ "	_____ units at _____ Per Unit.		
	Treatment Charge _____	3.50	
	TOTALS _____	3.50	25.76
	Net Value Per Ton _____		22.26

Total Value of <u>34.056</u> Dry Tons at \$ <u>22.26</u>		758.09
Less Freight <u>34.68</u> Tons at \$ <u>2.85</u> From <u>Congress, Arizona.</u>	Value per ton <u>\$20.80</u>	98.84
Less Switching _____		
Less Sampling _____		
Less Additional Treatment Charge of 10% of metals paid for in excess of \$15.00. Excess is <u>10.76 - 1.076 x 34.056</u>		36.64
TOTALS		135.48
		758.09

Sample Log

	Au	Ag	
137566	<.001	0.39	Channel Sample, 3.3', Hole A, E contact of granite wall rock
137567	<.001	1.15	Channel Sample, 3.3', Hole A, W contact of granite wall rock
*137568	0.013	0.38	Channel Sample, 2.6', Hole A, vein, qtz w/ limonite patches (95% qtz, 5% lim) granitic inclusions in vein
137569	<.001	0.33	Chip Channel, 7'9", Black Canyon Wash, across biot-musc schist xenolith
137570	<.001	<.10	Channel Sample, 3'4", Black Canyon Wash, qtz veinlet swarm, N63E
137571	<.001	0.25	Chip Channel, 5'9", Black Canyon Wash, across biot-musc schist xenolith
137572	<.001	0.25	Chip Channel, 2.6', Black Canyon Wash, small schist xenolith
*137573	0.768	0.40	Channel Sample, 10", Black Canyon Wash, above dynamite shack, qtz vein w/lim patches
*137574	0.058	0.14	Channel Sample, 1', Black Canyon Wash below dynamite shack, same vein as 137573
137575	<.001	<.10	Chip Sample, 5", Black Canyon Wash Adit, qtz pod in sheared schist
137576	0.010	<.10	Chip Sample, 4", Black Canyon Wash Adit, qtz pod in adit center in sheared schist
137577	0.010	<.10	Chip Channel, 7'4", across adit back, Black Canyon Wash adit, sheared schist, qtz pods
*137578	1.411	0.44	Channel Sample, 3'3", South Big Stick Workings, pillar above shaft, qtz vein with limonitic, crumbly zone in middle third
*137579	.138	0.19	Chip Channel, 2.2', South Big Stick Workings, face of N diggings, base of shaft, qtz veining
*137580	.798	0.61	Channel Sample, 17", South Big Stick Workings, face of N diggings, 1/2 down shaft, 7" qtz vein, 10" brecciated granite w/qtz and siderite/calcite veinlets

	Au	Ag	
*137581	1.269	0.56	Channel Sample, 1.7' wide, on South Big Stick Trench, pillar between trenches, qtz vein, w/specularite patches up to 3/4", visible gold
*137582	0.260	0.58	Channel Sample, 3.2', South Big Stick Trench, North end, qtz vein w/some granite, visible gold
†137583	0.167	0.13	Dump fines grab, include south of Big Stick furnace, qtz veining material
*137584	0.069	<.10	Channel, 3.0', South End of 100'? level Big Stick Incline #1, qtz veining w/strong limonite
*137585	0.021	0.19	Channel, 3.5', 75' S of brow, 100'? level, Big Stick Incline #1, qtz vein w/strong limonite
*137586	.006	0.12	Channel, 5.5' wide, test pit N of Big Stick Incline #1, qtz vein w/limonite patches
†137587	<.001	<.10	Dump fines grab, test pit N of Big Stick Incline #1, same
*137588	.105	0.20	Channel, 5.7', test pit S of Big Stick Incline #2, qtz veining w/limonite patches and stained
†137589	.020	0.14	Dump fines grab, test pit S of Big Stick Incline #2, same
*137590	.022	.52	Channel, 2.6', Big Stick Incline #2, lower part of vein at brow of diggings at 35' level, vuggy qtz, w/limonite and some Cu.
*137591	.132	0.30	Channel, 1.8', Big Stick Incline #2, upper part of vein at brow of diggings at 35' level, silicified granite, and qtz vein
*137592	.068	0.10	Channel, 2.0', Big Stick Incline #2 lower part of vein, 10' down from 137590 + 7591, on vuggy, limonitic portion of vein, correlate w/137590
*137593	.217	.38	Channel, 3.4', Big Stick Incline #2, taken on entire vein structure, 10' up from diggings at 35' level, qtz veining w/limonite
?137594	.103	<.01	Channel, 1.2', Homestake vein roadcut, S of shaft, qtz vein
137595	.033 .063	0.14	Channel, 1.1', Homestake vein roadcut, S of shaft, gossany limonitic qtz f.w.

