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ARIZONA DEPARTMENT OF WATER RESOURCES

P E R M I T

PERMIT NO. 59-516142 (P)

STATE OF ARIZONA        )  
                                  ) ss.  
County of Maricopa        )

This is to certify that I have examined the foregoing application and have determined that it meets the requirements of Title 45, Chapter 2, Article 7, Arizona Revised Statutes, for a mineral extraction and metallurgical processing permit. The Department of Water Resources hereby grants a permit to withdraw groundwater for a Mineral Extraction and Metallurgical Processing Use, subject to the following limitations and conditions:

Permittee: A. F. Budge (Mining) Limited, 7340 East Shoeman Lane, Suite 111"B"(E), Scottsdale, Arizona 85251

Active Management Area: Phoenix                    Subbasin: Hassayampa

Location of the well: Township 6 North, Range 5 West, Section 31, NW $\frac{1}{4}$

Registration No. 55-800940    Depth: 714 feet    Diameter: 6 inches

                                  Type of casing: steel

Maximum pumping capacity: 60 gallons per minute

Authorized use of groundwater: a heap leach gold mining operation

Land groundwater will be used upon:

- Township 5 North, Range 6 West, Section 1
- Township 5 North, Range 5 West, Section 6
- Township 6 North, Range 5 West, Section 31
- Township 6 North, Range 6 West, Sections 35 and 36

Total amount of groundwater to be withdrawn: 100 acre feet per annum

Duration of permit: From July 5, 1988 to July 5, 1993

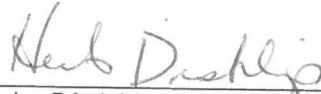
Conditions of the permit:

- o If during the life of the permit, the Director determines that uncommitted Municipal and Industrial Central Arizona Project water is available or other water or effluent of adequate quality is available at a cost comparable to groundwater, the Director may require the permittee to use such water in lieu of groundwater.

PERMIT NO. 59-516142 (P)

- Groundwater withdrawals under this permit are subject to the management plans for the designated active management area, and the permittee should be aware that the Director maintains continuing jurisdiction and can modify the permit terms as needed to conform to the conservation elements of the management plans.

Witness my hand seal of office this 5th day of July, 1988.



Herb Dishlip, Deputy Director



# Arizona Department of Water Resources

Phoenix Active Management Area Office  
2702 North 3rd Street, Suite 2010  
Phoenix, Arizona 85004  
(602) 255-1512

Evan Mecham, Governor  
Alan P. Kleinman, Director

January 13, 1988

Dear Groundwater Rights Owner:

Enclosed are your annual water withdrawal and use report forms for calendar year 1987. We have preprinted certain information from our records. If any of the information is incorrect, we ask that you make the necessary changes.

The Groundwater Code requires that an annual report must be filed by each person who owns a right to withdraw, receive or use groundwater in an Active Management Area. Reports must be received by the Department or postmarked no later than March 31, 1988. Irrigation Districts may file on behalf of their water users. You should ask your District if they plan to file for you. The penalty for filing late is \$25.00 per month or part of a month that the report is late up to a maximum of \$150.00. If you withdrew water, and did not pay the fee on time or did not pay the proper fee, the penalty is 10% of the unpaid fee per month or part of a month that the fees are delinquent, up to a maximum of 60% of the unpaid fee. To insure proper credit to your record, please use a separate set of forms for each right that you own and issue a separate check to cover the fees for each right.

The following apply only to specific groups of groundwater rights owners:

Arlington Canal Company, Buckeye Water Conservation and Drainage District and St. John's Irrigation District (45-611)

If you own an irrigation grandfathered right in one of the above irrigation districts, you are required to pay an additional fifty cents for each acre foot withdrawn for irrigation. This will make a total of \$1.50 fee for each acre foot withdrawn for irrigation. The funds will be used to help defray the costs of the recently completed special study of waterlogging problems in the area.

Domestic and Stockwater (45-465.03)

If you have an irrigation grandfathered right and use part of the water for domestic or stockwatering, you may withdraw up to 10 acre feet for the above purposes and the amount will not be counted as a debit on your flexibility account if you can meet all of the following conditions:

1. You were withdrawing water from the irrigation well or wells for domestic use and/or stockwater as of June 12, 1980.
2. You were not issued a certificate of Type 2 non-irrigation grandfathered right based in whole or in part on the domestic or stockwatering withdrawals.

3. The water pumped and used for domestic or stockwater was measured separately in 1987.

If you can meet all if the above conditions, request a form Schedule B from your Active Management Area office.

#### Ownership Transfers or Conveyances

If your water right has been sold, both the buyer and seller are responsible for notifying the Department of the transfer. The owner of the water right as of December 31, 1987 is responsible for filing an annual report covering the entire calendar year. Please contact the Phoenix AMA office for conveyance forms and instructions.

We have tried to provide you with the proper forms according to information in our files. The law does specify, however, that failure to receive the proper forms does not relieve a person of the responsibility of keeping the required records or filing the required reports.

If you need help or have questions, contact your AMA office shown at the bottom of the page.

Sincerely,

*Frank M. Barrios*

Frank Barrios  
Deputy Director  
Water Management

# 1987 ANNUAL WATER WITHDRAWAL AND USE REPORT

## ARIZONA DEPARTMENT OF WATER RESOURCES

15 SOUTH 15th AVENUE  
PHOENIX, ARIZONA 85007  
602-255-1581

DWR-AR-1-87

### SUMMARY PAGE

AMA Phoenix

#### PART I GROUNDWATER WITHDRAWN

From Line 10, Schedule A attached

NOTE: Complete this section only if you operate a non-exempt well. If not, go to Part III below.

ACRE-FEET X Withdrawal Fee = \$

#### PART II GROUNDWATER DELIVERED TO OTHER RIGHTS

From Line 9, Schedule D attached

ACRE-FEET

#### PART III WATER RECEIVED FROM OTHER SOURCES

From Line 8, Schedule E attached

ACRE-FEET

#### PART IV TOTAL WATER USED BY THIS RIGHT

Calculate as follows: Part I + Part III - Part II

ACRE-FEET

#### LATE FEE CALCULATION (For Reports Filed after March 31)

Number of months late (maximum of 6 months)

Note: A portion of a month after March 31 is accounted for as a full month

Late Report Fee (\$25.00 x number of months late) = \$

Late Payment Fee (10% per month of the withdrawal fee calculated in Part I above) = \$

TOTAL FEES DUE (add amounts in this column) = \$

#### GROUNDWATER RIGHT DESCRIPTION AND NUMBER

TYPE

NUMBER

Mail or hand deliver this report, together with the appropriate schedules, worksheets and fees to the Arizona Department of Water Resources, to the address shown in the upper right. If mailed, the report must be postmarked no later than March 31, 1988. If hand delivered, the report must be received by the Department's Operation Division or local AMA office no later than 5:00 PM on March 31, 1988.

REPORTS FILED AFTER MARCH 31, 1988 ARE SUBJECT TO LATE FEES AND PAYMENT OF PREVIOUSLY WAIVED MONETARY PENALTIES ASSOCIATED WITH PRIOR GROUNDWATER CODE VIOLATIONS.

I hereby certify, under penalty of perjury, that the information contained in this report is, to the best of my knowledge and belief, true, correct and complete.

X \_\_\_\_\_  
AUTHORIZED SIGNATURE TITLE DATE

\_\_\_\_\_  
PRINTED NAME TELEPHONE NUMBER

OWNER OF GROUNDWATER RIGHT

REPORTING PARTY

A. F. Budge Mining Ltd.  
7340 E. Shoeman STE. 111 "B" (E)  
Scottsdale, AZ. 85251-3335

If any of the information preprinted on this report is incorrect, please make the necessary changes.



# WORKSHEET W-1

## PUMPAGE MEASURED BY METER OR OTHER TOTALIZER RECORDER DEVICES

DWRAR 9-84

### INSTRUCTIONS

1. Enter DWR Well Registration No. & Location. Enter in ①.
2. Enter type, make & model of measuring device used to measure flow in ②. If measuring device is permanent, enter date installed or last overhauled in ②.
3. Enter power company name, account number, meter number and total energy consumption in ③. Indicate units as KWH, therms or other measurement. Enter total energy consumption in column 5 of schedule A for each well.
4. Indicate whether the energy meter serves other uses in ④ and in column 7 of Schedul A.
5. Enter initial totalizer reading as of January 1, in ⑤. If your meter reads in 10s, 100s, or 1000s of units, be sure to add the correct number of zeros.
6. Enter ending reading as of December 31, in ⑥. If the totalizer dial has rolled over during the year, enter the number 1 in front of the reading, if twice, a 2, etc.
7. Subtract reading in ⑤ from reading in ⑥ and enter the difference in ⑦.
8. Convert the Total Amount Pumped to acre feet by using the appropriate conversion after the result in ⑧.
  - If meter reads in gallons, divide ⑦ by 325,851 and enter the result in ⑧.
  - If meter reads in cubic feet, divide ⑦ by 43,560 and enter result in ⑧.
  - If meter reads in acre-feet, no conversion is necessary.
9. If your meter malfunctioned during the year, enter the estimate of withdrawals in acre-feet made during the out-of-service period in ⑨.
10. Add ⑧ and ⑨ and enter result in ⑩ and in column 4 of Schedule A for each well measured.

THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A.

|  |   |                               |                    |       |            |     |
|--|---|-------------------------------|--------------------|-------|------------|-----|
| ①  | DWR WELL REGISTRATION NO.   | LOCATION                      |                    |       |            |     |
|  |   | Q                             | Q                  | Q     | Sec        | Twn |
| ②  | TYPE OF MEASURING DEVICE  | MAKE                          |                    |       |            |     |
|  | MODEL   | SIZE                          |                    |       |            |     |
|  | UNITS MEASURED  | INSTALLATION OR OVERHAUL DATE |                    |       |            |     |
| ③  | POWER CO. NAME  | ACCOUNT NO.                   | POWER METER NO.    |       |            |     |
|  | ENTER TOTAL ENERGY CONSUMPTION IN COLUMN 6 OF SCHEDULE A  |                               | ENERGY CONSUMPTION | UNITS |            |     |
| ④  | DOES ENERGY METER SERVE USES OTHER THAN THE WELL PUMP? <input type="checkbox"/> YES <input type="checkbox"/> NO |                               |                    |       |            |     |
|  | ENTER "Y" OR "N" IN COLUMN 7 OF SCHEDULE A  |                               |                    |       |            |     |
| TOTALIZING METER READINGS                                  |   |                               |                    |       |            |     |
| ⑤  | INITIAL   | ⑥                             | ENDING             | ⑦     | DIFFERENCE |     |
| ENTER TOTAL ACRE-FEET SHOWN IN ⑩ IN COLUMN 4 OF SCHEDULE A |   |                               |                    |       |            |     |
| ⑧  | ACRE FEET   |                               |                    |       |            |     |
| ⑨  | BREAKDOWN ESTIMATE  |                               |                    |       |            |     |
| ⑩  | TOTAL IN ACRE-FEET  |                               |                    |       |            |     |

|  |   |                               |                    |       |            |     |
|--|---|-------------------------------|--------------------|-------|------------|-----|
| ①  | DWR WELL REGISTRATION NO.   | LOCATION                      |                    |       |            |     |
|  |   | Q                             | Q                  | Q     | Sec        | Twn |
| ②  | TYPE OF MEASURING DEVICE  | MAKE                          |                    |       |            |     |
|  | MODEL   | SIZE                          |                    |       |            |     |
|  | UNITS MEASURED  | INSTALLATION OR OVERHAUL DATE |                    |       |            |     |
| ③  | POWER CO. NAME  | ACCOUNT NO.                   | POWER METER NO.    |       |            |     |
|  | ENTER TOTAL ENERGY CONSUMPTION IN COLUMN 6 OF SCHEDULE A  |                               | ENERGY CONSUMPTION | UNITS |            |     |
| ④  | DOES ENERGY METER SERVE USES OTHER THAN THE WELL PUMP? <input type="checkbox"/> YES <input type="checkbox"/> NO |                               |                    |       |            |     |
|  | ENTER "Y" OR "N" IN COLUMN 7 OF SCHEDULE A  |                               |                    |       |            |     |
| TOTALIZING METER READINGS                                  |   |                               |                    |       |            |     |
| ⑤  | INITIAL   | ⑥                             | ENDING             | ⑦     | DIFFERENCE |     |
| ENTER TOTAL ACRE-FEET SHOWN IN ⑩ IN COLUMN 4 OF SCHEDULE A |   |                               |                    |       |            |     |
| ⑧  | ACRE FEET   |                               |                    |       |            |     |
| ⑨  | BREAKDOWN ESTIMATE  |                               |                    |       |            |     |
| ⑩  | TOTAL IN ACRE-FEET  |                               |                    |       |            |     |



① DWR WELL REGISTRATION NO. LOCATION  
Q Q Q Sec Twn Rng

② TYPE OF MEASURING DEVICE MAKE  
MODEL SIZE  
UNITS MEASURED INSTALLATION OR OVERHAUL DATE

③ POWER CO. NAME ACCOUNT NO. POWER METER NO.  
ENTER TOTAL ENERGY CONSUMPTION IN COLUMN 6 OF SCHEDULE A ENERGY CONSUMPTION UNITS

④ DOES ENERGY METER SERVE USES OTHER THAN THE WELL PUMP?  YES  NO  
ENTER "Y" OR "N" IN COLUMN 7 OF SCHEDULE A

| TOTALIZING METER READINGS |          |              |
|---------------------------|----------|--------------|
| ⑤ INITIAL                 | ⑥ ENDING | ⑦ DIFFERENCE |
|                           |          |              |

ENTER TOTAL ACRE-FEET SHOWN IN ⑩ IN COLUMN 4 OF SCHEDULE A

|                      |  |
|----------------------|--|
| ⑧ ACRE FEET          |  |
| ⑨ BREAKDOWN ESTIMATE |  |
| ⑩ TOTAL IN ACRE-FEET |  |

① DWR WELL REGISTRATION NO. LOCATION  
Q Q Q Sec Twn Rng

② TYPE OF MEASURING DEVICE MAKE  
MODEL SIZE  
UNITS MEASURED INSTALLATION OR OVERHAUL DATE

③ POWER CO. NAME ACCOUNT NO. POWER METER NO.  
ENTER TOTAL ENERGY CONSUMPTION IN COLUMN 6 OF SCHEDULE A ENERGY CONSUMPTION UNITS

④ DOES ENERGY METER SERVE USES OTHER THAN THE WELL PUMP?  YES  NO  
ENTER "Y" OR "N" IN COLUMN 7 OF SCHEDULE A

| TOTALIZING METER READINGS |          |              |
|---------------------------|----------|--------------|
| ⑤ INITIAL                 | ⑥ ENDING | ⑦ DIFFERENCE |
|                           |          |              |

ENTER TOTAL ACRE-FEET SHOWN IN ⑩ IN COLUMN 4 OF SCHEDULE A

|                      |  |
|----------------------|--|
| ⑧ ACRE FEET          |  |
| ⑨ BREAKDOWN ESTIMATE |  |
| ⑩ TOTAL IN ACRE-FEET |  |

① DWR WELL REGISTRATION NO. LOCATION  
Q Q Q Sec Twn Rng

② TYPE OF MEASURING DEVICE MAKE  
MODEL SIZE  
UNITS MEASURED INSTALLATION OR OVERHAUL DATE

③ POWER CO. NAME ACCOUNT NO. POWER METER NO.  
ENTER TOTAL ENERGY CONSUMPTION IN COLUMN 6 OF SCHEDULE A ENERGY CONSUMPTION UNITS

④ DOES ENERGY METER SERVE USES OTHER THAN THE WELL PUMP?  YES  NO  
ENTER "Y" OR "N" IN COLUMN 7 OF SCHEDULE A

| TOTALIZING METER READINGS |          |              |
|---------------------------|----------|--------------|
| ⑤ INITIAL                 | ⑥ ENDING | ⑦ DIFFERENCE |
|                           |          |              |

ENTER TOTAL ACRE-FEET SHOWN IN ⑩ IN COLUMN 4 OF SCHEDULE A

|                      |  |
|----------------------|--|
| ⑧ ACRE FEET          |  |
| ⑨ BREAKDOWN ESTIMATE |  |
| ⑩ TOTAL IN ACRE-FEET |  |

① DWR WELL REGISTRATION NO. LOCATION  
Q Q Q Sec Twn Rng

② TYPE OF MEASURING DEVICE MAKE  
MODEL SIZE  
UNITS MEASURED INSTALLATION OR OVERHAUL DATE

③ POWER CO. NAME ACCOUNT NO. POWER METER NO.  
ENTER TOTAL ENERGY CONSUMPTION IN COLUMN 6 OF SCHEDULE A ENERGY CONSUMPTION UNITS

④ DOES ENERGY METER SERVE USES OTHER THAN THE WELL PUMP?  YES  NO  
ENTER "Y" OR "N" IN COLUMN 7 OF SCHEDULE A

| TOTALIZING METER READINGS |          |              |
|---------------------------|----------|--------------|
| ⑤ INITIAL                 | ⑥ ENDING | ⑦ DIFFERENCE |
|                           |          |              |

ENTER TOTAL ACRE-FEET SHOWN IN ⑩ IN COLUMN 4 OF SCHEDULE A

|                      |  |
|----------------------|--|
| ⑧ ACRE FEET          |  |
| ⑨ BREAKDOWN ESTIMATE |  |
| ⑩ TOTAL IN ACRE-FEET |  |

## WORKSHEET W-2

PIPE FLOW  
WITH PUMPAGE CALCULATED USING  
ELECTRICAL ENERGY RECORDS

DWRAR 10-84

## INSTRUCTIONS

NOTE: This method cannot be used  
when energy meter  
serves other uses.

1. Enter DWR Well Registration No. & Location. Enter in ①.
2. Enter type, make, model & size of measuring device used to measure pipe flow. If measuring device is permanent, enter date installed or last overhauled. Enter in ②.
3. Enter Power Co. Name & Account No. & Meter No. Enter in ③.
4. Enter Kr & Kh from electric meter. Enter in ④.
5. Compute Factor A by multiplying Kr by Kh. Enter in ⑤.
6. Enter the inside diameter of the well discharge pipe (inches). Enter in ⑥.
7. Enter date of measurement, differential or velocity head of the pipe flow, pump discharge, and the number of seconds it takes to turn the electric meter disk 10 revolutions, for each measurement. **A MINIMUM OF TWO MEASUREMENTS IS REQUIRED.** These measurements should be taken during the spring and in late summer if possible. Measuring more often produces more accurate results. It is desirable to operate the pump at least 24 hours before measuring the discharge. Enter in ⑦.
8. Add the values in the discharge column and divide by the number of entries to obtain the average discharge which is designated as Factor B. Enter in ⑧.
9. Repeat the same procedure for the no. of seconds column to obtain the average seconds which is designated as Factor C. Enter in ⑨.
10. Enter Factor A, Factor B, and Factor C in the formula provided. Complete the calculation as shown to obtain the divider. Enter in ⑩.
11. Enter the total Energy Consumption. This amount may be obtained from your electric energy bills. If you obtain this information by reading your meter, be sure to adjust the reading by the "multiply by" factor on your bill. Enter in ⑪.
12. Divide the total Energy Consumption entered in Item 11 by the value computed in Item 10 to obtain the total groundwater withdrawn by the well. Enter in ⑫.

\* The Kr is the multiplier factor indicated on the power bill. For some pump motors, which are 200 amps or less, the electric meter may be "self-contained," and the Kr is not used in computing Factor A (Kh-Factor A). Contact the metering department of your electric company to determine if your electric meter is self-contained, if you are not sure.

|                             |          |   |   |     |     |     |
|-----------------------------|----------|---|---|-----|-----|-----|
| ① DWR WELL REGISTRATION NO. | LOCATION |   |   |     |     |     |
|                             | Q        | Q | Q | Sec | Twn | Rng |

|                               |      |
|-------------------------------|------|
| ② TYPE OF MEASURING DEVICE    | MAKE |
| MODEL                         | SIZE |
| INSTALLATION OR OVERHAUL DATE |      |

|                  |             |                    |
|------------------|-------------|--------------------|
| ③ POWER CO. NAME | ACCOUNT NO. | ELECTRIC METER NO. |
|------------------|-------------|--------------------|

|      |    |
|------|----|
| ④ Kr | Kh |
|------|----|

⑤ FACTOR A = \_\_\_\_\_ = Kr x Kh

⑥ INSIDE DIAMETER \_\_\_\_\_ (inches)

| ⑦ DATE OF MEASUREMENT                     | DIFFERENTIAL or VELOCITY HEAD (Specify Units) | DISCHARGE (Gals/Min) | NO. OF SECONDS FOR 10 REVS |
|---|---|----------------------|----------------------------|
|   |   |                      |                            |
|   |   |                      |                            |
|   |   |                      |                            |
|   |   |                      |                            |
| A MINIMUM OF TWO MEASUREMENTS IS REQUIRED |   | <b>TOTALS</b>        |                            |

⑧ AVE. DISCHARGE \_\_\_\_\_ FACTOR B

⑨ AVE. SECONDS \_\_\_\_\_ FACTOR C

⑩ DIVIDER =  $19,550 \times \frac{A \times 10}{B \times C}$  = \_\_\_\_\_

⑪ ENERGY CONSUMPTION \_\_\_\_\_ FOR THE YEAR Kw hrs

⑫ GROUNDWATER WITHDRAWN =  $\frac{\text{LINE 11}}{\text{LINE 10}}$  = \_\_\_\_\_ ACRE FEET

## ENTER THE FOLLOWING ON SCHEDULE A

- Item 1 - DWR Well Reg No. & Location in Cols ② .  
 Item 3 - Power Co. Name, Acct. No. and Meter No. in Col ③ .  
 Item 8 - Average Discharge in Col ⑧ .  
 Item 10 - Divider in Col ⑩ .  
 Item 11 - Energy Consumption in Col ⑪ .  
 Item 12 - Groundwater withdrawn in Col ⑫ .

THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A

① DWR WELL REGISTRATION NO. \_\_\_\_\_ LOCATION \_\_\_\_\_  
 Q Q Q Sec Twn Rng

② TYPE OF MEASURING DEVICE \_\_\_\_\_ MAKE \_\_\_\_\_  
 MODEL \_\_\_\_\_ SIZE \_\_\_\_\_  
 INSTALLATION OR OVERHAUL DATE \_\_\_\_\_

③ POWER CO. NAME \_\_\_\_\_ ACCOUNT NO. \_\_\_\_\_ ELECTRIC METER NO. \_\_\_\_\_

④ Kr \_\_\_\_\_ Kh \_\_\_\_\_

⑤ FACTOR A = \_\_\_\_\_ = Kr x Kh

⑥ INSIDE DIAMETER \_\_\_\_\_ (Inches)

| ⑦ DATE OF MEASUREMENT                     | DIFFERENTIAL or VELOCITY HEAD (Specify Units) | DISCHARGE (Gals/Min) | NO. OF SECONDS FOR 10 REVS |
|---|---|----------------------|----------------------------|
|   |   |                      |                            |
|   |   |                      |                            |
|   |   |                      |                            |
|   |   |                      |                            |
| A MINIMUM OF TWO MEASUREMENTS IS REQUIRED |   | <b>TOTALS</b>        |                            |

⑧ AVE. DISCHARGE \_\_\_\_\_ FACTOR B  
 ⑨ AVE. SECONDS \_\_\_\_\_ FACTOR C

⑩ DIVIDER =  $19,550 \times \frac{A \times 10}{B \times C}$  = \_\_\_\_\_

⑪ ENERGY CONSUMPTION FOR THE YEAR \_\_\_\_\_ Kw hrs

⑫ GROUNDWATER WITHDRAWN =  $\frac{\text{LINE 11}}{\text{LINE 10}}$  = \_\_\_\_\_ ACRE FEET

ENTER THE FOLLOWING ON SCHEDULE A

- Item 1 - DWR Well Reg No. & Location in Cols ② .
- Item 3 - Power Co. Name, Acct. No. and Meter No. in Col ③ .
- Item 8 - Average Discharge in Col ⑧ .
- Item 10 - Divider in Col ⑩ .
- Item 11 - Energy Consumption in Col ⑪ .
- Item 12 - Groundwater withdrawn in Col ⑫ .

THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A

① DWR WELL REGISTRATION NO. \_\_\_\_\_ LOCATION \_\_\_\_\_  
 Q Q Q Sec Twn Rng

② TYPE OF MEASURING DEVICE \_\_\_\_\_ MAKE \_\_\_\_\_  
 MODEL \_\_\_\_\_ SIZE \_\_\_\_\_  
 INSTALLATION OR OVERHAUL DATE \_\_\_\_\_

③ POWER CO. NAME \_\_\_\_\_ ACCOUNT NO. \_\_\_\_\_ ELECTRIC METER NO. \_\_\_\_\_

④ Kr \_\_\_\_\_ Kh \_\_\_\_\_

⑤ FACTOR A = \_\_\_\_\_ = Kr x Kh

⑥ INSIDE DIAMETER \_\_\_\_\_ (Inches)

| ⑦ DATE OF MEASUREMENT                     | DIFFERENTIAL or VELOCITY HEAD (Specify Units) | DISCHARGE (Gals/Min) | NO. OF SECONDS FOR 10 REVS |
|---|---|----------------------|----------------------------|
|   |   |                      |                            |
|   |   |                      |                            |
|   |   |                      |                            |
|   |   |                      |                            |
| A MINIMUM OF TWO MEASUREMENTS IS REQUIRED |   | <b>TOTALS</b>        |                            |

⑧ AVE. DISCHARGE \_\_\_\_\_ FACTOR B  
 ⑨ AVE. SECONDS \_\_\_\_\_ FACTOR C

⑩ DIVIDER =  $19,550 \times \frac{A \times 10}{B \times C}$  = \_\_\_\_\_

⑪ ENERGY CONSUMPTION FOR THE YEAR \_\_\_\_\_ Kw hrs

⑫ GROUNDWATER WITHDRAWN =  $\frac{\text{LINE 11}}{\text{LINE 10}}$  = \_\_\_\_\_ ACRE FEET

ENTER THE FOLLOWING ON SCHEDULE A

- Item 1 - DWR Well Reg No. & Location in Cols ② .
- Item 3 - Power Co. Name, Acct. No. and Meter No. in Col ③ .
- Item 8 - Average Discharge in Col ⑧ .
- Item 10 - Divider in Col ⑩ .
- Item 11 - Energy Consumption in Col ⑪ .
- Item 12 - Groundwater withdrawn in Col ⑫ .

THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A

# WORKSHEET W-4

## OPEN CHANNEL FLOW WITH PUMPAGE CALCULATED USING ELECTRICAL ENERGY RECORDS

DWRAR 10-84

NOTE: This method cannot be used when energy meter serves other uses.

### INSTRUCTIONS

1. Enter DWR Well Registration No. & Location. Enter in ①.
2. Enter type, make, model & size of measuring device used to measure open channel flow. If measuring device is permanent, enter date installed or last overhauled. Enter in ②.
3. Enter Power Co. Name & Account No. & Meter No. Enter in ③.
4. Enter Kr & Kh from electric meter. Enter in ④.\*
5. Computer Factor A by multiplying Kr by Kh. Enter in ⑤.
6. Enter date of measurement, head or stage recording \*\* of the open channel flow, pump discharge, and the number of second it takes to turn the electric meter disk 10 revolutions, for each measurement taken. **A MINIMUM OF TWO MEASUREMENTS IS REQUIRED.** These measurements should be taken during the spring and in late summer if possible. Measuring more often produces more accurate results. It is desirable to operate the pump at least 24 hours before measuring the discharge. Enter in ⑥.
7. Add the values in the pump discharge column and divide by the number of entries to obtain the average discharge which is designated as Factor B. Enter in ⑦.
8. Repeat the same procedure for the no. of seconds column to obtain the average seconds which is designated as Factor C. Enter in ⑧.
9. Enter Factor A, Factor B, and Factor C in the formula provided. Complete the calculation as shown to obtain the divider. Enter in ⑨.
10. Enter the total Energy Consumption. This amount may be obtained from your electric energy bills. If you obtain this information by reading your meter, be sure to adjust the reading by the "multiply" factor on your bill. Enter in ⑩.
11. Divide the total Energy Consumption entered in Item 10 by the value computed in Item 9 to obtain the total groundwater withdrawn by the well. Enter in ⑪.

\* The Kr is the multiplier factor indicated on the power bill. For some pump motors, which are 200 amps or less, the electric meter may be "self-contained," and the Kr is not used in computing Factor A (Kh-Factor A). Contact the metering department of your electric company to determine if you electric meter is self-contained, if you are not sure.

\*\* For submerged conditions, provide the values obtained for both upstream and downstream heads. If the Clausen Weir Rule is used, provide height of orifice (Ho) and A scale and B scale readings.

|                             |          |   |   |     |     |     |
|-----------------------------|----------|---|---|-----|-----|-----|
| ① DWR WELL REGISTRATION NO. | LOCATION |   |   |     |     |     |
|                             | Q        | Q | Q | Sec | Twn | Rng |

|                               |      |
|-------------------------------|------|
| ② TYPE OF MEASURING DEVICE    | MAKE |
| MODEL                         | SIZE |
| INSTALLATION OR OVERHAUL DATE |      |

|                  |             |                    |
|------------------|-------------|--------------------|
| ③ POWER CO. NAME | ACCOUNT NO. | ELECTRIC METER NO. |
|------------------|-------------|--------------------|

|      |    |
|------|----|
| ④ Kr | Kh |
|------|----|

⑤ FACTOR A = \_\_\_\_\_ = Kr x Kh

| ⑥ DATE OF MEASUREMENT                     | HEAD or STAGE (Specify Units) | DISCHARGE (Gals/Min) | NO. OF SECONDS FOR 10 REVS |
|---|-------------------------------|----------------------|----------------------------|
|   |                               |                      |                            |
|   |                               |                      |                            |
|   |                               |                      |                            |
|   |                               |                      |                            |
| A MINIMUM OF TWO MEASUREMENTS IS REQUIRED |                               | <b>TOTALS</b>        |                            |

⑦ AVE. DISCHARGE \_\_\_\_\_ FACTOR B      ⑧ AVE. SECONDS \_\_\_\_\_ FACTOR C

⑨ DIVIDER =  $19,550 \times \frac{A \times 10}{B \times C}$  = \_\_\_\_\_

⑩ ENERGY CONSUMPTION \_\_\_\_\_ Kw hrs

⑪ GROUNDWATER WITHDRAWN =  $\frac{\text{LINE 10}}{\text{LINE 9}}$  = \_\_\_\_\_ ACRE FEET

ENTER THE FOLLOWING ON SCHEDULE A

- Item 1 - DWR Well Reg No. & Location in Cols ②.
- Item 3 - Power Co. Name, Acct. No. and Meter No. in Col ③.
- Item 7 - Average Discharge in Col ⑧.
- Item 9 - Divider in Col ⑨.
- Item 10 - Energy Consumption in Col ⑩.
- Item 11 - Groundwater withdrawn in Col ⑪.

THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A

① DWR WELL REGISTRATION NO. LOCATION  
 Q Q Q Sec Tw n Rng

② TYPE OF MEASURING DEVICE MAKE  
 MODEL SIZE  
 INSTALLATION OR OVERHAUL DATE

③ POWER CO. NAME ACCOUNT NO. ELECTRIC METER NO.

④ Kr Kh

⑤ FACTOR A = \_\_\_\_\_ = Kr x Kh

| DATE OF MEASUREMENT                       | HEAD or STAGE (Specify Units) | DISCHARGE (Gals/Min) | NO. OF SECONDS FOR 10 REVS |
|---|-------------------------------|----------------------|----------------------------|
|   |                               |                      |                            |
|   |                               |                      |                            |
|   |                               |                      |                            |
|   |                               |                      |                            |
| A MINIMUM OF TWO MEASUREMENTS IS REQUIRED |                               | <b>TOTALS</b>        |                            |

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⑩ ENERGY CONSUMPTION \_\_\_\_\_ Kw hrs

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ENTER THE FOLLOWING ON SCHEDULE A

- Item 1 - DWR Well Reg No. & Location in Cols ② .
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THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A

① DWR WELL REGISTRATION NO. LOCATION  
 Q Q Q Sec Tw n Rng

② TYPE OF MEASURING DEVICE MAKE  
 MODEL SIZE  
 INSTALLATION OR OVERHAUL DATE

③ POWER CO. NAME ACCOUNT NO. ELECTRIC METER NO.

④ Kr Kh

⑤ FACTOR A = \_\_\_\_\_ = Kr x Kh

| DATE OF MEASUREMENT                       | HEAD or STAGE (Specify Units) | DISCHARGE (Gals/Min) | NO. OF SECONDS FOR 10 REVS |
|---|-------------------------------|----------------------|----------------------------|
|   |                               |                      |                            |
|   |                               |                      |                            |
|   |                               |                      |                            |
|   |                               |                      |                            |
| A MINIMUM OF TWO MEASUREMENTS IS REQUIRED |                               | <b>TOTALS</b>        |                            |

⑦ AVE. DISCHARGE \_\_\_\_\_ FACTOR B      ⑧ AVE. SECONDS \_\_\_\_\_ FACTOR C

⑨ DIVIDER =  $19,550 \times \frac{A \times 10}{B \times C}$  = \_\_\_\_\_

⑩ ENERGY CONSUMPTION \_\_\_\_\_ Kw hrs

⑪ GROUNDWATER WITHDRAWN =  $\frac{\text{LINE 10}}{\text{LINE 9}}$  = \_\_\_\_\_ ACRE FEET

ENTER THE FOLLOWING ON SCHEDULE A

- Item 1 - DWR Well Reg No. & Location in Cols ② .
- Item 3 - Power Co. Name, Acct. No. and Meter No. in Col ③ .
- Item 7 - Average Discharge in Col ⑧ .
- Item 9 - Divider in Col ⑨ .
- Item 10 - Energy Consumption in Col ⑩ .
- Item 11 - Groundwater withdrawn in Col ⑪ .

THIS WORKSHEET MUST BE SUBMITTED WITH SCHEDULE A



# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Rose Mofford, Governor  
GERALD H. TELETZKE, PH.D., DIRECTOR

June 1, 1988

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Carole A. O'Brien  
A. F. Budge Mining Ltd.  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, Arizona 85251-3335

Dear Sir:

RE: Vulture Mine  
Groundwater Quality Protection Permit No. G-0090-07

Enclosed is the signed original of the Groundwater Quality Protection Permit for the above referenced facility. This permit was developed pursuant to A.A.C. Title 9, Chapter 20, Article 4, Arizona Groundwater Quality Standards and A.A.C. Title 9, Chapter 20, Article 2, Requirements for Facilities Affecting Groundwater Quality.

It is deemed necessary for the owner of the facility to sign the Groundwater Quality Protection Permit and return the entire permit within ten (10) working days, so that the permit may become valid. A copy of the permit will be returned. The permit shall be signed as follows:

1. For a corporation, by a responsible corporate executive at the level of at least vice president of the firm, or the manager of its Arizona operation if a multi-state operation;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or,
3. For a municipality, state federal or other public agency, by either a principal executive officer or ranking elected official.

Any comments or corrections should be indicated on a separate paper. Please do not make any corrections or other comments on the permit.

If you have any questions regarding this permit, please feel free to contact this office at 257-2270.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gerri Plain".

Gerri Plain  
Water Permits Unit

The Department of Environmental Quality is An Equal Opportunity Office of Water Quality



# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

EVAN MECHAM, GOVERNOR  
GERALD H. TELETZKE, PH.D., DIRECTOR

April 15, 1988

Mr. Brian Richter  
P. O. Box 1162  
Wickenburg, Arizona 85358

Dear Mr. Richter:

RE: Vulture Mine, Public Notice No. 13-88AZ6W  
Groundwater Quality Protection Permit No. G-0090-07

The Department of Environmental Quality (DEQ) appreciates your comments on the above referenced facility and would like to address in this letter the comments you submitted in the letter dated March 20, 1988. I have included a copy of the Draft Groundwater Quality Protection Permit No. G-0090-07. I have listed each of your specific questions with the Department's response to them for your easy reference.

Question 1.a. How was the depth to groundwater determined? From how many observation wells?

Response: There are three known wells operating in the vicinity of the project. The first well is an on-site well, the second well is about a mile to the southeast and is used for livestock watering. The third well is about a half mile to the west and is used to supply one household and some livestock. Three drill holes at the leach pad site did not penetrate groundwater with the deepest drill hole finishing at 320 feet below land surface. The closest measurement of groundwater is from the existing Vulture Mine decline, about 1200 feet to the northeast. The underground workings are flooded to the 1710 foot elevation. The elevation at the leach pad site is 2050 feet, the depth to groundwater would be at a minimum approximately 340 feet below ground surface. The water level in the on-site production well is at 1630 foot elevation, which is 430 feet below ground surface.

Question 1.b. What is the regional configuration of this and any overlying aquifer systems? Are any of these aquifer systems interconnected with any surface water flows? What is the geologic composition of these aquifers? What faults exist in this region?

Response: The site area lies within the upper portion of the Hassayampa River basin, which extends from the Date Creek, Weaver and Bradshaw Mountains north of Wickenburg to the confluence with the Salt River near Phoenix, covering a total area of about 1,300 square miles. Groundwater conditions in this area are

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Mr. Brian Richter  
April 15, 1988  
Page 2

discussed in a report by Sanger and Appel (1978). The report includes data on groundwater depth and water quality from numerous wells in the region, including the well at the Vulture Mine. The report also delineates the outlines of several groundwater basins within the Hassayampa River drainage system. The Vulture Mountains are flanked on the south by a deep alluvial basin referred to as the Hassayampa Plain. This area receives recharge, primarily in the form of groundwater, from the southern slopes of the Vulture Mountains, including the site area. Surface flow in stream channels near the site is intermittent. No surface bodies of water presently exist, and none of the test pits or bore holes in the nearby stream channels encountered groundwater in surficial or subsurface materials. Groundwater only occurs at significant depths in bedrock, generally below about 400 feet in this area. Thus, infiltration of contaminants to the water table from the proposed leach pad area is not likely to occur, unless such contaminants are introduced via underground mine workings. Groundwater below the site area is generally good quality, with the exception of a high fluoride content. Major constituents present in groundwater include sodium, calcium, magnesium, and bicarbonate (Sanger and Appel, 1978).

The Vulture Mountains are composed of a Precambrian metamorphic/igneous core complex intruded by igneous rocks of Late Cretaceous, Tertiary and Quaternary age (Wilson 1957 and 1959). Sedimentary rocks are generally not present in significant amounts. Bedrock is overlain by varying thicknesses of unconsolidated Late Tertiary to Quaternary alluvial fan, channel and basin fill deposits, colluvium and eolian deposits. These superficial materials are generally strongly cemented with secondary calcium carbonate (caliche), forming a hard low permeability and relatively resistant surface. Scarborough (1986) has produced a map and report of faults and folds of the area which shows no major faults, folds or discontinuities below the site, and is available at the Arizona Bureau of Geology and Mineral Technology.

Question 2.a. What type of leak detection system will be used? Will a full public disclosure of this system's reliability be offered?

Response: There will be a leak detection/collection system used for the heap pad liner and for the solution storage ponds. The leak detection/collection systems will use a flexible membrane underliner with a drainage layer of sand and geotextile overlain by a primary flexible membrane liner. The drainage layer between the two flexible membrane liners shall have access tubes booted through the primary liner to provide access for monitoring of any fluids which may be contained between the liners. This type of leak detection/collection system is



Mr. Brian Richter  
April 15, 1988  
Page 3

considered to be the best available demonstrated control technology in the heap leaching industry. The file for this facility which contains the description and drawings for the leak detection/collection system is non-confidential and open for public review at the Department's Water Permits Unit during working hours.

Question 2.b. Explain how the water balance monitoring will be carried out. Who will review the results?

Response: Representative samples shall be taken daily from: drainage from the heap leach pad into the pregnant pond, leach solution entering and leaving the barren pond where chemicals (Cyanide and lime) are added. All solutions sampled shall be analyzed by standard field methods for pH and free cyanide (EPA Method 335.1). A log of these results, as well as daily solution levels in both the barren and pregnant ponds, and the amount of fresh water added to the leaching circuit daily shall be kept at the facility available for inspection and shall be submitted to the Department quarterly. The Groundwater Permits Compliance Unit shall review these results as well as all other monitoring required by the issuance of the Groundwater Quality Protection Permit and this information shall be available to the public.

Question 2.c. Will a 2 or 3-cell system be used?

Response: The heap pad will be segmented into six identical cell with ore loaded on top of each of the six cells by a conveyor belt feeder. The ore piles in each cell shall be constructed in 15-foot lifts at slopes equal to the angle of repose of the agglomerated tailings. Although the extent of sloughing is anticipated to be very minor, the 10-foot wide corridor at the toe of the pad, the 5-foot pile benches, and the solution containment berm were designed to accommodate this occurrence.

Question 2.d. What is the contingency plan of operation in the case a leak is detected? How will leaking cell(s) be taken out of production during repairs?

Response: The operator must notify the department within 72 hours of detecting a leak and quantify the extent of the leak and what actions will be taken to mitigate the effects of the leak. If a leak occurs in a solution pond, the pond shall be drained into the lined emergency surge pond and the primary liner shall be repaired or replaced. If a leak occurs in one of the six leach cells, the cell shall have the solution distribution lines removed, the ore removed and the primary liner shall be repaired or replaced.

Mr. Brian Richter  
April 15, 1983  
Page 4

Question 2.e. Is there any plan for monitoring groundwater quality downgradient from the cells?

Response: Upon review of the submitted geohydrological report for the facility and due to the "state of the art" design and operational plan the Department has not required groundwater monitoring. However, if the leak detection systems indicate

liner leakage upon commencement of operation the installation of downgradient groundwater monitoring wells may be required for an approvable contingency plan.

Question 3. What type and thickness of liner will be used? Has this liner been fully tested to be compatible with the heap leaching process.

Response: The flexible membrane liners and geotextiles which shall be used at this facility have the manufactures assurance of meeting and exceeding the National Sanitation Foundation minimum material properties (NSF Standard 54). The heap leach pad will use a 30-mil PVC liner for both the primary and secondary liner. The primary liner for the solution ponds will be a 36-mil Hypalon. A 20-mil PVC liner will be used for the secondary liner for the solution ponds. Both liners (PVC & Hypalon) provide good resistance to organic and inorganic acids and bases, heavy metals and salts. PVC is not planned for use as an exposed liner due to its susceptibility to degradation and embrittlement from ultra violet radiation attack. An extensive case history exists for Hypalon and PVC installations at mining facilities located in both hot and cold climate regions. Liner installation shall be supervised by a lining contractor which has more than five years of experience or more than five million square feet of successfully installed flexible membrane lining. Field seaming shall require a minimum overlap of 6 inches for adjoining sheets and shall be seamed by approved methods (ASTM D751). All fields seams shall be tested using the Air Lanch Method and destructive shear and peel tests (ASTMA B3083 and D413) shall be conducted on field seam samples taken every 700 lineal feet of seam.

Question 4. What is the area/coverage of the pond surfaces? How will it be protected from migratory waterfowl which are extremely attracted to such water bodies in this region of the desert?

Response: The solution ponds (pregnant and barren) when at maximum operating capacity will have a combined total surface area of 22,050 square feet or approximately one-half acre. There are several ways the waterfowl can be protected from landing on the ponds such as netting or placing loudspeakers by the ponds. A copy of the permit has been sent to the Game and Fish Department and they would be the lead agency in addressing any problem with waterfowl.

Mr. Brian Richter  
April 15, 1988  
Page 5

I appreciate the opportunity to respond to your comments and hope that the responses given will adequately address your concerns. At this time the Director has determined that a public hearing is not warranted for this project. If you have any more concerns about this project or the responses to your comments, feel free to call me at 257-2270.

Sincerely,

Rob B. Larson  
Environmental Engineering Specialist  
Water Permits Unit

RBL:dk

JAN 15 1988

RECEIVED

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

EVAN MECHAM, GOVERNOR  
GERALD H. TELETZKE, PH.D., DIRECTOR

January 13, 1988

A. J. Fernandez  
A. F. Budge (Mining) Limited  
7340 East Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, Arizona 85251-3335

Dear Mr. Fernandez:

RE: Vulture Mine Project; ADEQ Water Permits File No. 87-86

A Notice of Disposal has been received and given a preliminary review for the above referenced facility. In accordance with A.A.C., Title 9, Chapter 20, Section 205 of the Water Pollution Control Permit System, this letter serves as notification:

1. Of our intent to issue a Groundwater Quality Protection Permit. You should, however, be reminded that operations may not commence until a groundwater permit is issued.
2. The issuance of the permit is contingent on technical approval of plans and specifications by ADEQ, Technical Review Unit, or the appropriate County Health Department.
3. That the facility does not comply with the criteria listed in R9-20-208.A, and as such, a full permit application will be required. The regulations (R9-20-208.A) require you to first submit a proposal for a permit application. It is suggested you contact this office to arrange a pre-proposal meeting. I have enclosed a copy of the "Outline of Requirements for a Permit Application".
4. That the NOD is incomplete and further information will be required to complete the preliminary review. (see attachment)

If you have any questions, you can reach me at 257-6806.

Sincerely,



Rob B. Larson  
Environmental Engineering Specialist  
Water Permits Unit

RBL:mm

cc: Hydrology Unit

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# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

EVAN MECHAM, GOVERNOR  
GERALD H. TELETZKE, PH.D., DIRECTOR

February 19, 1988

DIMEA LTD.

FEB 27 1988

RECEIVED

A. F. Budge Mining Ltd.  
7340 East Shoeman Lane  
Suite 111 B-E  
Scottsdale, Arizona 85251-3335

Dear Gentlemen:

Enclosed is a copy of the Public Notice of Proposed Action on your application for an Arizona Groundwater Quality Protection Permit.

Facility: Vulture Mine  
Draft Permit: G-0090-07

Comments on the proposed action or a request for public hearing may be submitted to this office at the address listed in the public notice for a period of thirty (30) days following the date of this public notice. Should we find a significant degree of public interest exists with respect to the proposed permit, a public hearing will be held.

If no hearing is held, we would expect to forward the permit containing the final determinations to the Director for issuance, shortly after the expiration of the thirty (30) day comment period.

Should you have any questions concerning this matter, please contact the Water Permits Unit at (602) 257-2270.

Sincerely,

A handwritten signature in cursive script that reads "Helen M. Johnson".