	Au	Ag	
*137596	.052	0.66	Channel, 3.1', test pit 50' N of Big Stick Incline #2, qtz vein w/ lim patches, some py
†137597	0.114	.57	Dump chip, small dump 40' N of Homestake Shaft, qtz w/abund lim and Mn
†137598	.094	0.20	Dump chip, test pit dump on section line S of Homestake Shaft, qtz veining w/limonite staining, old py vugs. qtz very sugary
†137599	.075	0.22	Dump chip, old adit just below old railroad grade in gulch S of Homestake shaft, sugary qtz
†137600	0.363	1.04	Dump chip, test pit NE of K in Big Stick on Map, qtz less sugary
†137601	0.134	0.84	Dump chip, test pit uphill from Big Stick Incline #2, qtz veining
*137602	.139	0.06	Chip Channel, 4.4', small incline on old Big Stick railroad grade, S and uphill of Big Stick Incline #2, good qtz vein w/abund specularite patches
*137603	<.001	0.35	Chip Channel, 3.3', small incline toward crest of hill to E of Big Stick, qtz vein w/some spec and limonite staining, chipped only vein
†137604	.034	0.27	Dump chip, 2nd small incline toward crest of hill to E of Big Stick, qtz veining w/limonite
137605	0.010	0.2	Dump chip, E section line shaft, qtz veining w/good limonite
137606	0.005	<.01	Chip sample, E section line test pit qtz w/limonite, 2' h.w. on vein
137607	0.065 0.065	0.11	Chip sample, 1.5', E section line test pit, footwall limonitic gouge
137608	0.35	<.01	Chip Channel, 4', qtz vein structure, top of bank, S end of Riverbend exposure, 10% altered granitic wall rock
137609	.035	0.21	Chip channel, 11.5', major qtz vein structure, S end of River bend exposure
137610	0.29	<.01	Chip Channel, 4.5', intervening altered, silicified granitic gneiss wall rock between 137608 and 137609
137611	.059	0.02	Chip sample, 2.0', steep fault breccia crosscutting granitic gneiss, qtz vein and low angle fault

	Au	Ag	
137612	.021	0.18	Chip sample, character on qtz vein on both sides of 7611 fault
137613	.028	0.12	Chip sample, character sample, on altered granitic gneiss between qtz vein and low angle fault
137614	.015	0.18	Channel, 4', qtz vein in vicinity of southerly adit on Riverbend exposure
137615	.080	0.28	Chip Channel, 2.0', on well brecciated, altered, limonitic granitic gneiss. Northerly adit Riverbend exposure
137616	.040	0.08	Chip Channel, 5.0', on qtz vein at Northerly adit, Riverbend exposure
137617	.020	0.23	Chip Channel, 7.7', on qtz vein between two adits, Riverbend exposure
137618	.022	0.18	Chip Channel, 12.0', on fine grained greenish, altered dike, N end of Riverbend exposure
137619	.483	0.46	Chip Dump, test pit west of section line, in section 20, saddle on ridge S of Weepah Mine
137620	.043	0.62	Chip dump specimens, altered, crumbly, calcareous h.w.(?), 2nd test pit, east of 7619 15', in section 20, saddle on ridge S of Weepah Mine
137621	.543	0.26	Chip dump specimens, qtz veining on same test pit as 137620
137622	.221	.03	Chip sample, taken on test pit 20' south of 137619
137623	.111	0.04	Dump fines grab, from same test pit as 137619
137624	.550	<.01	Chip on dump specimens, test pit almost on section line, on ridge S of Weepah Mine
137625	.032	.09	Chip on dump specimens, test pit east of section line, ridge S of Weepah Mine
137626	.189	0.33	Chip on dump specimens, test pit on S side of canyon S of Weepah Mine
137627	.112	0.30	Chip channel, 2.0', qtz vein w/ limonite staining, small shaft up on S side of canyon
137628	.030	<.01	Chip sample, on altered granitic gneiss wall rock (silicified) at same small shaft as 137627
137629	.360	<.01	Chip on dump specimens, test pit on N side of canyon S of Weepah