Helen M. Johnson  
Water Permits Unit

HJ:lh

Enclosure

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JAN 15 1988

RECEIVED

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

EVAN MECHAM, GOVERNOR  
GERALD H. TELETZKE, PH.D., DIRECTOR

January 13, 1988

A. J. Fernandez  
A. F. Budge (Mining) Limited  
7340 East Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, Arizona 85251-3335

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4. That the NOD is incomplete and further information will be required to complete the preliminary review. (see attachment)

If you have any questions, you can reach me at 257-6806.

Sincerely,

A handwritten signature in cursive script that reads "Rob B. Larson".

Rob B. Larson  
Environmental Engineering Specialist  
Water Permits Unit

RBL:mm

cc: Hydrology Unit

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**A. F. Budge (Mining) Limited**

7340 E. Shoeman Lane, Suite 111 "B" (E)

Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

February 22, 1988

Arizona Department of Environmental Quality  
2005 North Central Avenue  
Phoenix, Arizona 85004

Attention: Rob Larson

RE: Vulture Mine Project; ADEQ Water Permits File No. 87-86

This is in response to your phone call of February 5. The location selected for the extraction plant is up gradient, northeast, from the barren solution pond. On SHB's drawing, Plate No. 1 dated 10/87, plan view, this would be approximately where the word "access" is printed. This area will be graded to drain to the barren solution pond. The concrete floor of the extraction facility will be designed to drain to a sump, piped to conduct flow to the barren solution pond. This will serve as an emergency drain in the event of containment failure in the plant.

Sewage disposal will be by means of portable chemical toilets. Therefore, no sewage will be disposed on site. Wash down and laboratory solutions will be disposed in the barren solution pond.

The volume of the three ponds can be found in SHB's report dated April 10, 1987 on pages 12-14 under section 4.5 Barren, Pregnant and Storm Water Ponds.

Should you have any further questions, feel free to call anytime.

Sincerely,

A. J. Fernandez  
Senior Mining Engineer

NOTICE OF DISPOSAL FORM

1. a. Facility name Vulture Mine  
b. Facility Owner A. F. Budge (Mining) Limited  
c. Name, title, address, and telephone number of contact person for facility.

Name: Arthur J. Fernandez

Title: Senior Mining Engineer

Mailing address: 7340 E. Shoeman Lane Suite 111 BE

Scottsdale

Arizona Zip Code 85251

Telephone number: (602) 945-4630 or 945-4667  
(Area Code)

- d. Address and telephone number of facility:

Mailing address: same as above

Zip Code

Telephone number: same as above  
(Area Code)

- e. Facility location information:

Vulture Mine

12 miles southwest of Wickenburg on

Vulture Mine Rd. Zip Code

Maricopa County, Arizona

Township 6N

Range 6W

Section 36

SE 1/2 1/2



- f. Describe access to facility From Wickenburg proceed  
on US 60 to Vulture Mine Road. Then drive 12  
miles south to the Vulture Mine.
- g. Landowner of facility site Larry W. Beal
- h. Type of Permit you are applying for:  
area permit \_\_\_\_\_ individual facility permit X
- i. Type of facility requesting permit:  
new X existing \_\_\_\_\_
- 2.) a. Attach a topographic map (preferably a 7.5 minute quadrangle base), showing the geographic location of the facility(s) and all disposal locations. In addition, show the location of any existing groundwater withdrawal wells within the approximate vicinity ( $\frac{1}{2}$  mile radius) of the disposal area and identify the use of each well (i.e. industrial wells, drinking water supply wells, etc.). (If applying for an area permit as described in R9-20-211, indicate on the map the location of each facility and disposal location in the proposed permitted area).
- b. List Latitude/Longitude of all disposal locations indicated on the attached map 33° 49' North Latitude  
112° 50' West Longitude  
\_\_\_\_\_  
\_\_\_\_\_
- 3.) a. Type of Facility(s) Precious Metals Mine
- b. Nature of Activity conducted at facility(s) \_\_\_\_\_  
See attached report.  
\_\_\_\_\_  
\_\_\_\_\_
- c. List applicable U.S. Department of Commerce Standard Industrial Classification (SIC) Codes for above activities  
\_\_\_\_\_  
\_\_\_\_\_

2.) Date Facility began/will begin operating November 1, 1987

5.) Expected Facility(s) Operational Lifetime Three years

6.) List any other environmental permits issued to the facility(s)  
(i.e. air quality permit, NPDES permit, hazardous waste permit)

None

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7.) a. Describe disposal activities at the facility(s) \_\_\_\_\_

See attached report.

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b. Describe any control measures and treatment processes designed and operated to protect groundwater quality from effects of the disposal \_\_\_\_\_

See attached report.

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c. Describe existing groundwater use(s) of the receiving aquifer(s) See attached paragraph.

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d. Note of depth to groundwater See attached paragraph.

Source of data \_\_\_\_\_

Date of measurement \_\_\_\_\_

e. Enter in Appendix A - Part I the ambient groundwater concentrations of the receiving aquifer(s) for those constituents listed that are contained in the disposal. Indicate source of data and date of sampling for all values listed.

8. a. Identify the type(s) of waste(s) generated by each process within the facility. Be as descriptive as possible without listing specific constituents.

See attached paragraph.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Check off list in Appendix A - Part II of the specific pollutants disposed by the facility. Include those disposed materials that are listed in Tables I and II of this document, in Title 40 Code of Federal Regulations Part 261, or any other constituent contained in the disposed waste stream.

c. Enter in Appendix A - Part II the maximum disposal concentration of those constituents you checked or listed, as required by 8b. Indicate the date of sampling in parenthesis next to the sample value and the source of the data at the bottom of page three in Appendix A.

d. Estimate the disposal schedule including the annual average in hours per day, days per year, and the disposal periods if the disposal is seasonal.

Hours/day \_\_\_\_\_

Days/year \_\_\_\_\_

Seasonal Distribution of Disposal \_\_\_\_\_

- e. Estimate the flow rate(s) of the disposal i.e. minimum, average, and maximum daily flow; mean annual flow; or mean, minimum, and maximum flow by season if disposal is periodic; or by whatever other units appropriate to the type of disposal.

See attached paragraph.

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- 9.) Describe any existing groundwater quality monitoring program(s) (attach supporting technical reports if available)

Water from existing on site well (Registration No. 55-800940) has been sampled and is being analyzed. Mine water to be sampled and tested prior to construction.

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- 10.) Include any other data or information which, in the judgement of the owner/operator, demonstrates that the facility qualifies for a groundwater quality protection permit based on compliance with the criteria listed in R9-20-208.A. Use attachments if applicable (i.e. depth to groundwater, geology at the site).

See attached report.

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11.) Certification:

"I certify that under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

A. F. Budge

Printed Name of Applicant

President

Title

Date Application Signed

Signature of Applicant

7(c)

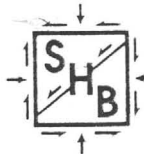
There are three known wells operating in the vicinity of the project. The first is our own to be used for process water. The second is about a mile to the southeast and is used for livestock watering. The third is about a half mile to the west. It supplies one household and some livestock.

7(d)

Depth to groundwater at the leach pad site has not been measured directly. Three drill holes (see drill logs of C-1, C-2, C-3 attached) on the leach pad site did not penetrate groundwater. The deepest drill hole is 320 feet. The closest measurement of groundwater is from the existing Vulture Mine decline, about 1200 feet to the northeast. The underground workings are flooded to the 1710 foot elevation. (Don White, 12/29/86 and 2/11/87) The elevation at the leach pad site averages 2050 feet. Therefore if the water level is the same at the leach pad site, the depth to groundwater would be approximately 340 feet. The water level in our well 3800 feet to the northwest is approximately at the 1630 elevation, or 430 feet below the surface. (August 1986, A. J. Fernandez) Therefore, from this information, it is concluded that depth to groundwater is in excess of 300 feet.

8(a,b,d,e)

This facility is designed and intended to operate as a zero discharge facility. Leach solutions will be transmitted over the geomembrane lined pad and lined open ditches to the solution ponds which are double lined with leak detection and recovery systems. No continuous or intermittent disposal of solutions is intended.



**SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS**

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|                                 |                           |                           | PAUL KAPLAN, P.E.       |

May 31, 1988

A. F. Budge (Mining) Ltd.  
7340 East Shoeman Lane  
Suite 111-B (E)  
Scottsdale, Arizona 85251-3335

SHB Job No. FC88-3796  
Report No. 1

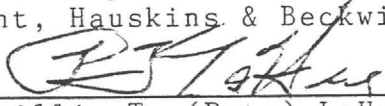
Re: Vulture Mine Heap Leach  
15 Miles South of Wickenburg, Arizona

Gentlemen,

Transmitted herewith are the observations and results of field density tests performed at the above referenced project over the period of May 5, 1988 through May 19, 1988. Also included are the results of sieve analysis, plasticity index and moisture-density relations tests performed in our laboratory.

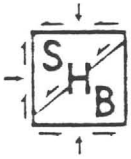
Should any questions arise concerning this report, please do not hesitate to call.

Respectfully submitted,  
Sergent, Hauskins & Beckwith Engineers

By   
Phillip T. (Pete) LaHue  
Construction Management Consultant

Copies: Addressee (2)

REPLY TO: 3232 W. VIRGINIA, PHOENIX, ARIZONA 85009



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|                                 |                           |                           | PAUL KAPLAN, P.E.       |

DAILY PROGRESS REPORT

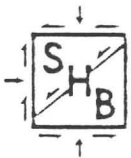
Job No. FC88-3796 Report No. 1 Date May 5, 1988  
 Project Vulture Mine Heap Leach  
 Location 15 miles South of Wickenburg, Arizona  
 Client A. F. Budge (Mining) Ltd.  
 Contractor Maya  
 Superintendent Floyd Willett  
 Weather Sunny and warm, windy

Contractor has stripped the areas for leach pad and ponds. Contractor has started on the channel today with clearing and grubbing completed. Sub-grade preparation is in progress and fill placement might be very little due to lack of water. Contractor has informed me that they intend to work four 10 hour days.

Ran one sand cone density on scarified and processed subgrade preparation. The moisture and density felt good, however, the exact results will not be available until the lab proctor is completed.

SHB Representative Daniel R. Lewis





SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

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- List of engineers and their credentials: E DWAIN SERGENT P.E., LAWRENCE A. HANSEN, PH.D., P.E., RALPH E. WEEKS, P.G., DARRELL L. BUFFINGTON, P.E., DONALD VAN BUSKIRK, P.G., DALE V. BEDENKOP, P.E., JOHN E. HAUSKINS, P.E., MICHAEL L. RUCKER, P.E., ROBERT W. CROSSLEY, P.E., JONATHAN A. CRYSTAL, P.E., PAUL V. SMITH, P.G., NORMAN H. WETZ, P.E., GEORGE H. BECKWITH, P.E., ROBERT L. FREW, JAMES H. CLARY, C.P.G., NICHOLAS T. KORECKI, P.E., GERALD P. LINDSEY, P.G., RONALDE RAGER, P.G., ROBERT D. BOOTH, P.E., SUANG CHENG, P.E., JAMES R. FAHY, P.E., MICHAEL HULPKE, P.G., DAVID E. PETERSON, P.G., ALBERT C. RUCKMAN, P.E., PAUL KAPLAN, P.E.

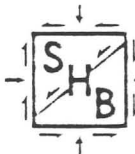
DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 2 Date May 9, 1988
Project Vulture Mine Heap Leach
Location 15 miles South of Wickenburg, Arizona
Client A. F. Budge (Mining) Ltd.
Contractor Maya
Superintendent Floyd Willett
Weather Sunny and warm

Maya continues to excavate east to west channel and place fill on east dike. Good moisture and compactive effort are being made. Contractor is holding off on west dike until Nick LaFronz from SH&B can look the situation over. There is a possibility that the west dike will be deleted due to an already existing natural incline.

Only one of the two water storage ponds was filled over the weekend. This might get us through the day because of the small area that is being constructed. However, I do foresee a problem when the fill area lengthens. The borrow excavated from channel is running pretty rocky, but still contains enough fines to insure all voids filled and excellent compaction.

SHB Representative Daniel R. Lewis



# SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

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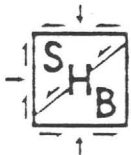
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|                                 |                           |                           | PAUL KAPLAN, P.E.       |

## DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 3 Date May 10, 1988  
 Project Vulture Mine Heap Leach  
 Location 15 miles South of Wickenburg, Arizona  
 Client A. F. Budge (Mining) Ltd.  
 Contractor Maya  
 Superintendent Floyd Willett  
 Weather Sunny and warm

Contractor has started excavating the pregnant pond. At approximately 4' into excavation we started encountering a strongly cemented sandy silty gravel with occasional cobbles and oversize. I have informed contractor that this is fast becoming an unsuitable fill and that an alternate source will have to be considered. It appears that there is an elevation bust so contractor has ceased work on pregnant pond until surveyors can be notified. All equipment has been moved back to channel. Just a few loads of fill were placed on east dike at west end of channel.

SHB Representative Daniel R. Lewis



SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

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PAUL KAPLAN, P.E.

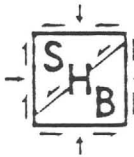
DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 4 Date May 11, 1988  
Project Vulture Mine Heap Leach  
Location 15 miles South of Wickenburg, Arizona  
Client A. F. Budge (Mining) Ltd.  
Contractor Maya  
Superintendent Floyd Willett  
Weather Sunny and warm

Contractor cutting slopes of channel, pulling the material into bottom where it will be processed and placed on dikes. A little prewetting in the pond areas continued to prevent excessive drying. The water storage ponds have only one pond full and so far has lasted the day with 30 to 35 loads in one pond.

The surveying engineers were back out and confirmed a 4' error. Maya has to redo the pond stakes.

SHB Representative Daniel R. Lewis



# SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

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|---|---|---|--|

## DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 5 Date May 12, 1988  
Project Vulture Mine Heap Leach  
Location 15 miles South of Wickenburg, Arizona  
Client A. F. Budge (Mining) Ltd.  
Contractor Maya  
Superintendent Floyd Willett  
Weather Sunny and warm

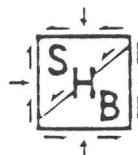
Contractor has resumed excavation on pregnant pond and working on the drainage end of leach pad. Tailings are being processed with a 6" scarification, wetting and rolling of subgrade. Tests on subgrade preparation were excellent.

The northeast corner and southeast corner of leach pad had areas that required fill to bring to finish grade. These areas were brought up in lifts with engineered fill with excellent moisture and compactive effort.

The scraper blew a hydraulic line at 10:30 A.M. so we were not able to haul fill, just fill in holes with blade at the northeast and southeast corners.

No further work was done on the diversion channel today.

SHB Representative Daniel R. Lewis



SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

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| LAWRENCE A HANSEN, Ph.D., P.E. | MICHAEL L RUCKER, P.E.   | ROBERT L FREW            | SUANG CHENG, P.E.      |
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| DARREL L BUFFINGTON, P.E.      | JONATHAN A CRYSTAL, P.E. | NICHOLAS T KORECKI, P.E. | MICHAEL HULPKE, P.G.   |
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| DALE V BEDENKOPF, P.E.         | NORMAN H WETZ, P.E.      | RONALD E RAGER, P.G.     | ALBERT C RUCKMAN, P.E. |
|                                |                          |                          | PAUL KAPLAN, P.E.      |

DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 6 Date May 17, 1988  
 Project Vulture Mine Heap Leach  
 Location 15 miles South of Wickenburg, Arizona  
 Client A. F. Budge (Mining) Ltd.  
 Contractor Maya  
 Superintendent Floyd Willett  
 Weather Scattered clouds and warm

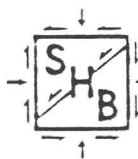
Contractor resumed working on leach pad on the 1% grade area at the south end. Tests are excellent with the backfill placement going smoothly.

Ran two sand cone density tests in the area that was placed yesterday while I was absent. Had blade man cut back for tests. The results were good with good moisture and compactive effort obviously made.

Tailings are requiring larger volumes of water for processing. The stock ponds were not filled over the weekend. We are holding our own on one filled pond from last night.

At 9:30 A.M. some twenty loads were taken with what looked like 10 to 12 loads left. It will be close by end of day. The water truck loads out in 4 to 6 minutes when pond is full, but when empty it takes up to 45 minutes.

SHB Representative Daniel R. Lewis



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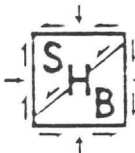
DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 7 Date May 18, 1988
Project Vulture Mine Heap Leach
Location 15 miles South of Wickenburg, Arizona
Client A. F. Budge (Mining) Ltd.
Contractor Maya
Superintendent Floyd Willett
Weather Clear and warm

Contractor continues to prepare and place fill in low areas at southwest end of leach pad. Fill is being well processed and compacted with one failing density that passed after additional compactive effort. All other tests are excellent.

D-8 dozer continues to excavate the pregnant pond. Should finish by end of day or close. Maya is planning on doing a little prewetting in cut areas at the northeast end of leach pad over the weekend, plus fill the ponds.

SHE Representative Daniel R. Lewis



# SERGEANT, HAUSKINS & BECKWITH CONSULTING GEOTECHNICAL ENGINEERS

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DARRELL BUFFINGTON, P.E.  
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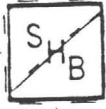
## DAILY PROGRESS REPORT

Job No. FC88-3796 Report No. 8 Date May 19, 1988  
Project Vulture Mine Heap Leach  
Location 15 miles South of Wickenburg, Arizona  
Client A. F. Budge (Mining) Ltd.  
Contractor Maya  
Superintendent Floyd Willett  
Weather Partly cloudy and warm

Contractor is running water line to leach pad area in preparation for prewetting. The D-8 dozer is excavating water checks to further spread the water. The small dozer is dressing up the slopes on pregnant pond. The blade roller and water truck will be working on the northeast and west berms on the pregnant pond which are within 1' of finish grade.

Picked up riprap sample for sieve analysis and L.A. abrasion tests and picked up sample of sand and gravel out of wash area at the north end of channel mouth. I had loader dig down 5' for a sample taken off the side of the hole from 0-5'.

SHB Representative Daniel R. Lewis



# SERGEANT, HAUSKINS & BECKWITH

CONSULTING GEOTECHNICAL ENGINEERS  
MATERIALS TESTING ENGINEERS

ENGINEERING ANALYSIS

PHYSICAL TESTING

QUALITY CONTROL

FIELD EXPLORATION

## FIELD DENSITY TEST DATA

DATE \_\_\_\_\_

PROJECT Vulture Mine Heap Leach JOB NO. FC88-3796

LOCATION 15 mi. South of Wickenburg, Arizona

CLIENT A. F. Budge (Mining) Ltd. ADDRESS 7340 East Shoeman Lane  
Scottsdale, AZ 85251-3335

ARCHITECT/ENGINEER \_\_\_\_\_ CONTRACTOR \_\_\_\_\_

REQUESTED BY \_\_\_\_\_ PERFORMED BY SHB/DRL

MATERIAL \_\_\_\_\_

Specified Percent Max. Dry Density: 95

| DATE OF TEST | TEST NO. | DEPTH OF TEST | LOCATION                                | MOISTURE CONTENT % DRY WT. | DRY DENSITY LBS./CU.FT. | % MAX DRY DENSITY | CURVE NO. |
|--------------|----------|---------------|---|----------------------------|-------------------------|-------------------|-----------|
| 5-5-88       | 1        | 0-6"          | E Dike Subgrade prep - Sta. 4+90 $\phi$ | 9.5                        | 122.3                   | 94.4              | A         |
| 5-9-88       | 2        | 2'-           | E Dike Sta. 1+30 - 3' E of $\phi$       |                            |                         |                   |           |
|              |          | 2'6"          |   | 10.8                       | 123.9                   | 95.0              | A         |
| 5-12-88      | 3        | 0-6"          | Leach Pad Sta. 2+00 - 50' E of W End    | 14.0                       | 118.5                   | 98.5              | B         |
| 5-12-88      | 4        | 1'6"-         | Leach Pad 100' W of 75' Line - NE       |                            |                         |                   |           |
|              |          | 2'            | Corner of Pad                           | 14.0                       | 115.0                   | 95.6              | B         |
| 5-12-88      | 5        | 6"-1'         | Leach Pad 50' N & 20' W of NE Corner    | 15.6                       | 124.5                   | 100+              | B         |
| 5-17-88      | 6        | 0-6"          | Leach Pad 50' E & 15' N of SE Corner    | 14.9                       | 116.1                   | 96.5              | B         |
| 5-17-88      | 7        | 0-6"          | Leach Pad 20' N & 100' E of SW Corner   | 10.0                       | 114.7                   | 95.3              | B         |
| 5-17-88      | 8        | 6"-1'         | Leach Pad 20' E & 20' N of SE Corner    | 11.0                       | 113.2                   | 94.1              | B         |
| 5-17-88      | 8A       | 6"-1'         | Leach Pad 20' E & 20' N of SE Corner    | 13.6                       | 119.9                   | 99.7              | B         |
| 5-17-88      | 9        | 1'6"-         | Leach Pad 5' N & 200' E of SW Corner    |                            |                         |                   |           |
|              |          | 2'            |   | 12.3                       | 122.7                   | 100+              | B         |
| 5-18-88      | 10       | 6"-1'         | Leach Pad 150' S & 70' E of SW Corner   | 11.0                       | 119.3                   | 99.1              | B         |
| 5-18-88      | 11       | 1'-           | Leach Pad 200' N & 2' E of SE Corner    |                            |                         |                   |           |
|              |          | 1'6"          |   | 9.8                        | 111.9                   | 93.0              | B         |
| 5-18-88      | 11A      | 1'-           | Leach Pad 200' N & 2' E of SE Corner    |                            |                         |                   |           |
|              |          | 1'6"          |   | 14.0                       | 120.3                   | 100.0             | B         |
|              |          |               |   |                            |                         |                   |           |
|              |          |               |   |                            |                         |                   |           |



SERGENT, HAUSKINS & BECKWITH  
CONSULTING GEOTECHNICAL ENGINEERS

REPORT OF LABORATORY TESTS

DATE 5/5/88

PROJECT: VULTURE MINE

JOB NO. FC88-3796

LOCATION: SAMPLE #1 STA. 2+00  
CHANNEL EXCAVATION @ 0' TO 5'

W.D.NO. 1

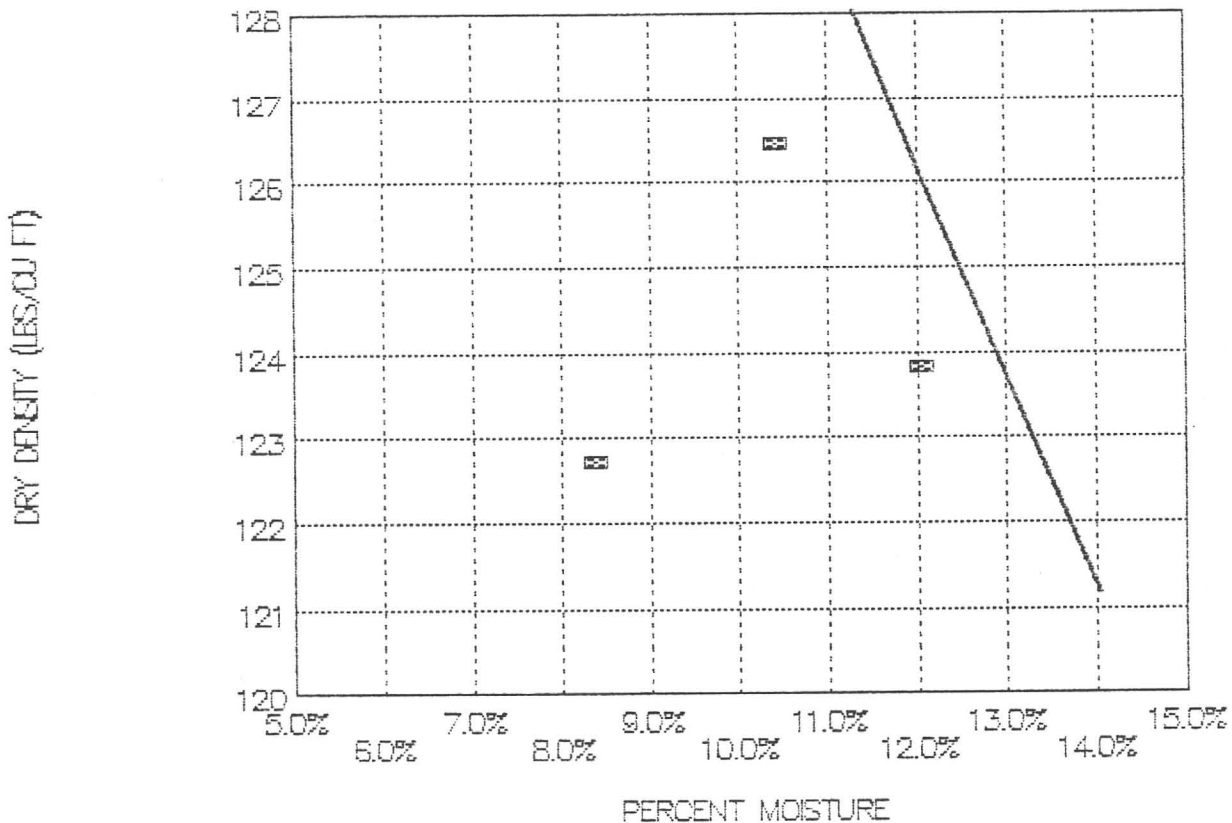
LAB NO. 1

=====

MAXIMUM DRY DENSITY 126.5 PCF  
OPTIMUM MOISTURE CONTENT 10.5%

TEST DESIGNATION ASTM D698  
METHOD A  
CURVE A

### MOISTURE - DENSITY RELATIONSHIP



SERGEANT, HAUSKINS & BECKWITH  
CONSULTING GEOTECHNICAL ENGINEERS

REPORT OF LABORATORY TESTS

DATE 5/5/89

PROJECT: VULTURE MINE

JOB NO. FC88-3796

LOCATION: SAMPLE #2 - LEACH PAD  
EXISTING TAILINGS, S.E. CORNER

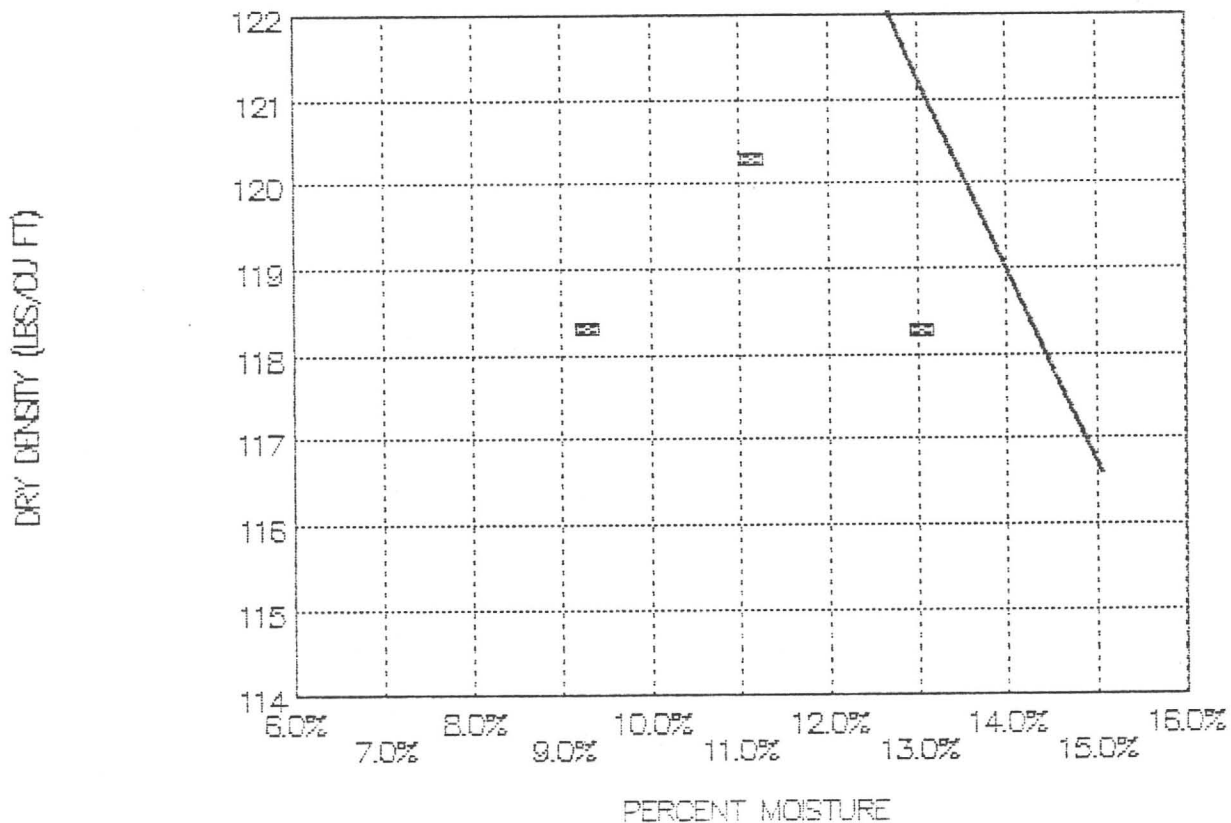
W.O.NO. 1

LAB NO. 2

MAXIMUM DRY DENSITY 120.3 PCF  
OPTIMUM MOISTURE CONTENT 11.2%

TEST DESIGNATION ASTM D698  
METHOD A  
CURVE B

MOISTURE - DENSITY RELATIONSHIP







**A. F. Budge (Mining) Limited**

7340 E. Shoeman Lane, Suite 111 "B" (E)

Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

May 13, 1987

Arizona Department of Health Services  
Office of Waste and Water Quality Management  
Water Permits Unit  
2005 North Central Avenue  
Phoenix, AZ 85004

Dear Sir:

Please accept this Notice of Disposal Form, submitted by A.F. Budge (Mining) Limited in regards to proposed mining activities at the Vulture Mine, pursuant to A.C.R.R., Title 9, Chapter 20, Article 2.

Attached, and to be considered as part of the Notice of Disposal, is a bound copy of a Geotechnical Design Development Report, prepared by Sergent, Hauskins and Beckwith Geotechnical Engineers, Inc., of Phoenix.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Arthur J. Fernandez".

Arthur J. Fernandez  
Senior Mining Engineer

ajf:ca

w/attachments

NOTICE OF DISPOSAL FORM

1. a. Facility name Vulture Mine  
b. Facility Owner A. F. Budge (Mining) Limited  
c. Name, title, address, and telephone number of contact person for facility.

Name: Arthur J. Fernandez

Title: Senior Mining Engineer

Mailing address: 7340 E. Shoeman Lane Suite 111 BE

Scottsdale

Arizona

Zip Code 85251

Telephone number: (602) 945-4630 or 945-4667  
(Area Code)

- d. Address and telephone number of facility:

Mailing address: same as above

Zip Code

Telephone number: same as above  
(Area Code)

- e. Facility location information:

Vulture Mine

12 miles southwest of Wickenburg on

Vulture Mine Rd. Zip Code

Maricopa County, Arizona

Township 6N

Range 6W

Section 36

SE 1/2

1/2

f. Describe access to facility From Wickenburg proceed  
on US 60 to Vulture Mine Road. Then drive 12  
miles south to the Vulture Mine.

g. Landowner of facility site Larry W. Beal

h. Type of Permit you are applying for:  
area permit \_\_\_\_\_ individual facility permit X

i. Type of facility requesting permit:  
new X existing \_\_\_\_\_

2.) a. Attach a topographic map (preferably a 7.5 minute quadrangle base), showing the geographic location of the facility(s) and all disposal locations. In addition, show the location of any existing groundwater withdrawal wells within the approximate vicinity ( $\frac{1}{2}$  mile radius) of the disposal area and identify the use of each well (i.e. industrial wells, drinking water supply wells, etc.). (If applying for an area permit as described in R9-20-211, indicate on the map the location of each facility and disposal location in the proposed permitted area).

b. List Latitude/Longitude of all disposal locations indicated on the attached map 33° 49' North Latitude  
112° 50' West Longitude

3.) a. Type of Facility(s) Precious Metals Mine

b. Nature of Activity conducted at facility(s) \_\_\_\_\_  
See attached report.

c. List applicable U.S. Department of Commerce Standard Industrial Classification (SIC) Codes for above activities  
1041; 1044

4.) Date Facility began/will begin operating November 1, 1987

5.) Expected Facility(s) Operational Lifetime Three years

6.) List any other environmental permits issued to the facility(s)  
(i.e. air quality permit, NPDES permit, hazardous waste permit)

None

7.) a. Describe disposal activities at the facility(s) \_\_\_\_\_

See attached report.

b. Describe any control measures and treatment processes designed and operated to protect groundwater quality from effects of the disposal \_\_\_\_\_

See attached report.

c. Describe existing groundwater use(s) of the receiving aquifer(s) See attached paragraph.

d. Note of depth to groundwater See attached paragraph.

Source of data \_\_\_\_\_

Date of measurement \_\_\_\_\_

e. Enter in Appendix A - Part I the ambient groundwater concentrations of the receiving aquifer(s) for those constituents listed that are contained in the disposal. Indicate source of data and date of sampling for all values listed.

8.) a. Identify the type(s) of waste(s) generated by each process within the facility. Be as descriptive as possible without listing specific constituents.

See attached paragraph.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Check of list in Appendix A - Part II of the specific pollutants disposed by the facility. Include those disposed materials that are listed in Tables I and II of this document, in Title 40 Code of Federal Regulations Part 261, or any other constituent contained in the disposed waste stream.

c. Enter in Appendix A - Part II the maximum disposal concentration of those constituents you checked or listed, as required by 8b. Indicate the date of sampling in parenthesis next to the sample value and the source of the data at the bottom of page three in Appendix A.

d. Estimate the disposal schedule including the annual average in hours per day, days per year, and the disposal periods if the disposal is seasonal.

Hours/day \_\_\_\_\_

Days/year \_\_\_\_\_

Seasonal Distribution of Disposal \_\_\_\_\_



- e. Estimate the flow rate(s) of the disposal i.e. minimum, average, and maximum daily flow; mean annual flow; or mean, minimum, and maximum flow by season if disposal is periodic; or by whatever other units appropriate to the type of disposal.

See attached paragraph.

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- 9.) Describe any existing groundwater quality monitoring program(s) (attach supporting technical reports if available)

Water from existing on site well (Registration No. 55-800940) has been sampled and is being analyzed. Mine water to be sampled and tested prior to construction.

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- 10.) Include any other data or information which, in the judgement of the owner/operator, demonstrates that the facility qualifies for a groundwater quality protection permit based on compliance with the criteria listed in R9-20-208.A. Use attachments if applicable (i.e. depth to groundwater, geology at the site).

See attached report.

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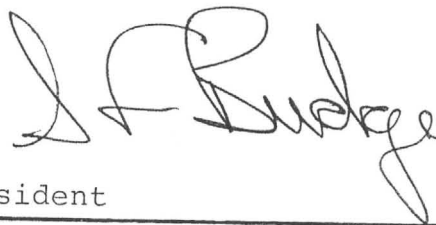
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11. Certification:

"I certify that under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

A. F. Budge  
Printed Name of Applicant



President  
Title

May 6, 1987  
Date Application Signed

Signature of Applicant

7(c)

There are three known wells operating in the vicinity of the project. The first is our own to be used for process water. The second is about a mile to the southeast and is used for livestock watering. The third is about a half mile to the west. It supplies one household and some livestock.

7(d)

Depth to groundwater at the leach pad site has not been measured directly. Three drill holes (see drill logs of C-1, C-2, C-3 attached) on the leach pad site did not penetrate groundwater. The deepest drill hole is 320 feet. The closest measurement of groundwater is from the existing Vulture Mine decline, about 1200 feet to the northeast. The underground workings are flooded to the 1710 foot elevation. (Don White, 12/29/86 and 2/11/87) The elevation at the leach pad site averages 2050 feet. Therefore if the water level is the same at the leach pad site, the depth to groundwater would be approximately 340 feet. The water level in our well 3800 feet to the northwest is approximately at the 1630 elevation, or 430 feet below the surface. (August 1986, A. J. Fernandez) Therefore, from this information, it is concluded that depth to groundwater is in excess of 300 feet.

8(a,b,d,e)


This facility is designed and intended to operate as a zero discharge facility. Leach solutions will be transmitted over the geomembrane lined pad and lined open ditches to the solution ponds which are double lined with leak detection and recovery systems. No continuous or intermittent disposal of solutions is intended.

## Peter H. Hahn, Geologist

3608 Big Bend Lane Reno, Nevada 89509 (702) 825-1948

### MEMORANDUM

To: A. F. Budge (Mining) Ltd.  
A. J. Fernandez, Sr. Mining Engineer

From: Peter H. Hahn  
Consulting Geologist 

Date: 29 April 1987

Subject: Vulture Mine, Maricopa County, Arizona: Water

During the period 2-26-87 to 3-07-87, I supervised reverse circulation drilling at the Vulture mine; I was present at all times during drilling operations and personally sampled all of the drill cuttings.

Ten holes were drilled, roughly on a N 15° W alignment along a trail from just inside the south line of Sec. 36, T6N, R6W, at the intersection of the trail with the Vulture Mine Road, to a point within Sec. 1, T5N, R6W about 1500 feet NW from the SE corner. These holes varied from 250 to 340 feet deep on a -60° angle (216 to 294 feet vertical depth). Vertical thickness of overburden varied from 16 to 52 feet. No water or moist cuttings were intersected in any of these holes.

Three vertical holes, 300 to 320 feet deep, were drilled within the old Vulture mill tailings, near the center of Sec. 36, T6N, R6W, a few hundred feet west of the old cyanide mill. No water or moist cuttings were intersected.

No water or moisture was found in the five angle holes in and near the Vulture Pit #1, to a depth of 120 feet below the pit floor, nor in the three short "peepholes", 55-75 feet deep, about a mile west of the Vulture townsite.



# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

EVAN MECHAM, GOVERNOR  
Gerald Teletkze, Ph.D., Director

August 5, 1987

A. J. Fernandez  
A. F. Budge (Mining) Limited  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, Arizona 85251

Dear Mr. Fernandez:

RE: Vulture Mine - File No. 87-86  
Notice of Disposal, Request for additional information

A Notice of Disposal (N.O.D.) for the referenced facility located near Wickenburg, Arizona, has been received and given a preliminary review. In accordance with A.A.C., Title 9, Chapter 20, Section 205 of the Water Pollution Control Permit System, this letter serves as notification that the N.O.D. is incomplete. Attached is a checklist detailing the sections of the N.O.D. where additional information is needed. Also attached is part of a draft permit, very similar to your proposed operation, which can be used as guidance for the information we need prior to issuing a permit.

Generally, as we discussed during the site visit, the additional information needs relate to:

## Ownership

- \* Are the owners of the property different than the operators? If so, please provide the names and addresses of those persons having a legal interest in the property.

## Design of the Containment/Disposal Facility

- \* Accurately locate each containment and disposal area and provide the control technologies to be used for each area.
- \* Discuss the ability of the proposed system to prevent the migration of pollutants to the vadose zone. (liners for the pad, and stability during and after operation)

## Monitoring Plans

- \* What type of leak collection and detection plans are proposed for each part of your facility? The plans for the pregnant and barren ponds are included in your original NOD but what about the pad, the storm water pond and the other facilities where chemicals are used, stored or disposed?

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

Mr. A. J. Fernandez  
Page 2  
August 5, 1987

Contingency Plans

- \* What contingency plan do you have if there should be a leak in any portion of the system?

Closure Plans

- \* Please provide analyses of the reprocessed tailings in order to predict the potential future impacts to water quality. Are there any specific plans for closure to minimize any future affects?

Thank you very much for the tour of the facility on July 23, 1987. The site visit answered many of the original questions that I had regarding your proposed operation. I am looking forward to working with you in preparing a permit in an expeditious fashion. If you have any questions, I can be contacted at (602) 257-6806.

Sincerely,



Carol Russell  
Environmental Health Specialist  
Water Permits Unit

CR:mm

FACILITY NAME Vulture Mine

DATE 7-28

NOTICE OF DISPOSAL CHECKLIST

| LINE #  | GENERAL DESCRIPTION   | N/A           | COMPLETE      | INCOMPLETE    |
|---------|---|---------------|---------------|---------------|
| 1 a     | Facility Name   |               | <u>X</u>      | <u>      </u> |
| 1 b     | Facility address or describe location   |               | <u>X</u>      | <u>      </u> |
| 1 c     | Facility manager, address & telephone #   | <u>      </u> | <u>X</u>      | <u>      </u> |
| 1 d & e | Owners name, address and telephone #  |               | <u>      </u> | <u>X</u>      |
| 1 f     | Landowner of the facility site  |               | <u>      </u> | <u>X</u>      |
| 1 g     | Facility's design consultant  | <u>      </u> | <u>X</u>      | <u>      </u> |
|         | Name of consultant  |               | <u>X</u>      | <u>      </u> |
|         | Firm  |               | <u>X</u>      | <u>      </u> |
|         | Address   |               | <u>X</u>      | <u>      </u> |
|         | Telephone #   |               | <u>X</u>      | <u>      </u> |
| 1 h     | Type of Permit  |               | <u>X</u>      | <u>      </u> |
| 1 i     | Type of facility requesting permit  |               | <u>X</u>      | <u>      </u> |
| 2 a     | Topographic Map   |               | <u>X</u>      | <u>      </u> |
|         | Geographic location of facility   |               | <u>X</u>      | <u>      </u> |
|         | All disposal locations ( <i>more accurate site map needed</i> )   |               | <u>      </u> | <u>X</u>      |
|         | All groundwater supply wells within 1/4 mile radius   |               | <u>X</u>      | <u>      </u> |
|         | Identified use of each well on an attachment  |               | <u>X</u>      | <u>      </u> |
| 2 b     | Latitude & Longitude of all disposal locations on map   |               | <u>X</u>      | <u>      </u> |
| 3 a     | Type of Facility(s)   |               | <u>X</u>      | <u>      </u> |
| 3 b     | Nature of Activity conducted at facility(s)   |               | <u>X</u>      | <u>      </u> |
| 3 c     | SIC codes for activities conducted at facility  |               | <u>X</u>      | <u>      </u> |
| <hr/>   |   |               |               |               |
| 4       | Date facility began/will begin operations   |               | <u>X</u>      | <u>      </u> |
| 5       | Facility(s) operational lifetime  |               | <u>X</u>      | <u>      </u> |
| 6       | List any other environmental permits issued   |               | <u>X</u>      | <u>      </u> |
| <hr/>   |   |               |               |               |
| <hr/>   |   |               |               |               |
| 7 a     | Describe disposal activities at facility  |               | <u>      </u> | <u>      </u> |
| 7 b     | Any control measures and treatment process designed and operated to protect groundwater quality from the effects of disposal. If none, so indicate. |               | <u>      </u> | <u>      </u> |

| LINE # | GENERAL DESCRIPTION  | N/A | COMPLETE | INCOMPLETE |
|--------|--|-----|----------|------------|
| 7 c    | Existing groundwaters uses of receiving aquifer  |     | X        |            |
| 7 d    | Depth of groundwater (Depth to water should be determined again at your production water well)   |     |          | X          |
|        | Source of data   |     |          | X          |
|        | Date of measurement  |     |          | X          |
| 7 e    | Analytical report of ground water quality from:  |     |          |            |
|        | Groundwater supply well(s) on the facility   |     |          | X          |
|        | Groundwater supply well(s) within 1/4 mile   |     |          | X          |
|        | Analysis to include values for the following:  |     |          |            |
|        | Microbiological  | X   |          |            |
|        | Inorganic chemicals  |     |          | X          |
|        | Radiochemicals   | X   |          |            |
|        | Secondary contaminants   |     |          | X          |
|        | Priority pollutants  | X   |          |            |
|        | Organic chemicals  | X   |          |            |
|        | Others <u>CN</u>   | X   |          | X          |
|        | Include source and date of sampling  |     |          | X          |
| 8 a    | Types of Wastes generated  |     | X        |            |
|        | <i>materials i.e. tailings, waste rock</i>   |     |          |            |
| 8 b    | Analytical report of waste <del>stream</del> , values for:   |     |          |            |
|        | Microbiological  | X   |          |            |
|        | Inorganic chemicals  |     |          | X          |
|        | Radiochemicals   | X   |          |            |
|        | Secondary contaminants   |     |          | X          |
|        | Priority pollutants  | X   |          |            |
|        | Organic chemicals  | X   |          |            |
|        | Others <u>CN</u>   |     |          | X          |
|        | Include source and date of sampling  |     |          | X          |
| 8 c    | Disposal Schedule Hours/ per day   |     |          |            |
|        | Days/ per year   |     |          |            |
|        | Seasonal distribution  | X   |          |            |
| 8 d    | Estimated flow rate(s) of disposal   |     | X        |            |
| 9      | Describe any existing groundwater monitoring programs (attach reports if available)  |     |          | X          |
|        | <i>leak detection systems incomplete</i>   |     |          |            |
| 10     | Other data that in the judgement of the owner/operator, demonstrates that the facility qualifies for a groundwater quality protection permit. (for your benefit, a sample of the tailings prior to leaching may be useful) |     |          | X          |
| 11     | Certification & signature  |     | X        |            |
| 12     | Site plans to include:   |     |          |            |
|        | Septic tank/wastewater treatment plant location and capacities   |     |          | X          |
|        | leach lines/ seepage pits/ pond location   |     |          |            |
|        | depth and size of seepage pits   |     |          |            |
|        | Percolation data, soil profile data  |     |          |            |
|        | Project area size  |     |          |            |
|        | Flow rate  |     |          |            |
|        | 5-day on-site storage, 10-year, 24 hour storm containment  |     |          |            |

*100 year - 24 hour storm containment for pile  
100 year - 24 hour diversion design.*



Part II. SPECIFIC CONDITIONS (R9-20-208.C.)