	Au	Ag	
137630	.016	.04	Channel sample, 6", taken on gouge on West rib 1/2 down lower Weepah tunnel
137631	.030	.03	Channel sample, 1', taken on gouge on East rib 1/2 way down lower Weepah tunnel
137632	.05	.01	Channel sample, 2.0', taken on gouge on East rib 30' down lower Weepah tunnel
137633	.021	<.01	Channel sample, 1.5', taken on gouge at entrance to lower Weepah tunnel.
137634	<.001	<.01	Chip sample, character, on altered calcareous zone, on S side of S.M. river across from Riverbend exposure
137635	.014	<.01	Channel sample, 8", on main gougey shear on fault in canyon S of the Weepah Mine
137636	.490	.08	Chip on dump specimens, taken on 1st test pit S of Weepah Mine
137637	.370	.07	Chip sample, 8", on qtz vein exposed in 1st test pit S of Weepah Mine
137638	.139	<.01	Chip on dump specimens, taken on upper Weepah dump
137639	.069	<.01	Dump fines grab, upper Weepah dump
137640	.835	1.08	Chip on dump specimens, taken on lower Weepah dump
137641	.042	0.21	Dump fines grab, lower Weepah dump
137642	.502	1.00	Chip on float, qtz with abundant limonite stains and weathered pyrite holes, on ridge crest northeast of Homestake shaft
137643	<.001	<.01	Chip on dump specimens, altered granitic gneiss and biotile schist, lim staining and py holes abundant, east of Homestake shaft and just S of section line. NE corner of 28
137644	<.001	<.01	Chip on dump specimens, qtz veining on dump and in place, NE corner of section 28, west of 137643
137645	.020	<.01	Chip on float, qtz w/abundant limonite and leached pyrite holes, on saddle NE of hill 2062. E of Homestake shaft
137646	0.62	<.01	Chip on dump specimens, shaft going down 12-15' on unconsolidated gravel, northeast end of Hill 2062