A. Containment/Disposal Requirements

1. Containment

The permittee is authorized to operate a hydrometallurgical precious-metal recovery facility utilizing the cyanide agglomerated heap leach process. The facility consists of: Screening-crushing plant, agglomerator, leach pad, pregnant solution/flood containment pond, barren solution pond, spill/washdown evaporation pond, four carbon absorption columns, fresh water tank, hypochlorite tank, portable toilet, office trailer, fencing around facility site, and stormwater diversion berms. The facility shall be constructed and maintained in such a manner as to prevent discharge of pollutants to the land surface or subsurface.

a. Heap Leach Process

The facility encompasses the patented mining claims called the [REDACTED] which were mined from 1905 until 1931. Several piles of low grade "dump" material were left on the site, some of which are targeted to be processed by the proposed facility. The oversized 1/2 inch plus rock will be reduced by a crusher, and join the undersized material on a conveyor belt on the way to a agglomerator where approximately 10 pounds of Portland cement along with 9% fresh water per ton of ore will be added and the agglomerated onto the lined leach pad.

b. Pad and Ponds

The agglomerated ore will be placed on a 165 ft. x 220 ft. lined pad. The pregnant solution/flood containment pond will be 147 ft. long x 30 ft. wide and 8 ft. deep, with a capacity of 183,000 gallons. The barren solution pond will be 33 ft. long x 30 ft. wide and 8 ft. deep, with a capacity of 33,000 gallons. The ponds are designed to operate at less than 40% capacity to allow adequate freeboard for the containment of a 100-year, 24-hour stormwater event.

c. Liner and Leak Detection

The pad and ponds will be constructed on a smooth base, composed of fine silt and clay compacted to a minimum thickness of 4 inches, A sand layer

approximately 4-inches thick with a network of 2-inch perforated pipe 40 feet apart will be placed under the liner and connected to a main drain line which is plumbed to a sampling point (sump), outside of the pad. A network of electronic moisture sensors will be placed in the area between the perforated pipes on a 40-foot grid pattern, with each probe monitoring its own area of the liner. One continuous synthetic liner of 30 mil PVC, HDPE or 36 mil Hypalon will be placed over the prepared base and leak detection system which will underline the pad and ponds. After the synthetic liner has been installed the ponds shall be filled with fresh water and the water levels in the ponds shall be measured daily for one week and compared to a pan evaporation test to determine if leakage is occurring. If leakage is determined to be occurring, another liner shall be installed or the original liner shall be repaired, and leakage test shall be repeated.

d. Final Recovery and Spill Protection

The concrete loading and unloading area adjoining the carbon column platform will be sloped to drain into a 550-gallon spill/washdown evaporation pond. Any carbon column loading and unloading spill or carbon column leakage will be neutralized with hypochlorite and washed into this lined pond for evaporation. This evaporation pond will be built higher than the perimeter berm surrounding the pregnant solution pond so that any spill larger than 550 gallons (such as pipe breakage) will overflow into the pregnant solution pond, preventing any accidental spills from exiting the system. The loaded carbon will be moved to a commercial facility to be stripped, regenerated and recycled.

e. Tailings Disposal

The waste product generated by the heap leach processing will be rinsed and neutralized tailings contained on an impervious liner. The entire facility shall be constructed to prevent slumping and not to allow discharge of any fluids to the land surface or subsurface.

f. Facility Protection

The facility shall be adequately protected by diversion berms and a drainage ditch from external

runoff which may occur during a 100-year, 24-hour rainfall event and its associated drainage. A 2-foot perimeter berm shall be constructed around pad and ponds to prevent any on-site stormwater event runoff from entering the leaching process and to contain a possible failure of the heap face slope. The area surrounding the pond and ponds will be fenced to prevent anyone from entering what will be posted as a "restricted area".

g. Bulk Chemical Storage

No cyanide or empty containers shall be stored at the facility site.

h. Process Water

The facility's industrial water supply will come from an existing mine shaft approximately 1,500 feet to the northwest. This source will be contingent on its ability to produce an adequate supply of water. If the shaft cannot produce enough water to meet demands, water will be hauled to the site by a water truck.

i. Sewage Disposal

No sanitary septic waste will be disposed of within the facility's boundaries. Because of the limited number of employees needed to operate the facility (three or less), a portable toilet (J-John) will be used to handle sanitary waste and will be maintained and serviced regularly.

j. Other Laws and Rules

The operator must maintain compliance with all other State of Arizona laws and rules. The issuance of this permit does not waive any federal, state, county or local government rules, regulations or permits for which this facility may have to comply.

2. Discharge Source Limits

- a. There shall be no discharge of pollutants that violate the State of Arizona Groundwater Quality Standards (R9-21-401, et seq.).
- b. The exhausted ore (leached ore) shall not be removed from the lined pad.

3. Leak Detection Limits

Any fluid collected at the leak collection sampling point shall not exceed a pH of 8.5 or show the presence of total cyanide above 0.20 mg/l.

B. Monitoring Requirements, Record Keeping (R9-20-215)

1. Monitoring Type and Conditions

a. Leach Solution Monitoring

The leaching solution used in the hydrometallurgical heap leach process shall be closely monitored at least once daily in the form of a water balance. Representative samples will be taken daily from: Drainage from the heap leach pad into pregnant pond, leach solution entering and leaving barren ponds where chemicals (cyanide, lime) are added. All solutions sampled shall be analyzed by standard field methods for pH and cyanide (total) (EPA method 335.1). A log of these results, as well as daily solution levels in both barren and pregnant ponds; and amount of fresh water added to leaching system daily shall be kept at the facility available for inspection by ADEQ personnel, and shall be submitted to the Department in the form of a water balance along with the monitoring report as outlined in Part II.B.2.

b. Leak Detection and Collection Monitoring

The leak collection sampling point specified in Part II.A.1.c. shall be monitored weekly for the presence of fluid. Any fluid collected shall be analyzed by standard field methods for pH and total cyanide. Refer to contingency requirements (Part II.C. for action to be taken if cyanide is detected.

If any leak should occur below the liner, moisture sensors shall trigger shut-down of the system, sound an alarm, and indicate the approximate location of the leak. Refer to contingency requirements Part II.C. for action to be taken if moisture sensors trigger shut-down.

2. Reporting Requency

For daily and weekly field monitoring, including leak detection monitoring and water balance, obtained during the previous 3 months shall be summarized for each month and submitted quarterly in duplicate in accordance with the following schedule. The operator shall prepare a

quarterly assessment report including the status of the operation, any remedial activities undertaken and analytical results for that quarter.

Monitoring results, water balance and assessment report for the previous quarter shall be postmarked no later than the 26th day of the month following the completed reporting period as follows:

| <u>Reporting Period</u>     | <u>are due by</u> |
|-----------------------------|-------------------|
| 1st Quarter (Jan, Feb, Mar) | Apr 28            |
| 2nd Quarter (Apr, May, Jun) | Jul 28            |
| 3rd Quarter (Jul, Aug, Sep) | Oct 28            |
| 4th Quarter (Oct, Nov, Dec) | Jan 28            |

The results of all monitoring and reporting required by this permit shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this permit. All forms shall be sent to the following address:

Arizona Department of Environmental Quality  
Office of Waste and Water Quality Management  
Compliance Section  
2005 North Central Avenue  
Phoenix, Arizona 85004

C. Contingency Requirements (R9-20-206.D.2.)

1. Should any fluid be collected in the leak detection sampling point and exceed the limits of Section A.3., or if the moisture sensors detect leakage, the permittee shall contact the Water Permits/U.S.T. Compliance Unit, adjacent landowners, and the Mohave County Health Department within 72 hours to determine the appropriate action to mitigate the effects of the violation.

In the event of a spill, it shall be neutralized with a 10% hypochlorite solution stored on site in a 500-gallon tank to accommodate such or any other type of unforeseen situation. Any spill shall be reported in the quarterly assessment report.

D. Post-Closure Plan (R9-20-206.D.3. and R9-20-216.C.2.)

1. Upon permanent abandonment of the facility site, the permittee shall adhere to the following procedures for closure when utilizing cyanide:
  - a. Run a 10% hypochlorite solution through the pregnant pond and barren pond for a minimum of 24 hours.

- b. Run a 10% hypochlorite solution through the entire heap leaching system for a minimum of 48 hours.
- c. Test the rinseate for total cyanide as described in Part II.B.1.a. If total cyanide is detected in concentrations of greater than 0.2 mg/l, repeat steps "a" and "b" above and test for cyanide again.
- d. Allow solutions to evaporate from the ponds. Any remaining residues or sludges shall be analyzed by EPA approved test methods (Test Methods for Evaluating Solid Waste, SW-846, 2nd Edition) for the following constituents, and the results reported to the Department.

| <u>Constituent</u>       | <u>Limits</u> |
|--------------------------|---------------|
| Cyanide (Total and Free) | 10 mg/l       |
| Arsenic                  | 5 mg/l        |
| Barium                   | 100 mg/l      |
| Cadmium                  | 1 mg/l        |
| Chromium                 | 5 mg/l        |
| Lead                     | 5 mg/l        |
| Selenium                 | 1 mg/l        |
| Silver                   | 5 mg/l        |

If any constituent exceeds its associated limit, the residual sludge shall be removed and disposed of at a landfill approved for handling hazardous waste.

- 2. The permittee shall file a report with the Department's Water Permits Unit following closure, describing the results of each step of the closure plan, within 60 days of the closure.

E. Compliance Schedule (R9-20-219)

No special requirements.



# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

EVAN MECHAM, GOVERNOR  
Gerald Teletkze, Ph.D., Director

August 5, 1987

A. J. Fernandez  
A. F. Budge (Mining) Limited  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, Arizona 85251

Dear Mr. Fernandez:

RE: Vulture Mine - File No. 87-86  
Notice of Disposal, Request for additional information

A Notice of Disposal (N.O.D.) for the referenced facility located near Wickenburg, Arizona, has been received and given a preliminary review. In accordance with A.A.C., Title 9, Chapter 20, Section 205 of the Water Pollution Control Permit System, this letter serves as notification that the N.O.D. is incomplete. Attached is a checklist detailing the sections of the N.O.D. where additional information is needed. Also attached is part of a draft permit, very similar to your proposed operation, which can be used as guidance for the information we need prior to issuing a permit.

Generally, as we discussed during the site visit, the additional information needs relate to:

## Ownership

- \* Are the owners of the property different than the operators? If so, please provide the names and addresses of those persons having a legal interest in the property.

## Design of the Containment/Disposal Facility

- \* Accurately locate each containment and disposal area and provide the control technologies to be used for each area.
- \* Discuss the ability of the proposed system to prevent the migration of pollutants to the vadose zone. (liners for the pad, and stability during and after operation)

## Monitoring Plans

- \* What type of leak collection and detection plans are proposed for each part of your facility? The plans for the pregnant and barren ponds are included in your original NOD but what about the pad, the storm water pond and the other facilities where chemicals are used, stored or disposed?

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

Mr. A. J. Fernandez  
Page 2  
August 5, 1987

Contingency Plans

- \* What contingency plan do you have if there should be a leak in any portion of the system?

Closure Plans

- \* Please provide analyses of the reprocessed tailings in order to predict the potential future impacts to water quality. Are there any specific plans for closure to minimize any future affects?

Thank you very much for the tour of the facility on July 23, 1987. The site visit answered many of the original questions that I had regarding your proposed operation. I am looking forward to working with you in preparing a permit in an expeditious fashion. If you have any questions, I can be contacted at (602) 257-6806.

Sincerely,



Carol Russell  
Environmental Health Specialist  
Water Permits Unit

CR:mm



FACILITY NAME Vulture Mine

DATE 7-28

NOTICE OF DISPOSAL CHECKLIST

| LINE #  | GENERAL DESCRIPTION   | N/A           | COMPLETE      | INCOMPLE      |
|---------|---|---------------|---------------|---------------|
| 1 a     | Facility Name   |               | <u>X</u>      | <u>      </u> |
| 1 b     | Facility address or describe location   |               | <u>X</u>      | <u>      </u> |
| 1 c     | Facility manager, address & telephone #   | <u>      </u> | <u>X</u>      | <u>      </u> |
| 1 d & e | Owners name, address and telephone #  |               | <u>      </u> | <u>X</u>      |
| 1 f     | Landowner of the facility site  |               | <u>      </u> | <u>X</u>      |
| 1 g     | Facility's design consultant  | <u>      </u> | <u>X</u>      | <u>      </u> |
|         | Name of consultant  |               | <u>X</u>      | <u>      </u> |
|         | Firm  |               | <u>X</u>      | <u>      </u> |
|         | Address   |               | <u>X</u>      | <u>      </u> |
|         | Telephone #   |               | <u>X</u>      | <u>      </u> |
| 1 h     | Type of Permit  |               | <u>X</u>      | <u>      </u> |
| 1 i     | Type of facility requesting permit  |               | <u>X</u>      | <u>      </u> |
| 2 a     | Topographic Map   |               | <u>X</u>      | <u>      </u> |
|         | Geographic location of facility   |               | <u>X</u>      | <u>      </u> |
|         | All disposal locations ( <i>more accurate site map needed</i> )   |               | <u>X</u>      | <u>X</u>      |
|         | All groundwater supply wells within 1/4 mile radius   |               | <u>X</u>      | <u>      </u> |
|         | Identified use of each well on an attachment  |               | <u>X</u>      | <u>      </u> |
| 2 b     | Latitude & Longitude of all disposal locations on map   |               | <u>X</u>      | <u>      </u> |
| 3 a     | Type of Facility(s)   |               | <u>X</u>      | <u>      </u> |
| 3 b     | Nature of Activity conducted at facility(s)   |               | <u>X</u>      | <u>      </u> |
| 3 c     | SIC codes for activities conducted at facility  |               | <u>X</u>      | <u>      </u> |
| 4       | Date facility began/will begin operations   |               | <u>X</u>      | <u>      </u> |
| 5       | Facility(s) operational lifetime  |               | <u>X</u>      | <u>      </u> |
| 6       | List any other environmental permits issued   |               | <u>X</u>      | <u>      </u> |
|         | <u>      </u>   |               |               |               |
|         | <u>      </u>   |               |               |               |
| 7 a     | Describe disposal activities at facility  |               | <u>      </u> | <u>      </u> |
| 7 b     | Any control measures and treatment process designed and operated to protect groundwater quality from the effects of disposal. If none, so indicate. |               | <u>      </u> | <u>      </u> |

| LINE #   | GENERAL DESCRIPTION   | N/A | COMPLETE | INCOMPLETE                                |
|--|---|-----|----------|---|
| 7 c  | Existing groundwaters uses of receiving aquifer   |     | X        |   |
| 7 d  | Depth of groundwater<br>Source of data<br>Date of measurement   |     |          | X<br>X<br>X                               |
| <i>(Depth to water should be determined again at your production water well)</i> |   |     |          |   |
| 7 e  | Analytical report of ground water quality from:<br>Groundwater supply well(s) on the facility<br>Groundwater supply well(s) within 1/4 mile<br>Analysis to include values for the following:<br>Microbiological<br>Inorganic chemicals<br>Radiochemicals<br>Secondary contaminants<br>Priority pollutants<br>Organic chemicals<br>Others <u>CN</u><br>Include source and date of sampling |     |          | X<br>X<br>X<br>X<br>X<br>X<br>X<br>X<br>X |
| 8 a  | Types of Wastes generated   |     | X        |   |
| <i>materials i.e. tailings, waste rock</i>                                       |   |     |          |   |
| 8 b  | Analytical report of waste <del>stream</del> , values for:<br>Microbiological<br>Inorganic chemicals<br>Radiochemicals<br>Secondary contaminants<br>Priority pollutants<br>Organic chemicals<br>Others <u>CN</u><br>Include source and date of sampling   |     |          | X<br>X<br>X<br>X<br>X<br>X<br>X           |
| 8 c  | Disposal Schedule Hours/ per day<br>Days/ per year<br>Seasonal distribution   |     |          | X   |
| 8 d  | Estimated flow rate(s) of disposal  |     | X        |   |
| 9  | Describe any existing groundwater monitoring programs (attach reports if available)   |     |          | X   |
| <i>leak detection systems incomplete</i>   |   |     |          |   |
| 10   | Other data that in the judgement of the owner/operator, demonstrates that the facility qualifies for a groundwater quality protection permit.<br>(for your benefit, a sample of the tailings prior to leaching may be useful)   |     |          | X   |
| 11   | Certification & signature   |     | X        |   |
| 12   | Site plans to include:<br>Septic tank/wastewater treatment plant location and capacities<br>leach lines/ seepage pits/ pond location<br>depth and size of seepage pits<br>Percolation data, soil profile data<br>Project area size<br>Flow rate<br>5-day on-site storage, 10-year, 24 hour storm containment  |     |          | X<br>X<br>X<br>X<br>X<br>X<br>X           |

*100 year - 24 hour storm containment for pile  
100 year - 24 hour diversion design.*

Part II. SPECIFIC CONDITIONS (R9-20-208.C.)

A. Containment/Disposal Requirements

1. Containment

The permittee is authorized to operate a hydrometallurgical precious-metal recovery facility utilizing the cyanide agglomerated heap leach process. The facility consists of: Screening-crushing plant, agglomerator, leach pad, pregnant solution/flood containment pond, barren solution pond, spill/washdown evaporation pond, four carbon absorption columns, fresh water tank, hypochlorite tank, portable toilet, office trailer, fencing around facility site, and stormwater diversion berms. The facility shall be constructed and maintained in such a manner as to prevent discharge of pollutants to the land surface or subsurface.

a. Heap Leach Process

The facility encompasses the patented mining claims called the [REDACTED] which were mined from 1905 until 1931. Several piles of low grade "dump" material were left on the site, some of which are targeted to be processed by the proposed facility. The oversized 1/2 inch plus rock will be reduced by a crusher, and join the undersized material on a conveyor belt on the way to a agglomerator where approximately 10 pounds of Portland cement along with 9% fresh water per ton of ore will be added and the agglomerated onto the lined leach pad.

b. Pad and Ponds

The agglomerated ore will be placed on a 165 ft. x 220 ft. lined pad. The pregnant solution/flood containment pond will be 147 ft. long x 30 ft. wide and 8 ft. deep, with a capacity of 183,000 gallons. The barren solution pond will be 33 ft. long x 30 ft. wide and 8 ft. deep, with a capacity of 33,000 gallons. The ponds are designed to operate at less than 40% capacity to allow adequate freeboard for the containment of a 100-year, 24-hour stormwater event.

c. Liner and Leak Detection

The pad and ponds will be constructed on a smooth base, composed of fine silt and clay compacted to a minimum thickness of 4 inches. A sand layer

approximately 4-inches thick with a network of 2-inch perforated pipe 40 feet apart will be placed under the liner and connected to a main drain line which is plumbed to a sampling point (sump), outside of the pad. A network of electronic moisture sensors will be placed in the area between the perforated pipes on a 40-foot grid pattern, with each probe monitoring its own area of the liner. One continuous synthetic liner of 30 mil PVC, HDPE or 36 mil Hypalon will be placed over the prepared base and leak detection system which will underline the pad and ponds. After the synthetic liner has been installed the ponds shall be filled with fresh water and the water levels in the ponds shall be measured daily for one week and compared to a pan evaporation test to determine if leakage is occurring. If leakage is determined to be occurring, another liner shall be installed or the original liner shall be repaired, and leakage test shall be repeated.

d. Final Recovery and Spill Protection

The concrete loading and unloading area adjoining the carbon column platform will be sloped to drain into a 550-gallon spill/washdown evaporation pond. Any carbon column loading and unloading spill or carbon column leakage will be neutralized with hypochlorite and washed into this lined pond for evaporation. This evaporation pond will be built higher than the perimeter berm surrounding the pregnant solution pond so that any spill larger than 550 gallons (such as pipe breakage) will overflow into the pregnant solution pond, preventing any accidental spills from exiting the system. The loaded carbon will be moved to a commercial facility to be stripped, regenerated and recycled.

e. Tailings Disposal

The waste product generated by the heap leach processing will be rinsed and neutralized tailings contained on an impervious liner. The entire facility shall be constructed to prevent slumping and not to allow discharge of any fluids to the land surface or subsurface.

f. Facility Protection

The facility shall be adequately protected by diversion berms and a drainage ditch from external

runoff which may occur during a 100-year, 24-hour rainfall event and its associated drainage. A 2-foot perimeter berm shall be constructed around pad and ponds to prevent any on-site stormwater event runoff from entering the leaching process and to contain a possible failure of the heap face slope. The area surrounding the pond and ponds will be fenced to prevent anyone from entering what will be posted as a "restricted area".

g. Bulk Chemical Storage

No cyanide or empty containers shall be stored at the facility site.

h. Process Water

The facility's industrial water supply will come from an existing mine shaft approximately 1,500 feet to the northwest. This source will be contingent on its ability to produce an adequate supply of water. If the shaft cannot produce enough water to meet demands, water will be hauled to the site by a water truck.

i. Sewage Disposal

No sanitary septic waste will be disposed of within the facility's boundaries. Because of the limited number of employees needed to operate the facility (three or less), a portable toilet (J-John) will be used to handle sanitary waste and will be maintained and serviced regularly.

j. Other Laws and Rules

The operator must maintain compliance with all other State of Arizona laws and rules. The issuance of this permit does not waive any federal, state, county or local government rules, regulations or permits for which this facility may have to comply.

2. Discharge Source Limits

- a. There shall be no discharge of pollutants that violate the State of Arizona Groundwater Quality Standards (R9-21-401, et seq.).
- b. The exhausted ore (leached ore) shall not be removed from the lined pad.

3. Leak Detection Limits

Any fluid collected at the leak collection sampling point shall not exceed a pH of 8.5 or show the presence of total cyanide above 0.20 mg/l.

B. Monitoring Requirements, Record Keeping (R9-20-215)

1. Monitoring Type and Conditions

a. Leach Solution Monitoring

The leaching solution used in the hydrometallurgical heap leach process shall be closely monitored at least once daily in the form of a water balance. Representative samples will be taken daily from: Drainage from the heap leach pad into pregnant pond, leach solution entering and leaving barren ponds where chemicals (cyanide, lime) are added. All solutions sampled shall be analyzed by standard field methods for pH and cyanide (total) (EPA method 335.1). A log of these results, as well as daily solution levels in both barren and pregnant ponds; and amount of fresh water added to leaching system daily shall be kept at the facility available for inspection by ADEQ personnel, and shall be submitted to the Department in the form of a water balance along with the monitoring report as outlined in Part II.B.2.

b. Leak Detection and Collection Monitoring

The leak collection sampling point specified in Part II.A.1.c. shall be monitored weekly for the presence of fluid. Any fluid collected shall be analyzed by standard field methods for pH and total cyanide. Refer to contingency requirements (Part II.C. for action to be taken if cyanide is detected.

If any leak should occur below the liner, moisture sensors shall trigger shut-down of the system, sound an alarm, and indicate the approximate location of the leak. Refer to contingency requirements Part II.C. for action to be taken if moisture sensors trigger shut-down.

2. Reporting Requency

For daily and weekly field monitoring, including leak detection monitoring and water balance, obtained during the previous 3 months shall be summarized for each month and submitted quarterly in duplicate in accordance with the following schedule. The operator shall prepare a

quarterly assessment report including the status of the operation, any remedial activities undertaken and analytical results for that quarter.

Monitoring results, water balance and assessment report for the previous quarter shall be postmarked no later than the 26th day of the month following the completed reporting period as follows:

| <u>Reporting Period</u>     | <u>are due by</u> |
|-----------------------------|-------------------|
| 1st Quarter (Jan, Feb, Mar) | Apr 28            |
| 2nd Quarter (Apr, May, Jun) | Jul 28            |
| 3rd Quarter (Jul, Aug, Sep) | Oct 28            |
| 4th Quarter (Oct, Nov, Dec) | Jan 28            |

The results of all monitoring and reporting required by this permit shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this permit. All forms shall be sent to the following address:

Arizona Department of Environmental Quality  
Office of Waste and Water Quality Management  
Compliance Section  
2005 North Central Avenue  
Phoenix, Arizona 85004

C. Contingency Requirements (R9-20-206.D.2.)

1. Should any fluid be collected in the leak detection sampling point and exceed the limits of Section A.3., or if the moisture sensors detect leakage, the permittee shall contact the Water Permits/U.S.T. Compliance Unit, adjacent landowners, and the Mohave County Health Department within 72 hours to determine the appropriate action to mitigate the effects of the violation.

In the event of a spill, it shall be neutralized with a 10% hypochlorite solution stored on site in a 500-gallon tank to accommodate such or any other type of unforeseen situation. Any spill shall be reported in the quarterly assessment report.

D. Post-Closure Plan (R9-20-206.D.3. and R9-20-216.C.2.)

1. Upon permanent abandonment of the facility site, the permittee shall adhere to the following procedures for closure when utilizing cyanide:
  - a. Run a 10% hypochlorite solution through the pregnant pond and barren pond for a minimum of 24 hours.

- b. Run a 10% hypochlorite solution through the entire heap leaching system for a minimum of 48 hours.
- c. Test the rinseate for total cyanide as described in Part II.B.1.a. If total cyanide is detected in concentrations of greater than 0.2 mg/l, repeat steps "a" and "b" above and test for cyanide again.
- d. Allow solutions to evaporate from the ponds. Any remaining residues or sludges shall be analyzed by EPA approved test methods (Test Methods for Evaluating Solid Waste, SW-846, 2nd Edition) for the following constituents, and the results reported to the Department.

| <u>Constituent</u>       | <u>Limits</u> |
|--------------------------|---------------|
| Cyanide (Total and Free) | 10 mg/l       |
| Arsenic                  | 5 mg/l        |
| Barium                   | 100 mg/l      |
| Cadmium                  | 1 mg/l        |
| Chromium                 | 5 mg/l        |
| Lead                     | 5 mg/l        |
| Selenium                 | 1 mg/l        |
| Silver                   | 5 mg/l        |

If any constituent exceeds its associated limit, the residual sludge shall be removed and disposed of at a landfill approved for handling hazardous waste.

2. The permittee shall file a report with the Department's Water Permits Unit following closure, describing the results of each step of the closure plan, within 60 days of the closure.

E. Compliance Schedule (R9-20-219)

No special requirements.





**A. F. Budge (Mining) Limited**

7340 E. Shoeman Lane, Suite 111 "B" (E)

Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

August 14, 1987

Carol Russell  
Arizona Department of Environmental Quality  
2005 North Central Avenue  
Phoenix, Arizona 85004

Dear Ms. Russell:

RE: Vulture Mine - File No. 87-86

Included here is information that is currently available to complete our Notice of Disposal. Following your checklist:

1 d&e Property Owner: Vulture Mine Properties, Inc.  
Larry Beal, President  
1414 E. Purdue  
Phoenix, Arizona 85020

Facility Operator: A. F. Budge (Mining) Ltd.  
7340 E. Shoeman Lane  
Suite 111 BE  
Scottsdale, Arizona 85251  
Tony Budge, President

A. F. Budge (Mining) Ltd. has leased the property from Vulture Mine Properties, Inc.

7 d Attached is a summary from Woodruff Electric & Pump dated September 26, 1984 showing a static water level 430 feet below the well collar.

7 e Attached are two reports from Accu-Labs Research, Inc. of analyses performed on water samples taken from our well on April 22, 1987. The sample was taken by A. J. Fernandez according to instructions given by Accu-Labs.

8 b Attached are two reports from Skyline Labs, Inc. showing analyses for mercury of the tailings to be processed. The first is total mercury and the second is for cyanide soluble mercury. Further test work on these tails is underway to determine levels of other constituents before and after leaching. Also, estimates are to be made of mercury recovery in the plant.

Carol Russell  
August 14, 1987  
Page 2

Work is in progress on the other incomplete items addressed in your letter of August 5. I will forward those reports as they become available. It is our intention to provide full and complete information to you as soon as possible.

Sincerely,



A. J. Fernandez  
Senior Mining Engineer



# Accu-Labs Research, Inc.

11485 W. 48th Avenue Wheat Ridge, Colorado 80033  
(303) 423-2766

May 8, 1987  
Page 1 of 2

A.J. Fernandez  
A.F. Budge (Mining) Ltd.  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85241-3335

**DMEA LTD.**

**MAY 15 1987**

**RECEIVED**

RE: 9416-24121-1  
Date Samples Rec'd 4-22-87

## REPORT OF ANALYSIS

|  |                |
|--|----------------|
| ALR Designation                          | 9416-24121-1-1 |
| Sponsor Designation                      | AFB1           |
|  | <u>4-22-87</u> |
| Determination: mg/L                      |                |
| Cyanide                                  | <0.005         |
| Arsenic, total                           | <0.005         |
| Barium, total                            | <0.2           |
| Cadmium, total                           | <0.005         |
| Chromium, total                          | 0.006          |
| Fecal Coliforms,<br>Colonies per 100 mLs | <1             |
| BOD                                      | <2             |
| Lead, total                              | <0.005         |
| Mercury, total                           | 0.0002         |
| Nitrate (as N)                           | 1.1            |
| Selenium, total                          | <0.005         |
| Silver, total                            | 0.011          |
| Fluoride                                 | 2.8            |
| Pesticides:                              |                |
| Lindane                                  | <0.004         |
| Endrin                                   | <0.0002        |
| Methoxychlor                             | <0.1           |
| Toxaphene                                | <0.005         |
| Herbicides:                              |                |
| 2,4-D                                    | <0.1           |
| 2,4,5-TP (Silvex)                        | <0.01          |

May 8, 1987  
Page 2 of 2

A.J. Fernandez  
A.F. Budge (Mining) Ltd.

RE: 9416-24121-1  
Date Samples Rec'd 4-22-87

REPORT OF ANALYSIS

|   |                |
|---|----------------|
| ALR Designation                                 | 9416-24121-1-1 |
| Sponsor Designation                             | AFB1           |
|   | <u>4-22-87</u> |
| Determination: mg/L                             |                |
| Gross Alpha, total,<br>± counting error*, pCi/L | 22 ± 7         |
| Gross Beta, total,<br>± counting error*, pCi/L  | 3 ± 3          |

\*Variability of the radioactive disintegration process (counting error) at the 95% confidence level,  $1.96\sigma$ .  
These samples are scheduled to be discarded 30 days after the date of this report.

*for Mary Fabisiak*  
\_\_\_\_\_  
Cathy Shugarts  
Water Laboratory  
Supervisor

*Chris Shugarts*  
\_\_\_\_\_  
Chris Shugarts  
Organics Chemistry  
Supervisor

*Bud Summers*  
\_\_\_\_\_  
Bud Summers  
Radiochemistry  
Supervisor

CS/CS/BS/dh *dh*

WOODRUFF ELECTRIC & PUMP  
160 W. Center - P.O. Box 758  
Wickenburg, AZ 85358  
602-684-2444

September 26, 1984

Vulture Mine Well  
c/o Milton Hood  
P. O. Box 20365  
Wickenburg, AZ.  
85358

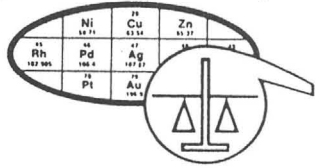
9/17/84

- Pull customers' 15 H.P. pump as per proposal dated September 6, 1984. Findings were as follows:
  - Well diameter - 6" (8 $\frac{1}{2}$ " surface)
  - Well depth - 720'
  - Static Water Level - 430'
  - Pump Setting - 686' (672' of 2", 14'8" of 3")
  - Cable Size - 8/3 neoprene
  - Two (?) lengths of column pipe had holes in the threaded area.
  - One (1) 2" check valve was bad.
  - Pump cable had numerous nicks and rubbed areas.
  - Pump motor had a heavy ground (800,000 ohms to ground).
  
- RECCOMENDATIONS MADE TO MILTON HOOD:
  - Replace pump and motor due to heavy ground.
  - Replace pump cable.
  - Replace both check valves (2").
  - Replace all 2" pipe below the water level.
  
- MR. HOOD'S DECISION:
  - Re-install pump and motor as is.
  - Replace both check valves.
  - Replace all pipe below the water line.
  - Use old pump cable.

7000-8000  $\Omega$  on  
8/5/86

9/20/84

- Re-installed customers' pump.
- Replaced 252' of 2" pipe.
- Replaced two (?) check valves.



**SKYLINE LABS, INC.**  
 1775 W. Sahuaro Dr. • P.O. Box 50106  
 Tucson, Arizona 85703  
 (602) 622-4836

REPORT OF ANALYSIS

JOB NO. UQX 046A  
 March 5, 1987  
 NO. T-3 TO T-56  
 RECEIVED 1-16-87  
 PAGE 1 OF 1

A.F. BUDGE (MINING) LIMITED  
 Attn: Mr.  
 DMEA Ltd.  
 7340 E. Shoeman Lane, 111-B (E)  
 Scottsdale, Arizona 85251

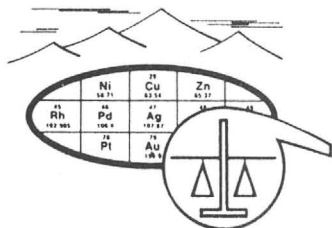
RECEIVED  
 MAR 9 1987  
 DMEA LTD.

Analysis of 5 Pulp Samples

| ITEM | SAMPLE NO. | Hg*<br>(ppm) |
|------|------------|--------------|
| 1    | T-3        | .96          |
| 3    | T-18       | 6.00         |
| 5    | T-30       | 2.90         |
| 7    | T-38       | 4.70         |
| 9    | T-50       | 3.70         |

\*NOTE: Cyanide Soluble.

*William L. Lehmbek*  
 William L. Lehmbek  
 Manager  
 REGISTERED ASSAYER  
 CERTIFICATE NO. 9425  
 WILLIAM L. LEHMBEK  
 ARIZONA REGISTERED ASSAYER  
 APR 1987



**SKYLINE LABS, INC.**  
1775 W. Sahuaro Dr. • P.O. Box 50106  
Tucson, Arizona 85703  
(602) 622-4836

REPORT OF ANALYSIS

JOB NO. UQX 046  
January 27, 1987  
NO. T-3 TO T-56  
PAGE 1 OF 1

A.F. BUDGE (MINING) LIMITED  
Attn: Mr. A. J. Fernandez  
DMEA Ltd.  
7340 E. Shoeman Lane, 111-B (E)  
Scottsdale, Arizona 85251

Analysis of 10 Tail Samples

---

| ITEM | SAMPLE NO. | Hg<br>(ppm) |
|------|------------|-------------|
| 1    | T-3        | 1.00        |
| 2    | T-16       | 5.00        |
| 3    | T-18       | 6.60        |
| 4    | T-23       | 2.40        |
| 5    | T-30       | 3.00        |
| 6    | T-35       | 4.40        |
| 7    | T-38       | 4.80        |
| 8    | T-47       | 4.20        |
| 9    | T-50       | 3.80        |
| 10   | T-56       | .84         |

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# Accu-Labs Research, Inc.

11485 W. 48th Avenue Wheat Ridge, Colorado 80033  
(303) 423-2766

DMER LTD.

JUN 18 1987

RECEIVED

June 16, 1987  
Page 1 of 1

A.J. Fernandez  
A.F. Budge (Mining) Ltd.  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85241-3335

RE: 9416-24121-1  
Date Samples Rec'd 4-22-87

ADDITIONAL ANALYSIS

REPORT OF ANALYSIS

ALR Designation  
Sponsor Designation

9416-24121-1-1  
AFB1  
4-22-87

Determination: pCi/L

Radium-226, total,  
± counting error\*

0.2 ± 0.2

Uranium (as U),  
total, mg/L

0.050

\*Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.  
These samples are scheduled to be discarded 45 days after the date of this report.

Bud Summers  
Radiochemistry  
Supervisor

BS/dh *dh*



NOTICE OF DISPOSAL FORM

1. a. Facility name Vulture Mine  
b. Facility Owner A.F. Budge (MINING) LTD.  
c. Name, title, address, and telephone number of contact person for facility.

Name: ARTHUR J. FERNANDEZ

Title: Senior MINING Engineer

Mailing address: 7340 E SHEPHERD LN. Suite 111 BE  
Scottsdale

AZ Zip Code 85251

Telephone number: 602 945 4630 or 945 4667  
(Area Code)

- d. Address and telephone number of Facility:

Mailing address: No mailing Address

Zip Code

Telephone number: NO phone  
(Area Code)

- e. Facility location information:

Vulture Mine

11 miles SW of Wickenburg on

Vulture Mine Road Zip Code

MARICOPA County, Arizona

Township 5 AND 6 N

Range 6 W

Section 1 + 36

1/2

1/2

f. Describe access to facility From Wickenburg  
proceed on U.S. 60 to Vulture Mine Road.  
Then drive 12 miles South to Vulture Mine

g. Landowner of facility site LARRY Beal

h. Type of Permit you are applying for:  
area permit \_\_\_\_\_ individual facility permit X

i. Type of facility requesting permit:  
new X existing \_\_\_\_\_

2.) a. Attach a topographic map (preferably a 7.5 minute quadrangle base), showing the geographic location of the facility(s) and all disposal locations. In addition, show the location of any existing groundwater withdrawal wells within the approximate vicinity (1/2 mile radius) of the disposal area and identify the use of each well (i.e. industrial wells, drinking water supply wells, etc.). (If applying for an area permit as described in R9-20-211, indicate on the map the location of each facility and disposal location in the proposed permitted area).

*in hand*

b. List Latitude/Longitude of all disposal locations indicated on the attached map 33°49' N LATITUDE  
112° 50' W LONGITUDE

3.) a. Type of Facility(s) Precious Metals HEAP LEACH

b. Nature of Activity conducted at facility(s) \_\_\_\_\_  
See attached S&B REPORTS

*in S&B*

c. List applicable U.S. Department of Commerce Standard Industrial Classification (SIC) Codes for above activities

4.) Date Facility began/will begin operating November 1, 1987

5.) Expected Facility(s) Operational Lifetime ~~30 months~~ 3 years

6.) List any other environmental permits issued to the facility(s)  
(i.e. air quality permit, NPDES permit, hazardous waste permit)

NONE

7.) a. Describe disposal activities at the facility(s) \_\_\_\_\_

See attached SHB Report

*in SHB*

b. Describe any control measures and treatment processes designed and operated to protect groundwater quality from effects of the disposal \_\_\_\_\_

See attached SHB Report

*SHB*

c. Describe existing groundwater use(s) of the receiving aquifer(s) \_\_\_\_\_

*ATTACH*

*Pete Kahl's  
Observation*

d. Note of depth to groundwater \_\_\_\_\_  
Source of data \_\_\_\_\_  
Date of measurement \_\_\_\_\_

*NOT  
REQUIRED*

e. Enter in Appendix A - Part I the ambient groundwater concentrations of the receiving aquifer(s) for those constituents listed that are contained in the disposal. Indicate source of data and date of sampling for all values listed.

8.) a. Identify the type(s) of waste(s) generated by each process within the facility. Be as descriptive as possible without listing specific constituents.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. Check of list in Appendix A - Part II of the specific pollutants disposed by the facility. Include those disposed materials that are listed in Tables I and II of this document, in Title 40 Code of Federal Regulations Part 261, or any other constituent contained in the disposed waste stream.

*NOT  
REQUIRED*

c. Enter in Appendix A - Part II the maximum disposal concentration of those constituents you checked or listed, as required by 8b. Indicate the date of sampling in parenthesis next to the sample value and the source of the data at the bottom of page three in Appendix A.

d. Estimate the disposal schedule including the annual average in hours per day, days per year, and the disposal periods if the disposal is seasonal.

Hours/day \_\_\_\_\_  
Days/year \_\_\_\_\_  
Seasonal Distribution of Disposal \_\_\_\_\_

- e. Estimate the flow rate(s) of the disposal i.e. minimum, average, and maximum daily flow; mean annual flow; or mean, minimum, and maximum flow by season if disposal is periodic; or by whatever other units appropriate to the type of disposal.

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- 9.) Describe any existing groundwater quality monitoring program(s) (attach supporting technical reports if available) \_\_\_\_\_

*None*

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- 10.) Include any other data or information which, in the judgement of the owner/operator, demonstrates that the facility qualifies for a groundwater quality protection permit based on compliance with the criteria listed in R9-20-208.A. Use attachments if applicable (i.e. depth to groundwater, geology at the site).

*See attached SHB Report*

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*SHB*

11.) Certification:

"I certify that under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Printed Name of Applicant

Title

Date Application Signed

Signature of Applicant



**A. F. Budge (Mining) Limited**

7340 E. Shoeman Lane, Suite 111 "B" (E)

Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

August 14, 1987

Carol Russell  
Arizona Department of Environmental Quality  
2005 North Central Avenue  
Phoenix, Arizona 85004

Dear Ms. Russell:

RE: Vulture Mine - File No. 87-86

Included here is information that is currently available to complete our Notice of Disposal. Following your checklist:

1 d&e Property Owner: Vulture Mine Properties, Inc.  
Larry Beal, President  
1414 E. Purdue  
Phoenix, Arizona 85020

Facility Operator: A. F. Budge (Mining) Ltd.  
7340 E. Shoeman Lane  
Suite 111 BE  
Scottsdale, Arizona 85251  
Tony Budge, President

A. F. Budge (Mining) Ltd. has leased the property from Vulture Mine Properties, Inc.

7 d Attached is a summary from Woodruff Electric & Pump dated September 26, 1984 showing a static water level 430 feet below the well collar.

7 e Attached are two reports from Accu-Labs Research, Inc. of analyses performed on water samples taken from our well on April 22, 1987. The sample was taken by A. J. Fernandez according to instructions given by Accu-Labs.

8 b Attached are two reports from Skyline Labs, Inc. showing analyses for mercury of the tailings to be processed. The first is total mercury and the second is for cyanide soluble mercury. Further test work on these tails is underway to determine levels of other constituents before and after leaching. Also, estimates are to be made of mercury recovery in the plant.

Carol Russell  
August 14, 1987  
Page 2

Work is in progress on the other incomplete items addressed in your letter of August 5. I will forward those reports as they become available. It is our intention to provide full and complete information to you as soon as possible.

Sincerely,



A. J. Fernandez  
Senior Mining Engineer



*DMEA Ltd.*

Mineral Exploration Advice

*Ben F. Dickerson III*  
Registered & Certified Geologist  
*Carole A. O'Brien*  
Certified Geologist

7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85251  
(602) 945-4630  
Telex: 75-1739

June 17, 1985

Clayton J. Parr  
Larsen, Kimball, Parr & Crockett  
185 South State Street, Suite 1300  
Salt Lake City, UT 84111

Re: Vulture Mine Property  
Maricopa County, Arizona

Dear Mr. Parr:

A copy of your letter proposal of June 10, made on behalf of Hunt, Ware and Proffett, has been sent to our client, A.F. Budge (Mining) Limited.

Mr. Budge will study this proposal and will give us his instructions in due course.

In connection with the allegations raised in paragraph 6 of your letter, you should be advised that our information gives us a quite differing view of these matters.

Thank you for the proposal.

Very truly yours,



Ben F. Dickerson III

BFD:ca  
cc: A.F. Budge

10:

ACTION: up acct of Vulture Map in book

of Sec 25 - See original land survey maps for details  
Case name if any?  
JOHN M. PROFFETT

178 (Crown)  
1781 (1957)  
1979  
1479

4/7/19  
Duffey?  
1479

Vulture Place  
177A

DESERT 2182

APPLICANT  
CLAIM OWNERSHIP  
VULTURE DISTRICT

BLM DATE  
9/12/84

1000 ft.



staked  
dumper  
9/11/83

NDL  
71  
AOL's?

DUFFEY  
4/30

DUFFEY  
4/66

Vulture  
2/82

Dist  
2/82

Vulture 2/82

T-7118

21 25  
25 36

25 30  
36 31

RESERVE ROSS DEOR  
J.S. DESERT ETC

T6N R6W  
T6N R5W

PAT

PAT

AULT GARD  
MUGGET  
8/18

LAW OFFICES OF  
**LARSEN, KIMBALL, PARR & CROCKETT**  
A PROFESSIONAL CORPORATION  
SUITE 1300  
185 SOUTH STATE STREET  
SALT LAKE CITY, UTAH 84111  
TELEPHONE (801) 532-7840

June 10, 1985

RECEIVED JUN 12 1985

DMEA Ltd.  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85251

Attention: Ben F. Dickerson III

Dear Mr. Dickerson:

This firm represents Hunt, Ware and Proffett (HW&P), a Nevada partnership composed of Hunt Exploration, Inc., Ware Exploration, Inc., and Proffett Exploration, Inc. It is our understanding that DMEA Ltd. (DMEA) is the local representative of A.F. Budge Mining Limited, an English corporation (Budge).

Budge is a party to an Option and Lease Agreement dated effective February 1, 1985, with V.M.P., Inc., an Arizona corporation, as amended by the First Amendment to Option and Lease Agreement dated effective February 1, 1985, covering certain mineral properties in Maricopa County, Arizona. We refer to the Agreement, as amended, as the "Option and Lease Agreement."

HW&P proposes to sublease a portion of the properties covered by the Option and Lease Agreement under the following terms:

1. Properties: The subleased properties would include the following claims as shown on the map sent to John Hunt with Carole O'Brien's letter of April 10.

V-16 through V-22  
V-33 through V-39  
V-53 through V-59  
V-72 through V-78  
V-89

V-90A  
V-91  
V-102 through V-106  
V-114 through V-120  
V-128 through V-134  
V-142 through V-146  
Unnamed claims between V-102 and V-103  
and between V-103 and V-104.  
D-1A  
D-2 through D-4  
D-5A  
D-6  
D-7  
D-8A  
D-9A  
D-10 through D-28  
D-137 through D-143  
D-144 through D-153

Rights to any placer claims covering the same ground would be included.

2. Term. The term would be coterminous with the term of the Option and Lease Agreement except that the sublease would continue if the Option and Lease Agreement is terminated while the sublease is still in effect. The sublease could be terminated by HW&P at any time.

3. Payments. HW&P would make an initial cash payment to Budge of \$1,000 and would make an additional payment on or before each anniversary of the sublease of the amount paid the previous year plus \$500. Upon the commencement of development after the announcement of a decision to commence mining, and for so long as development or subsequent mining operations are continued, an annual payment of \$25,000 would be made to Budge. Payments will be characterized as advance royalties to be offset against production royalties.

4. Royalty. The royalty would be computed and paid in the manner set forth in the Option and Lease, but would be fixed at 5%. The lower royalty is appropriate in light of the

nature of the project, which is a search for hitherto unknown deposits amenable to extraction through underground mining not connected with old workings.

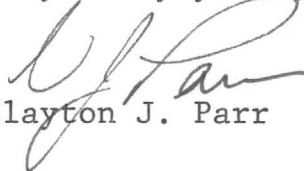
5. Assessment Work. HW&P would perform annual assessment work beginning with the assessment work year ending September 1, 1986, subject to avoidance if the sublease is terminated prior to June 1 of any year.