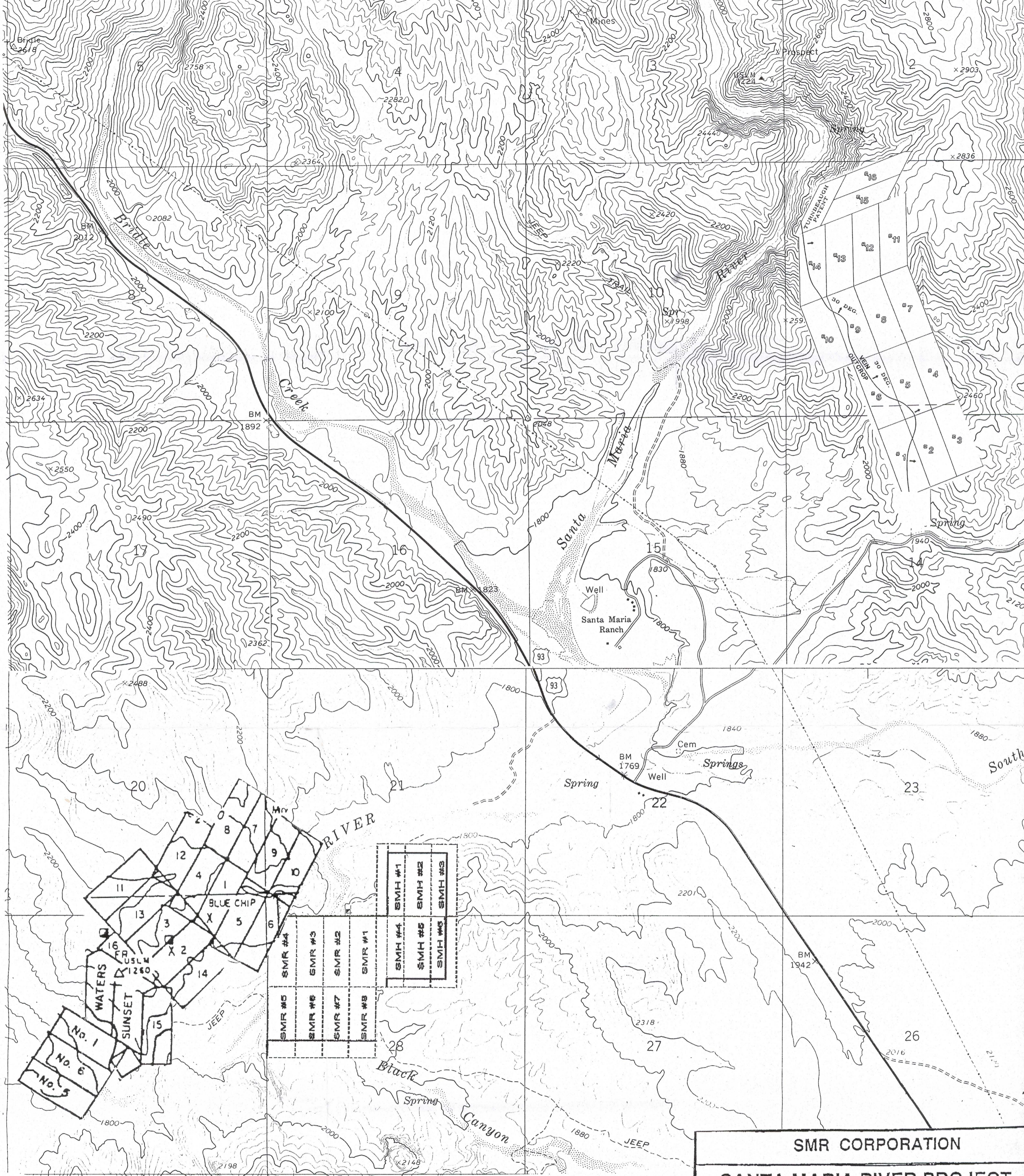
	Au	Ag	
137647	0.187	0.13	Chip on dump specimens, large dump N of Big Stick #1 Incline, visible gold
137648	<.001	<.01	Dump fines grab, large dump N of Big Stick #1 Incline
137649	0.007	<.01	Chip/grab sample, on alteration zone S of Big Stick, and N of millsite, selected sites along roadcut
137650	.088	<.01	Chip channel, 1 to 1-1/2', qtz vein in test pit above access road and S of Big Stick, above litter strewn flats, visible gold
137651	.106	.29	Chip channel, 3.0', vein exposed in SW trending adit approximately 40' north of Homestake Shaft.
137652	<.001	0.29	Chip sampe, 8.0' wide, same locale as 137651 but into bleached 6gn hanging wall
137653	0.058	0.53	Chip channel, 3.0' wide, taken on vein in wash bottom 400' N of Homestake Shaft. Qtz w/ spec.
137654	<.001	0.30	Chip sample, 8.0' wide, into footwall from vein, qtz veined 6gn. same locale as 137653
137655	0.031	0.20	Chip on dump specimens, old dump undisturbed by new road just above creek bottom at 137653
137656	0.022	0.19	Chip channel, 2.5', incomplete vein exposure 15' S of 137653. qtz w/py + spec, Cu
137657	0.034	0.17	Chip channel, 4.0' wide, 2nd adit north of Homestake Shaft, qtz vein w/abundant Mn, minor spec, h.w. not accessible
137658	<.001	<.01	Chip sample, extending 5-40' away from vein into f.w., bleached 6gn
137659	0.066	0.12	Chip on float specimens, 200' SW of Homestake Shaft, qtz w/lim + spec
137660	0.050	<.01	Chip on dump, small test near old stake w/new flags, 200' SW of Homestake Shaft, same as 137598
137661	0.032	0.10	Chip on dump specimens, test pit N' of adit below old railbed. Qtz w/lim + py
137662	0.116	0.38	Chip on dump specimens, test pit above old railbed, old adit and under Palo Verde tree, 450' SW of Homestake Shaft