6. Conflicting Claims. Our title research reveals that a portion of the properties in Section 25, T6N, R6W, are in conflict with the Duffy group of claims owned by other parties. Additional conflicts appear to exist in Section 26, and there may be other conflicts that we are not aware of. If mining should take place in any conflict area, HW&P would contemplate placing any royalties in escrow until the conflict is resolved. By entering into the sublease, HW&P would not be obligated to defend title to the properties nor would it be precluded from obtaining leasehold or other rights from the owners of the conflicting claims.

We are aware that consent of V.M.P. Inc. to the sublease is required, particularly with respect to the change in the royalty rate.

We hope that a sublease can be negotiated in accordance with the terms outlined above and will be pleased to talk with you to review the matter further at your convenience. Please call if you have any questions about this proposal.

Very truly yours,

  
Clayton J. Parr

CJP/wc

cc: John P. Hunt  
John M. Proffett

Dr. John P. Hunt  
Hunt Exploration, Inc.  
P.O. Box 2648  
La Jolla, CA 92038

Re: Proposed Sub-lease of Vulture Property

Dear John:

In regards to our recent conversation concerning the referenced proposal, we would like to offer the following as a counter-proposal to that which was contained in Mr. Clayton J. Parr's letter of June 10, 1985:

1. Properties: The properties would remain the same as those outlined, subject to claim amendments made during the past year.

2. Option: Budge would offer Hunt, Ware and Proffett (HW&P) a six month option to explore for minerals on the property in consideration for a payment of \$25,000.00.

3. Sub-lease: HW&P may exercise their option to sublease all, or any portion of the described property, at the end of the six month option period. Should HW&P decide not to exercise the option, HW&P shall furnish Budge with copies of all exploration data generated by HW&P during this period.

(a) Term: The term of the Sub-lease would be coterminous with the term of the Option and Lease Agreement with VMP, Inc. except that the sub-lease would continue if the Option and Lease Agreement is terminated while the sub-lease is still in effect. The sub-lease could be terminated by HW&P at any time, but HW&P shall furnish Budge with copies of all exploration data generated by HW&P during this time.

(b) Payments: During the term of the sub-lease, HW&P will make annual payments on or before each anniversary of the sub-lease as follows:

(i) \$25 per claim per year in Lease years one through five.

(ii) \$50 per claim per year in Lease years six through ten.

(iii) \$100 per claim per year thereafter.

Payments will be characterized as advance royalties to be offset against production royalties.

(c) Royalty: The royalty would be computed and paid in the manner set forth in the Option and Lease Agreement, and would be fixed at 10%.

(4) Option to Convert to Participating Interest: Budge shall have the option to convert its royalty interest to a 20% participating interest in the area subject to the sub-lease. This option shall be exercisable within 180 days after completion and delivery to Budge by HW&P of a positive feasibility study based on which HW&P anticipate making a decision to place the deposit under sub-lease into production.

*DMEA Ltd.*

Mineral Exploration Advice

*Ben F. Dickerson III*  
Registered & Certified Geologist  
*Carole A. O'Brien*  
Certified Geologist

7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85251  
(602) 945-4630  
Telex: 75-1739

August 22, 1985

John P. Hunt  
Hunt Exploration, Inc.  
P.O. Box 2648  
La Jolla, CA 92038

Re: Vulture Mine  
Maricopa County, Arizona

Dear John:

We appreciate your waiting for a decision regarding the referenced property.


We have discussed your proposal with our client, A.F. Budge (Mining) Limited, and he has decided that your proposal is of no interest at this time. He may do additional work on his own account.

Your inquiry is appreciated, and we wish you (and Mr. Keck) every success in your prospecting activities.

Mr. Keck may be interested to learn that Thor Gjelsteen's company, Ferret Exploration, is placing a Nevada gold property in production.

Best wishes.

Very truly yours,



Ben F. Dickerson III

BFD:ca  
cc: A.F. Budge



*DMEA Ltd.*  
Mineral Exploration Advice

*Ben F. Dickerson III*  
Registered & Certified Geologist  
*Carole A. O'Brien*  
Certified Geologist

7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85251  
(602) 945-4630  
Telex: 75-1739

August 22, 1985

John P. Hunt  
Hunt Exploration, Inc.  
P.O. Box 2648  
La Jolla, CA 92038

Re: Vulture Mine  
Maricopa County, Arizona

Dear John:

We appreciate your waiting for a decision regarding the referenced property.

We have discussed your proposal with our client, A.F. Budge (Mining) Limited, and he has decided that your proposal is of no interest at this time. He may do additional work on his own account.

Your inquiry is appreciated, and we wish you (and Mr. Keck) every success in your prospecting activities.

Mr. Keck may be interested to learn that Thor Gjelsteen's company, Ferret Exploration, is placing a Nevada gold property in production.

Best wishes.

Very truly yours,



Ben F. Dickerson III

BFD:ca  
cc: A.F. Budge

**MILTON W. HOOD, P. Eng.**

**Mining Consultant**

1648-B W. Whipple • P.O. Box 20865  
Wickenburg, AZ 85358  
(602) 684-7836 • (602) 684-3825 (Res.)

September 27, 1984

Mr. Ben Dickerson III  
DMEA Ltd.  
4203 N. Brown Ave., Suite F  
Scottsdale, AZ 85251

Re: Vulture Mine Project  
Monthly Report Sept., 1984

Dear Ben:

The following is a summary of activities carried out ~~on this project~~ during the month.

Informed the Osborne's of completion and signing of the Project Agreements and delivered the checks due them as part of the Agreement.

Submitted candidate for geologist to do contract mapping of the mine area.

Resumed surveying in location of various pits as part of resolving problem with previous surveys.

Assisted William Karis, Geologist, in getting together required maps and reports for his mapping program of the mine area. Drove him around the outlying areas as needed.

Located generator ~~set for the well~~ and arranged for purchase of same.

Arranged for local well contractor to pull pump and ascertain problem with well. This turned out to be perforated riser pipe. Well was placed back in service by replacing the underwater portion of the riser pipe (252 ft) and two check valves. Output was measured at the collar at 75gpm. The well was not pump tested for drawdown and re-charge at this time.

October Activities

*October, I*

In plan to continue surveying in the pits and getting them plotted onto a map that is based on a common survey net.

As soon as Karis' report on the geology is received, plans should commence for the next phase of drilling and sampling. This would include location of drill holes and preparation of a budget for this program.

Karis' maps should be consolidated onto the sample maps prepared by prior programs ( Noranda, Cyprus Mines, Zortman, etc.)



**MILTON W. HOOD, P. Eng.**

**Mining Consultant**

1648-B W. Whipple • P.O. Box 20865

Wickenburg, AZ 85358

(602) 684-7836 • (602) 684-3825 (Res.)

November 29, 1984

Mr. Ben Dickerson III  
DMEA Ltd  
4203 N Brown Ave., Suite F  
Scottsdale, AZ 85251

RECEIVED NOV 30 1984

Re: Vulture Mine Project  
Monthly Report Nov., 1984

Dear Ben:

The following is a summary of activities carried out on this project during the month.

Located drill sites for the 3rd phase drilling program and had contractor prepare same for drill. Drilling commenced on 11/5 and ended on 11/11. A total of 21 new holes were drilled and two holes from phase two were deepened. Total footage drilled during this phase was 3,515 feet.

The following is a summary of holes, depths and inclinations.

| <u>Hole No.</u> | <u>Depth(ft)</u> | <u>Inclination</u>                 |
|-----------------|------------------|------------------------------------|
| H- 1            | (130-300)        | Vertical                           |
| H-12            | (120-250)        | "                                  |
| H-15            | 200              | "                                  |
| H-16            | 160              | -60 degrees                        |
| H-17            | 160              | "                                  |
| H-18            | 160              | "                                  |
| H-19            | 140              | "                                  |
| H-20            | 160              | "                                  |
| H-21            | 160              | "                                  |
| H-22            | 160              | "                                  |
| H-23            | 100              | "                                  |
| H-24            | 200              | Vertical                           |
| H-25            | 140              | -60 degrees                        |
| H-26            | 150              | "                                  |
| H-27            | 180              | Vertical                           |
| H-28            | 120              | "                                  |
| H-29            | 55               | -60 degrees                        |
| H-30            | 140              | "                                  |
| H-31            | 340              | Vertical                           |
| H-32            | 150              | -60 degrees                        |
| H-33            | 120              | "                                  |
| H-34            | 120              | "                                  |
| H-35            | 100              | Vertical                           |
| Totals          | <u>3,515</u>     | = 1,440 Vertical, 2,075 @ -60 deg. |

Monthly Report Nov., 1984

Assay samples for each five foot interval were delivered to Jacobs Assay Office in Tucson, AZ by personal transport and the last days drilling was sent out via UPS.

A large sample from each run was bagged, marked and stored on site for future testing as needed. A sample was screened, washed and marked from each run for logging by Don White, Geologist. Dozer cuts were made in the gravels at various locations that showed evidence of past placer work. These cuts will give an idea of the nature of the gravels and provide possible sample sites for later examination of the placer gravels.

All drill holes were covered and later surveyed and plotted on both 50 and 100 scale maps.

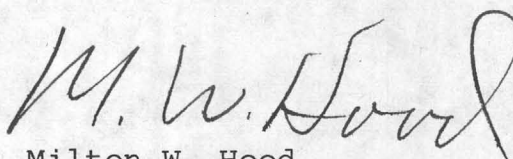
Met with Darrel Goodwin of Congress, AZ to discuss possible sampling methods of the placer gravels at the Vulture Mine.

He has a small drywashing plant that Jim Bettridge, Manager, of American Placer says gave good results on dry gravels with fine gold.

Goodwin recommended a preliminary program of about 20-30 samples of 1-cu ft each to determine the presence of gold. These would be processed through recovery by amalgamation. He said that he could rent or borrow a Denver Gold Saver if we preferred a wet process. He estimated that the cost of the dry sampling program would be about \$1,000.00 and the wet process would cost more since larger samples would be required. He also has other equipment including a 1-yard crawler mounted backhoe that he will rent.

#### December Activities

1. Compile results of the latest drilling and develop tonnages and grades of ore outlined to date.
2. Undertake first phase placer sampling. This would locate areas of significant gold values and serve as a basis for development of a bulk sampling program to define yardage and possible flowsheets if results are positive.
3. If results of No. 1 & 2 are good, work on the next phase should enter the planning stage. If negative, plans for winding up the project involvement should get underway.



Milton W. Hood

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/4/84

COMPANY NAME \_\_\_\_\_

Hours Price Per Hour Amount  
0 Drill Hours \_\_\_\_\_ @ \_\_\_\_\_

Compressor Hours \_\_\_\_\_ @ \_\_\_\_\_

Drilling Mud No. \_\_\_\_\_ @ \_\_\_\_\_

Circulation Material No. \_\_\_\_\_ @ \_\_\_\_\_

BITS:

| No.   | Serial Number | Amount |
|-------|---------------|--------|
| _____ | _____         | _____  |
| _____ | _____         | _____  |
| _____ | _____         | _____  |
| _____ | _____         | _____  |
| Total |               | _____  |

HOLE NO. \_\_\_\_\_

Feet Drilled \_\_\_\_\_

REMARKS:

Moved rig to Wickenburg (and water truck)

EMPLOYEE TIME

|                 |       |       |
|-----------------|-------|-------|
| Card            | Hours | _____ |
| Randy Stevens   | Hours | _____ |
| Raymond Stevens | Hours | _____ |

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/5/84

COMPANY NAME \_\_\_\_\_

Hours Price Per Hour Amount  
11 Drill Hours 1 1/2 hours @ moving

Compressor Hours \_\_\_\_\_ @ \_\_\_\_\_

Drilling Mud No. \_\_\_\_\_ @ \_\_\_\_\_

Circulation Material No. \_\_\_\_\_ @ \_\_\_\_\_

BITS:

1 hour setting up on hole H-1 and putting pipe in for deepening

| No.   | Serial Number | Amount |
|-------|---------------|--------|
| _____ | _____         | _____  |
| _____ | _____         | _____  |
| _____ | _____         | _____  |
| _____ | _____         | _____  |
| Total |               | _____  |

HOLE NO. H-15 0-200'

Feet Drilled 370' vertical

REMARKS:

1 1/2 hours moving from Wickenburg to field + loading pipe on rig - 1/2 hour moving from where pipe was banded to H-1 - 1/2 hour moving from H-1 to H-15 - 1/2 hour moving from H-15 to next location - canceled

EMPLOYEE TIME

|                 |       |           |
|-----------------|-------|-----------|
| Card            | Hours | <u>11</u> |
| Randy Stevens   | Hours | <u>11</u> |
| Raymond Stevens | Hours | <u>✓</u>  |

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/6/84

COMPANY NAME

Hours 11 Drill Hours 2 hours moving Price Per Hour Amount

Compressor Hours @

Drilling Mud No @

Circulation Material No @

BITS:

No. Serial Number Amount

New Rock Bits

Retipped Rock Bits

New Finger Bits

H-16 0-160'  
H-17 0-160'  
H-18 0-160'

Total

HOLE NO.

Feet Drilled 480' Angle Footage

REMARKS: 1/2 hour each move  
canceled hole to H-16  
H-16 to H-17 H-17 to H-18  
H-18 to H-19

EMPLOYEE TIME

Card Hours 11  
Randy Stevens Hours 11  
Raymond Stevens Hours ✓

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/7/84

COMPANY NAME M.F.A.

Hours 11 Drill Hours 1 hour moving Price Per Hour Amount

Compressor Hours @

Drilling Mud No @

Circulation Material No @

BITS:

No. Serial Number Amount

RM 5 1/2 11008 New Rock Bits

Retipped Rock Bits

New Finger Bits

H-19 0-140'  
H-20 0-160'  
H-21 0-160'

Total

HOLE NO.

Feet Drilled 460' Angle Footage

REMARKS: 1/2 hour moving from  
H-19 to H-20  
1/2 hour moving from  
H-20 to H-21  
H-19 kept caving in - Blow Sand

EMPLOYEE TIME

Card Hours 11  
Randy Stevens Hours 11  
Raymond Stevens Hours ✓

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/8/84

COMPANY NAME \_\_\_\_\_

Hours 1 1/2 Price Per Hour \_\_\_\_\_ Amount 1 1/2 hours moving  
Drill Hours \_\_\_\_\_

Compressor Hours \_\_\_\_\_ @ \_\_\_\_\_

Drilling Mud No. \_\_\_\_\_ @ \_\_\_\_\_

Circulation Material No. \_\_\_\_\_ @ \_\_\_\_\_

BITS:

No. Serial Number \_\_\_\_\_ Amount \_\_\_\_\_

----- New Rock Bits -----

----- Retipped Rock Bits -----

----- New Finger Bits -----

Angle { H-22 0-160' }  
          { H-23 0-100' }  
          { H-12 120-250' } Total \_\_\_\_\_  
          { H-24 0-200' } Vertical \_\_\_\_\_

HOLE NO. \_\_\_\_\_

Feet Drilled 260' Angle  
330' Vertical

REMARKS:

• 1/2 hour each move  
# 21 to 22 22 to 23 12 to 24  
1 hour getting set up on  
and putting pipe in hole  
H-12 for deepening

EMPLOYEE TIME

Card \_\_\_\_\_ Hours 1 1/2  
Randy Stevens \_\_\_\_\_ Hours 1 1/2  
Raymond Stevens \_\_\_\_\_ Hours 1 1/2

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/9/84

COMPANY NAME \_\_\_\_\_

Hours 12 Price Per Hour \_\_\_\_\_ Amount 2 1/2 hours moving  
Drill Hours \_\_\_\_\_

Compressor Hours \_\_\_\_\_ @ \_\_\_\_\_

Drilling Mud No. \_\_\_\_\_ @ \_\_\_\_\_

Circulation Material No. \_\_\_\_\_ @ \_\_\_\_\_

BITS:

No. Serial Number \_\_\_\_\_ Amount \_\_\_\_\_

----- New Rock Bits -----

----- Retipped Rock Bits -----

----- New Finger Bits -----

H-25 0-140' } Angle \_\_\_\_\_  
H-26 0-150' }  
H-27 0-180' } Total \_\_\_\_\_  
H-28 0-120' } Vertical \_\_\_\_\_

HOLE NO. \_\_\_\_\_

Feet Drilled 290' Angle  
300' Vertical

REMARKS:

1/2 hour each move  
H-24 to H-25 H-25 to H-26  
H-26 to H-27 H-27 to H-28  
H-28 to H-29

EMPLOYEE TIME

Card \_\_\_\_\_ Hours 12  
Randy Stevens \_\_\_\_\_ Hours 12  
Raymond Stevens \_\_\_\_\_ Hours 12

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/10/84

COMPANY NAME F.A.I.

Hours 1 1/2 Drill Hours 1 hour moving Price Per Hour Amount

Compressor Hours @

Drilling Mud No. @

Circulation Material No. @

BITS:

No. Serial Number M. W. Harris Amount

New Rock Bits

Retipped Rock Bits

New Finger Bits

H-29 0-55' } Angle  
H-30 0-140' } Total  
H-31 0-340'

HOLE NO. H-31

Feet Drilled 195' Angle  
340' vertical

REMARKS: 1/2 hour each move

H-29 to H-30 H-30 to H-31

EMPLOYEE TIME

Card Hours 1 1/2

Randy Stevens Hours 1 1/2

Raymond Stevens Hours ✓

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/11/84

COMPANY NAME F.A.I.

Hours 1 1/2 Drill Hours 2 hours moving Price Per Hour Amount

Compressor Hours @

Drilling Mud No. @

Circulation Material No. @

BITS:

No. Serial Number M. W. Harris Amount

New Rock Bits

Retipped Rock Bits

New Finger Bits

H-32 0-150' } Angle  
H-33 0-120' } Total  
H-34 0-120'  
H-35 0-100'

HOLE NO. H-35

Feet Drilled 390' Angle  
100' vertical

REMARKS: 1/2 hour each move

H-31 to H-32 H-32 to H-33  
H-33 to H-34 H-34 to H-35  
moved equip. back to where  
pipe was put on + parts were  
unloaded

Card Hours 1 1/2

Randy Stevens Hours 1 1/2

Raymond Stevens Hours ✓



VULTURE MINE PROJECT  
Placer Sample Locations

12/27/84 MH

| <u>Trench No.</u> | <u>North</u> | <u>East</u> | <u>Area</u>      | <u>Sample Nos.</u> |
|-------------------|--------------|-------------|------------------|--------------------|
| T-1               | 25,900       | 22,955      | N. of Gate       | 1/1/1-3, 1/2/1-2   |
| 2                 | 25,980       | 23,040      | " " "            | 2/1/1-2            |
| 3                 | 25,635       | 22,120      | Tailings Pond    | 3/1/1-2, 3/2/1     |
| 4                 | 25,600       | 21,885      | " "              | 4/1/1-2, 4/2/1     |
| 5                 | 28,625       | 23,480      | Airstrip-W       | 5/1/1-3            |
| 6                 | 28,735       | 22,330      | " "              | 6/1/1-2            |
| 7                 | 29,160       | 24,475      | " E              | 7/1/1-3            |
| 8                 | 26,965       | 20,865      | DzCut NW of Pits | 8/1/1-3            |
| 9                 | 27,925       | 21,090      | Wash NW of Pits  | 9/1/1              |
| 10                | 27,860       | 20,955      | W. of No. 9      | 10/1/1             |
| 11                | 27,220       | 20,875      | S. of No. 12     | 11/1/1-3           |
| 12                | 27,480       | 20,780      | S. of No. 10     | 12/1/1-3           |
| 13                | 25,775       | 22,885      | Placer Tails     | 13/1/1             |
|                   |              |             | E. of 2/1/1-2    |                    |
| 14                | 26,335       | 23,400      | E. of Entry Rd.  | 14/1/1             |
| 15                | 25,455       | 20,200      | W. of Cyanide    |                    |
|                   |              |             | Mill             | 15/1/1-2           |
| 16                | 25,675       | 19,635      | W. of No. 15     | 16/1/1-2           |

Drill Holes

|      |                           |
|------|---------------------------|
| H-19 | 0-5, 5-10, 10-15<br>15-20 |
| H-21 | 0-5, 5-10                 |
| H-31 | 0-5, 5-10<br>10-15, 15-20 |
| H-34 | 10-15, 15-20              |