	Au	Ag	
137663	0.081	0.15	Chip on dump, very small test pit 800' SW of Homestake Shaft, sugary qtz w/ lim + py. N of old trench
137664	<.001	<.01	Chip on dump, small shaft where 137603 was taken, qtz w/spec
137665	0.010	0.12	Chip sample on virgin vein outcrop, 400' SE of Big Stick Incline #2, qtz w/lim + py
147666	0.059	<.01	Chip channel, 3.0', into f.w. vuggy qtz from 137602, total vein at least 8.0'. qtz w/ Mn and lim stain, spec
137667	0.091	0.08	Chip sample, over 150' strike length, westerly vein at Big Stick Incline #2 area, qtz w/lim stain
137668	0.245	0.29	Chip on dump 2nd pit, test pit E of road and 2nd pit N of Big Stick Incline #2. qtz w/lim + py vein 2.0' wide
137669	0.064	0.34	Chip channel, 4.0' wide, on vein exposure 150' S of Big Stick Incline #2. qtz w/lim + py
137670	0.065	0.36	Chip sample, vein exposure, 600' S of Big Stick Incline #2. qtz w/lim + py
137671	0.141	0.17	Chip Channel, 2.0', on vein 18' N of 137583, north end of South Big Stick workings. qtz w/lim
137672	0.120	0.29	Chip Channel, 1.5', north end of S Big Stick vein, 24' N of 147582. qtz w/lim
137673	0.039	0.28	Chip Channel, 2.0', north end of S Big Stick, adjacent vein, qtz w/lim
137674	0.039	0.40	Chip Channel, 4.0', into f.w. veined, silicified, 6gn from pillar sample 137578
137675	0.034	0.24	Chip on dump specimens, small test pit 600' SE of Big Stick Incline #1 qtz w/lim + py
137676	0.030	0.21	Chip channel, 2.7', weak brecciated qtz structure, 50' northeast of upper Weepah
137677	0.018	0.15	Chip channel, 2.0', vein exposure 15' NE of 137676. qtz w/lim + silicified wall rock
137678	0.041	0.25	Chip channel, 4.0', test pit exposure, lower half of altered structure 400' N of upper Weepah tunnel, near canyon entrance. hematitic alteration w/ some py

	Au	Ag	
137679	0.065	0.34	Chip sample, 4.0', test pit exposure, upper half of altered structure, limonitic and argillic alteration 400' N of Upper Weepah tunnel
137680	0.050	0.39	Chip channel, 6.0', altered structure at canyon mouth 420' N of upper Weepah tunnel, limonitic, hematitic, argillic alteration
137681	0.150	0.87	Chip on dump specimens, small test pit on ridgecrest S of Upper Weepah, qtz w/lim + py holes
137682	0.009	0.31	Chip sample, 2.5' wide, taken on brow of Upper Weepah tunnel, white sheared gouge
137683	<.001	0.30	Chip sample, 2.0' wide, taken on chloritic gougey material to right of Upper Weepah portal
137684	<.001	0.34	Chip channel, 7.0' wide, taken on E section vein near crest of fin, qtz w/lim + py holes
137685	<.001	<.01	Chip sample, taken on altered wall rock all around fin exposure of E section vein
137686	<.001	0.49	Chip channel, 4.0' wide, taken on vein of E section, 20' E of 137684
137687	0.016	0.18	Chip sample, 2.5' wide, taken on NE end of vein in NE corner of section 28
137688	0.020	0.22	Chip Channel, 4.0' wide, taken at small shaft on vein in NE corner of sec 28, qtz w/lim, some schist
137689	0.014	0.17	Chip sample, unknown width, E end of E section vein, includes some altered rock
137690	0.044	0.42	Chip on dump, adit up from bend in tributary in sec 20, qtz w/lim + py, visible gold
137691	0.066	0.27	Chip on dump specimens, small incline 600' SE of Big Stick Incline #1, qtz w/lim
137692	0.025	0.61	Chip on dump next to incline, 600' SE of Big Stick Incline #1. qtz w/lim
137693	0.036	0.60	Chip channel, 2.0', test pit 30' E of 137692, reddish altered clay in pit E of incline
137694	0.069	0.48	Chip channel, 1.5', test pit 30' E of 137692, green alteration next to 137693

	Au	Ag	
137695	0.067	0.27	Chip on dump specimens, test pit 80' E of 137692, qtz w/lim
137696	.054	<.01	Chip channel, 6.0', across alteration in front of entrance to lower Weepah tunnel. 6gn w/silica + cal veining
137697	0.14	0.13	Chip on float specimens, 400' S of Homestake Shaft, qtz w/lim and spec
137698	0.256	0.31	
137699	0.188	0.30	
137700	1.340	0.76	Channel sample, 4.0', south end of 100' level drift, Homestake Shaft, qtz w/lim and spec
137701	1.260	0.44	Grab sample on hanging wall, south end of 100' level drift, Homestake Shaft, qtz w/heavy specularite
137702	0.283	0.45	Channel sample, 4.0', top of raise/stope north end of 100' level drift, Homestake Shaft, qtz w/lim, vis. Cu toward h.w.
137703	0.180	0.36	Channel chip sample, 3.3', taken on back 3-4' S of chute, north end of 100' level drift, Homestake Shaft, qtz w/lim
137704	2.505	0.36	Chip channel sample, 2.8', taken on south end of small stope, north drift, 100' level, Homestake Shaft, qtz w/lim, vuggy on h.w.
137705	0.160	0.29	Chip channel sample, 3.7', taken near brow of north drift, 100' level and small stope, Homestake Shaft. qtz w/spec, lim borwork, tr Cu, 56° dip
137706	0.031	0.21	Chip channel sample, 3.2', taken S end of S drift 100' level, Homestake Shaft, qtz w/lim and spec
137707	0.278	0.47	Grab character sample, 8' back from S end of South drift, 100' level, Homestake Shaft, taken on specularite rich hanging wall. Wulf? feath. Alum.?
137708	0.051	0.27	Chip channel sample, 2.6', taken 60' into S drift 100' level, Homestake Shaft, qtz w/hematite, lim
137709	0.055	0.09	Chip channel sample, 2.2', taken 15' into S drift, 100' level, Homestake Shaft. qtz w/lim, spec, tr Cu

	Au	Ag	
137724	0.469	<.01	Channel sample, 2.6', taken in South Homestake crosscut, qtz w/lim, spec, hem
137725	0.026	<.01	Channel sample, 2.2', taken on face of North T in South Homestake crosscut, qtz w/lim, hem and large spec blotches
137726	0.014	<.01	Chip on dump, small test pit zbove road on flank of drainage from S Homestake crosscut. qtz w/abund. lim, spec
137727	0.042	<.01	Channel sample, 2.7', taken 15' N of S face, 100' level, Big Stick Incline #1, qtz w/abund. hem, lim after py, vuggy h.w.
137728	0.063	0.04	Channel sample, 4.5', taken at 2nd bend S in S 100' level, Big Stick Incline #1, qtz w/hvy hem, some lim, hanging wall inaccessible
137729	0.009	<.01	Channel sample, 1.5', taken on hematitic gouge on N65W fault near 137728
137730	0.029	<.01	Channel sample, 4.0', taken at 1st bend S, 100' level, Big Stick Incline #1, qtz w/lim after py
137731	0.156	0.39	Channel sample, 3.0', taken 18' up from 100' level, Big Stick Incline #1, qtz w/lim after py
137732	0.007	<.01	Channel sample, 7.0', taken at 50' level, Big Stick Incline #1, qtz w/lim after py, hematite in patches throughout, but heavy on h.w., f.w. inaccessible
137733	0.023	<.01	Channel sample, 7.5', taken 25' down from collar. Big Stick Incline #1, qtz w/abund lim after py, abund hem., good h.w., 2.0', vuggy f.w.
137734	0.095	0.09	Chip sample, altered 6gn 30' wide, strong hem sericitization, in draw NE of Homestake Shaft



SMR CORPORATION

SANTA MARIA RIVER PROJECT
 Yavapai County, Arizona

CLAIM LOCATION MAP
 T. 12 N R. 9 W

0 1000 2000 3000 4000 5000 FT.
 SCALE 1: 24,000
 AFTER USGS 7 1/2' QUADRANGLE MALPAIS MESA S W

By Donald Blackburn Date: 11/28/99