# VULCHER MINE PLACER SAMPLES

## TRENCH CHANNELS

COLUMN WRITE ®

| samp No         | LOCATION                        | 1    |       | 2       |         | 3                    |      | WT.                  |  |
|-----------------|---------------------------------|------|-------|---------|---------|----------------------|------|----------------------|--|
|                 |                                 | Conc | Tails | Conc    | Tails   | Vol.                 |      |                      |  |
| 1 (1/1/06)      | Trench 1/Channel 1/0-6'         | ✓    | ✓     | ✓ 12/12 | 12/13 ✓ | 12 ft <sup>3</sup>   | 904  | samp 2.5' from top   |  |
| 2 (1/1/6-10)    | " " 6-10'                       | ✓    | ✓     | ✓ 12/12 | ✓       | 8 ft <sup>3</sup>    | 730  |                      |  |
| 3 (1/1/10-14.5) | " " 10'-14.5'                   | ✓    | ✓     | ✓ 12/13 | ✓       | 9 ft <sup>3</sup>    | 1431 |                      |  |
| 4 (1/2/1)       | Trench 1/Channel 2/4-8'         | ✓    | ✓     | ✓ 12/12 | ✓       | 8 ft <sup>3</sup>    | 805  |                      |  |
| 5 (1/2/2)       | " " 0-4.5'                      | ✓    | ✓     | ✓ 12/13 | ✓       | 6.75 ft <sup>3</sup> | 718  | top 1.5' below surf. |  |
| 6 2/1/1         | " " 4.5-10.0'                   | ✓    | ✓     | ✓ 12/13 | ✓       | 8.25 ft <sup>3</sup> | 973  |                      |  |
| 7 (2/1/2)       | Trench 2/chan. 1/4.5-10.5'      | ✓    | ✓     | ✓ 12/13 | ✓       | 9 ft <sup>3</sup>    | 1887 | ← check wt.          |  |
| 8 3/1/1         | Trench 3/chan 1/samp 1          | ✓    | ✓     | ✓ 12/12 | ✓       | 8.75 ft <sup>3</sup> | 1072 | top 6' below surf.   |  |
| 9 3/1/2         | " " 2 (5.83-10.2')              | ✓    | ✓     | ✓ 12/12 | ✓       | 6.56 ft <sup>3</sup> | 1069 |                      |  |
| 10 4/1/1        | Trench 4/chan 1/Samp 1 (0-5.2') | ✓    | ✓     | ✓ 12/12 | ✓       | 7.8 ft <sup>3</sup>  | 753  | top 2' below surf.   |  |
| 11 4/1/2        | " " (5.2-9.4')                  | ✓    | ✓     | ✓ 12/12 | ✓       | 6.25 ft <sup>3</sup> | 747  |                      |  |
| 12 5/1/1        | " " (0-3')                      | ✓    | ✓     | ✓ 12/12 | ✓       | 4.5 ft <sup>3</sup>  | 367  | top 1' below surf.   |  |
| 13 5/1/2        | " " (3-10')                     | ✓    | ✓     | ✓ 12/12 | ✓       | 10.5 ft <sup>3</sup> | 1417 |                      |  |
| 14 5/1/3        | " " (10-16')                    | ✓    | ✓     | ✓ 12/12 | ✓       | 9 ft <sup>3</sup>    | 1268 |                      |  |
| 15 6/1/1        | " " (0-6')                      | ✓    | ✓     | ✓ 12/12 | ✓       | 9.0 ft <sup>3</sup>  | 840  |                      |  |
| 16 6/1/2        | " " (6-11')                     | ✓    | ✓     | ✓ 12/12 | ✓       | 7.5 ft <sup>3</sup>  | 871  |                      |  |
| 17 7/1/1        | " " (0-5')                      | ✓    | ✓     | ✓       | ✓       | 3.75 ft <sup>3</sup> | 283  | top 1' below surf.   |  |
| 18 7/1/2        | " " (5-9.3')                    | ✓    | ✓     | ✓       | ✓       | 3.19 ft <sup>3</sup> | 273  |                      |  |
| 19 7/1/3        | " " (9.3-13.1')                 | ✓    | ✓     | ✓       | ✓       | 7.0 ft <sup>3</sup>  | 848  |                      |  |
| 20 8/1/1        | " " (0-4')                      | ✓    | ✓     | ✓       | ✓       | 4.0 ft <sup>3</sup>  | 667  |                      |  |
| 21 8/1/2        | " " (4-8')                      | ✓    | ✓     | ✓       | ✓       | 4.0 ft <sup>3</sup>  | 777  |                      |  |
| 22 8/1/3        | " " (8-12.0')                   | ✓    | ✓     | ✓       | ✓       | 4.85 ft <sup>3</sup> | 701  |                      |  |
| 23 9/1/1        | " " (0-4.4')                    | ✓    | ✓     | ✓       | ✓       | 6.5 ft <sup>3</sup>  | 771  |                      |  |
| 24 10/1/1       | " " (0-4.4')                    | ✓    | ✓     | ✓       | ✓       | 6.5 ft <sup>3</sup>  | 917  |                      |  |
| 25 11/1/1       | " " (0-3.8')                    | ✓    | ✓     | ✓       | ✓       | 4.13 ft <sup>3</sup> | 413  | top 3' below surf.   |  |
| 26 11/1/2       | " " (3.8-8.8')                  | ✓    | ✓     | ✓       | ✓       | 8.0 ft <sup>3</sup>  | 973  |                      |  |
| 27 11/1/3       | " " (8.8-13.4')                 | ✓    | ✓     | ✓       | ✓       | 6.5 ft <sup>3</sup>  | 874  |                      |  |
| 28 11/1/4       | " " (13.4-17.4')                | ✓    | ✓     | ✓       | ✓       | 6.0 ft <sup>3</sup>  | 756  |                      |  |
| 29 12/1/1       | " " (0-4')                      | ✓    | ✓     | ✓       | ✓       | 6.0 ft <sup>3</sup>  | 796  |                      |  |
| 30 12/1/2       | " " (4-8')                      | ✓    | ✓     | ✓       | ✓       | 6.0 ft <sup>3</sup>  | 828  |                      |  |
| 31 12/1/3       | " " (8-11.5')                   | ✓    | ✓     | ✓       | ✓       | 5.25 ft <sup>3</sup> | 799  |                      |  |
| 32 13/1/1       | " " (0-5.7')                    | ✓    | ✓     | ✓       | ✓       | 4.79 ft <sup>3</sup> | 568  |                      |  |
| 33 14/1/1       | " " (0-6')                      | ✓    | ✓     | ✓       | ✓       | 9.0 ft <sup>3</sup>  | 1026 |                      |  |
| 34 15/1/1       | " " (0-3.8')                    | ✓    | ✓     | ✓       | ✓       | 5.5 ft <sup>3</sup>  | 620  |                      |  |
| 35 15/1/2       | " " (3.8-8')                    | ✓    | ✓     | ✓       | ✓       | 6.5 ft <sup>3</sup>  | 990  |                      |  |
| 36 16/1/1       | " " (7-11')                     | ✓    | ✓     | ✓       | ✓       | 6.0 ft <sup>3</sup>  | 623  |                      |  |
| 37 16/1/2       | " " (11-17')                    | ✓    | ✓     | ✓       | ✓       | 9.0 ft <sup>3</sup>  | 1027 |                      |  |
| 38 3/2/1        | " " (5.2')                      | ✓    | ✓     | ✓       | ✓       | 7.75 ft <sup>3</sup> | 955  |                      |  |
| 39 4/2/1        | " " (4')                        | ✓    | ✓     | ✓       | ✓       | 6.0 ft <sup>3</sup>  | 757  |                      |  |

VIA MILIT HOOD

# VULCHER MINE MILLER SAMPLES DRILL CUTTINGS

COLUMN WRITE

| HOLE NO | INTERVAL / LOCATION   | CONC. |         |   |  |              |
|---------|-----------------------|-------|---------|---|--|--------------|
|         |                       | Proc. | SHIPPED |   |  |              |
| 1       | H 19 0-5              | ✓     | 12/13 ✓ |   |  | NO Au        |
| 2       | 5-10                  | ✓     | 12/13 ✓ |   |  | " "          |
| 3       | 10-15                 | ✓     | 12/13 ✓ |   |  | " "          |
| 4       | 15-20                 | ✓     | 12/13 ✓ |   |  | one Au grain |
| 5       | H 34 / <del>0-5</del> |       | 12/11   |   |  |              |
| 6       | <del>5-10</del>       |       |         |   |  |              |
| 7       | 10-15                 | ✓     |         | ✓ |  |              |
| 8       | 15-20                 | ✓     | 12/13 ✓ |   |  | 2 Au grains  |
| 9       | H 31 10-15            | ✓     | 12/13 ✓ |   |  | no Au        |
| 10      | 15-20                 | ✓     | 12/13 ✓ |   |  | Au           |
| 11      | H 21 0-5              | ✓     | 12/11 ✓ |   |  |              |
| 12      | 5-10                  | ✓     |         | ✓ |  |              |
| 13      | H 31 5-10             | ✓     |         | ✓ |  |              |
| 14      | H 31 0-5              |       |         |   |  |              |
| 15      |                       |       |         |   |  |              |
| 16      |                       |       |         |   |  |              |
| 17      |                       |       |         |   |  |              |
| 18      |                       |       |         |   |  |              |
| 19      |                       |       |         |   |  |              |
| 20      |                       |       |         |   |  |              |
| 21      |                       |       |         |   |  |              |
| 22      |                       |       |         |   |  |              |
| 23      |                       |       |         |   |  |              |
| 24      |                       |       |         |   |  |              |
| 25      |                       |       |         |   |  |              |
| 26      |                       |       |         |   |  |              |
| 27      |                       |       |         |   |  |              |
| 28      |                       |       |         |   |  |              |
| 29      |                       |       |         |   |  |              |
| 30      |                       |       |         |   |  |              |
| 31      |                       |       |         |   |  |              |
| 32      |                       |       |         |   |  |              |
| 33      |                       |       |         |   |  |              |
| 34      |                       |       |         |   |  |              |
| 35      |                       |       |         |   |  |              |
| 36      |                       |       |         |   |  |              |
| 37      |                       |       |         |   |  |              |
| 38      |                       |       |         |   |  |              |
| 39      |                       |       |         |   |  |              |
| 40      |                       |       |         |   |  |              |

**JAMES M. PRUDDEN**

CONSULTING GEOLOGIST

4809 Quail Point Road  
Salt Lake City, Utah 84124  
801-272-4720

20 Dec 84

To: Jacobs Assay Lab

Sample Transmittal Sheet

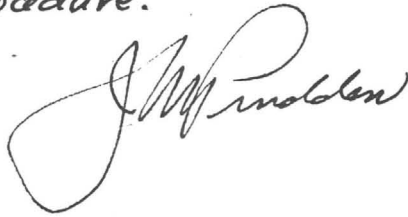
The remaining samples for the Wickenburg placer project will be transported to your Lab in person by Milt Hood

Samples included in this shipment include

1) fifteen (15) placer concentrates numbered as follows: 11/1/1, 11/1/2, 11/1/3, 11/1/4, 12/1/1, 12/1/2, 12/1/3, 13/1/1, 14/1/1, 15/1/1, 15/1/2, 16/1/1, 16/1/2, 3/2/1 & 4/2/1

2) fifteen (15) TAILS samples numbered as per (1) above

In addition one rock sample 16/1/1 is to be crushed panned and the concentrates amalgamated using our standard procedure.



Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/4/84

COMPANY NAME \_\_\_\_\_

Hours Price Per Hour Amount

0 Drill Hours.....@.....

.....Compressor Hours.....@.....

.....Drilling Mud No.....@.....

.....Circulation Material No.....@.....

BITS:

No. Serial Number Amount

*M. W. Hood*

..... New Rock Bits .....

..... Retipped Rock Bits .....

..... New Finger Bits .....

Total.....

HOLE NO. \_\_\_\_\_

Feet Drilled \_\_\_\_\_

REMARKS:

Moved rig to Wickenburg (and water truck)

EMPLOYEE TIME

Card Hours \_\_\_\_\_

Randy Stevens Hours \_\_\_\_\_

Raymond Stevens Hours \_\_\_\_\_

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/5/84

COMPANY NAME DINEA LTD.

Hours 11 Drill Hours 1 1/2 hours @ Moving Price Per Hour Amount

..... Compressor Hours..... @.....

..... Drilling Mud No..... @.....

..... Circulation Material No..... @.....

BITS: 1 hour setting up on hole H-1 and putting pipe in for deepening

No. Serial Number Amount

..... New Rock Bits.....

..... Retipped Rock Bits.....

..... New Finger Bits.....

M. W. Lovell  
H-1 130'-300'

Total.....

HOLE NO. H-15 0-200'

Feet Drilled 370' Vertical

REMARKS: 1/2 hours moving from Wickenburg to field + loading pipe on rig - 1/2 hour moving from where pipe was banded to H-1 - 1/2 hour moving from H-1 to H-15 - 1/2 hour moving from H-15 to next location - canceled  
EMPLOYEE TIME

Card Hours 11

Randy Stevens Hours 11

Raymond Stevens Hours ✓

Stevens AND HARRIS DRILLING CO.

RC # 2

Date 11/6/84  
D.H.E.A. Ltd.

COMPANY NAME \_\_\_\_\_

Hours # 2 hours moving  
Drill Hours @ \_\_\_\_\_

Compressor Hours @ \_\_\_\_\_

Drilling Mud No. @ \_\_\_\_\_

Circulation Material No @ \_\_\_\_\_

BITS:

No. Serial Number Amount  
New Rock Bits \_\_\_\_\_

Retipped Rock Bits \_\_\_\_\_

New Finger Bits \_\_\_\_\_

H-16 0-160'  
H-17 0-160'  
H-18 0-160'  
Total \_\_\_\_\_

HOLE NO. \_\_\_\_\_  
Feet Drilled 480' Angle Footage

REMARKS: 1/2 hour each move  
canceled hole to H-16  
H-16 to H-17 H-17 to H-18  
H-18 to H-19

EMPLOYEE TIME

Card \_\_\_\_\_ Hours 11  
Randy Stevens \_\_\_\_\_ Hours 11  
Raymond Stevens \_\_\_\_\_ Hours ✓

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/7/84

COMPANY NAME

D.M.E.A. LTD.

Hours

Price Per Hour

Amount

11 Drill Hours 1 hour moving @

Compressor Hours @

Drilling Mud No. @

Circulation Material No @

BITS:

No.

Serial Number

Amount

RM 5/8 111008 New Rock Bits

Retipped Rock Bits

New Finger Bits

H-19 0-140'

H-20 0-160'

H-21 0-160'

Total

HOLE NO.

Feet Drilled

460' Angle footage

REMARKS:

1/2 hour moving from H-19 to H-20

1/2 hour moving from H-20 to H-21

H-19 kept caving in - Blow Sand

EMPLOYEE TIME

Card

Hours

11

Randy Stevens

Hours

11

Raymond Stevens

Hours

✓



# Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/8/84

D.M.E.A. Ltd.

COMPANY NAME

Hours 1 1/2 Drill Hours 1 1/2 hours moving Price Per Hour @ Amount

Compressor Hours @

Drilling Mud No. @

Circulation Material No @

BITS:

No. Serial Number M.W. Howard Amount

New Rock Bits

Retipped Rock Bits

New Finger Bits

|         |      |          |          |
|---------|------|----------|----------|
| Angle { | H-22 | 0-160'   | } Total  |
|         | H-23 | 0-100'   |          |
|         | H-12 | 120-250' |          |
|         | H-24 | 0-200'   |          |
|         |      |          | Vertical |

HOLE NO. H-24

Feet Drilled 260' Angle  
330' Vertical

REMARKS:

1/2 hour each move

21 to 22 22 to 23 12 to 24

1 hour getting set up on and putting pipe in hole H-12 for deepening

EMPLOYEE TIME

Card Hours 1 1/2

Randy Stevens Hours 1 1/2

Raymond Stevens Hours 1 1/2

Stevens AND HARRIS DRILLING CO.

RC # 2

Date 11/9/84

COMPANY NAME D. M. E. A. Ltd

Hours 12 Drill Hours 2 1/2 hours @ moving

Compressor Hours @

Drilling Mud No. @

Circulation Material No @

BITS:

No. Serial Number M. W. Hood Amount

New Rock Bits

Retipped Rock Bits

New Finger Bits

H-25 0-140' } Angle

H-26 0-150' } Angle

H-27 0-180' } Total

HOLE NO. H-28 0-120' } Vertical

Feet Drilled 290' Angle

300' Vertical

REMARKS: 1/2 hour each move

H-24 to H-25 H-25 to H-26

H-26 to H-27 H-27 to H-28

H-28 to H-29

EMPLOYEE TIME

Card Hours 12

Randy Stevens Hours 12

Raymond Stevens Hours 12

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/10/84

COMPANY NAME D.M.E.A. LTD

Hours 1 1/2 Drill Hours 1 hour moving Price Per Hour @ Amount

Compressor Hours .....@.....

Drilling Mud No. .....@.....

Circulation Material No. .....@.....

BITS:

No. Serial Number M.W. Hood Amount

New Rock Bits .....

Retipped Rock Bits .....

New Finger Bits .....

H-29 0-55' } Angle  
H-30 0-140' }  
H-31 0-340' } Total .....

HOLE NO. .....

Feet Drilled 195' Angle  
340' vertical

REMARKS: 1/2 hour each move

H-29 to H-30 H-30 to H-31

EMPLOYEE TIME

card Hours 1 1/2

Randy Stevens Hours 1 1/2

Raymond Stevens Hours ✓

Stevens AND HARRIS DRILLING CO.

RC #2

Date 11/11/84

D.M.F.A Ltd

COMPANY NAME

Hours Price Per Hour Amount

11 Drill Hours 2 hours @ moving

Compressor Hours @

Drilling Mud No. @

Circulation Material No. @

BITS:

No. Serial Number M. W. Hood Amount

New Rock Bits

Retipped Rock Bits

New Finger Bits

|      |        |         |       |
|------|--------|---------|-------|
| H-32 | 0-150' | } Angle | Total |
| H-33 | 0-120' |         |       |
| H-34 | 0-120' |         |       |

HOLE NO. H-35 0-100'

Feet Drilled 390' Angle  
100' Vertical

REMARKS:

1/2 hour each move

H-31 to H-32    H-32 to H-33

H-33 to H-34    H-34 to H-35

moved equip. back to where pipe was put on + parts were unloaded

EMPLOYEE TIME

Card Hours 11

Randy Stevens Hours 11

Raymond Stevens Hours ✓

**MILTON W. HOOD, P. Eng.**

**Mining Consultant**

1648-B W. Whipple • P.O. Box 20865  
Wickenburg, AZ 85358  
(602) 684-7836 • (602) 684-3825 (Res.)

September 6, 1984

Mr. Ben Dickerson III  
DMEA Ltd.  
4203 N. Brown Ave., Suite F  
Scottsdale, AZ 85251

Re: Quotes on Vulture Well

Dear Ben:

I contacted the two local well contractors and Gilbert Pumps of Phoenix and ask for hourly rates for pulling the pump and finding the problem with the pump.

Campbell Drilling Co. of Wickenburg quoted \$40.00/hr and thought it should take about five hours to pull the pump. This would be at least \$200.00 and more if trouble is encountered. They also quoted test pumping @ \$20.00/hr after the pump is installed; installation of the test pump would be @\$40.00/hr.

Woodruff Electric & Pump Co. went out to the property with me and looked at the well and reckoned that the trouble is probably a hole in the pump column since the pump motor is pulling a full load. They propose to pull the pump for a flat rate of \$400.00 and determine the problem. This is somewhat higher than the projected cost of \$200.00 from Campbell Drilling Co. However, if the pump column is corroded and breaks, this is included in the Woodruff quote and could run higher than \$400.00 by Campbell if they had problems.

I recommend that we accept the proposal by Woodruff Electric & Pump Company.

Gilbert Pump Co. said they would come out and pull the pump for \$1,050.00. They promised to refine this quote, but I haven't heard any more from them.

Sincerely,

  
Milton W. Hood



**A. F. Budge (Mining) Limited**

7340 E. Shoeman Lane, Suite 111 "B" (E)

Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

January 6, 1988

Mr. Ralph Rupp  
Echo Bay Mines  
P.O. Box 361  
Congress, AZ 85332

Dear Mr. Rupp:

Enclosed is a letter of introduction and authorization to visit the Vulture Mine as you had requested.

A copy will be sent to our watchman so he will know to expect you.

Sincerely,

A handwritten signature in cursive script that reads "Carole A. O'Brien".

Carole A. O'Brien

encl. (1)



**A. F. Budge (Mining) Limited**

7340 E. Shoeman Lane, Suite 111 "B" (E)

Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

January 6, 1988

Mr. Ralph Rupp  
Echo Bay Mines  
P.O. Box 361  
Congress, AZ 85332

Dear Mr. Rupp:

Enclosed is a letter of introduction and authorization to visit the Vulture Mine as you had requested.

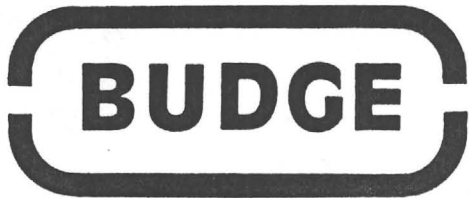
A copy will be sent to our watchman so he will know to expect you.

Sincerely,

A handwritten signature in cursive script that reads "Carole A. O'Brien".

Carole A. O'Brien

encl. (1)



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7340 E. Shoeman Lane, Suite 111 "B" (E)  
Scottsdale, AZ 85251-3335

(Business Office)

Telephone: (602) 945-4630

Telex: 751739

January 6, 1988

John Osborne  
(or duly designated representative)  
Vulture Mine  
Wickenburg, Arizona

Dear John:

This letter will introduce either Mr. Ralph Rupp or Mr. Robert Purcell of Echo Bay Mines, Congress, Arizona, and will provide authorization for either or both of these gentlemen to enter onto the Vulture Mine properties under lease to A.F. Budge (Mining) Limited.

This authorization valid for 60 days, or until March 6, 1988.

Sincerely,

Carole A. O'Brien

c: J. Osborne





MILLSAPS MINERAL SERVICE, INC.  
October 15, 1987

DMEA LTD.

OCT 17 1987

RECEIVED

Ms. Carole O'Brien, Manager  
A.F. Budge Mining Ltd.  
Suite 111 B East  
7340 Shoeman Lane  
Scottsdale, Arizona 85251

Dear Carole:

Here is a group of quotes on equipment for Vulture. Some of these you all ready have. At the request of Joe I went out for additional quotes on bits and pieces for the Merrill Crowe system. After looking them over I think that we will do better to buy a complete package ready to plug into the circuit. While it might be a little less to buy all the pieces separately we would have to get some one to put them all together and would have no one source of responsibility if anything went wrong. I haven't received a quote on the precipitate pump.

The reason for the differences in equipment quotes is that I just gave performance specs and let the supplier size his equipment.

We lost out on the cheapest of the clarifying filters. When Joe and I talked about it we decided that we could wait a short time to move as you hadn't received all the permits yet. They called me today to tell me that it was gone. The one at \$ 10,000 looks like the best one for the job. A new one, complete with precoat mix and pump, body feed system and automatic cleaning will cost about \$ 32,000 FOB Los Angeles. The quote on the filter sounds as if it is a bare filter.

It seems that the melting furnace from Denver Mineral Engineers is the best buy. There don't seem to be any used ones out there.

If you want me to inspect the filter let me know and I will set up the trip. On the other hand this is undoubtedly not the last one which will hit the market and we can probably wait if the permit picture is not clear yet. I will be out of pocket on Thurs the 23, and maybe most of Friday.

I am enclosing the resume' of a young mining engineer.

As Ever,

A handwritten signature in cursive script that reads "Frank".

Frank W. Millsaps



# CUSTOM EQUIPMENT CORPORATION

P.O. Box 747

350 West 300 South  
Phone (801) 533-8557

Salt Lake City, Utah 84110  
Telex 381014

## QUOTATION

Inquiry No. 646

Date Sept. 10, 1987

Terms 25% with Order  
Bal. Net 30

Prices quoted  
are F.O.B. See below

Delivery see below

Your Inquiry \_\_\_\_\_

A. F. Budge Mining Ltd.  
Suite 111 B-E  
7340 Shoeman Lane  
Scottsdale, Arizona 85251

Attn: Ms. Carol O'Brien

| QUANTITY | DESCRIPTION  | AMOUNT      |
|----------|--|-------------|
| 1 Only   | <p>Custom Equipment Corporation is pleased to quote the following:</p> <p><u>Item 1</u></p> <p>Tilting Furnace, McEnglevan Speedy-Melt, with manual tilting mechanism, #1611 turbo blower, 3450 RPM motor, No. 4 UV ultraviolet flame safeguard system 115/208/230V single phase or 208/230V/460V 3 phase, 60 cycle, 805,000 BTU gas rating for propane or natural gas. (Crucible not included.)</p> <p>(Please specify current characteristics when ordering.)</p> <p>Price, F.O.B. Danville, Illinois</p> <p>Approx. Weight: 1,890 lbs.</p> <p>Delivery: 4-6 Weeks</p> | \$ 9,799.00 |
| 1 Only   | <p><u>Item 2</u></p> <p>#90 Silicon Carbide Crucible with attached lip.</p> <p>Price, F.O.B. Factory</p> <p>Weight: 79 lbs.</p> <p>Delivery: Stock to 2 weeks</p> <p>Ref.: Page 8 Installation Dimensions<br/>Page 10 Specs.</p>   | 291.75      |

BY R A Wilson  
R. A. Wilson



# CUSTOM EQUIPMENT CORPORATION

P.O. Box 747

350 West 300 South  
Phone (801) 533-8557

Salt Lake City, Utah 84110  
Telex 381014

## QUOTATION

Inquiry No. 646

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Prices quoted  
are F.O.B. \_\_\_\_\_

Delivery \_\_\_\_\_

Your Inquiry \_\_\_\_\_

A. F. Budge Mining Ltd.

Page 2

| QUANTITY | DESCRIPTION  | AMOUNT                                |
|----------|--|---------------------------------------|
|          | <p><u>Item 3</u></p> <p>2.5 Cu. Ft. Pan Capacity Mercury Retort for gold sludge. Retort and pans to be stainless steel. Furnace will be insulated with fiber lining. Burner train to be designed to FM standards, propane fueled, with water cooled CEC new style condenser, mercury trap with liquid level sight glass, water ring vacuum pump. UV burner safety controls, burner over temperature control (on-off), retort temperature monitor, manual gas control.</p> <p>Unit to be prepiped, prewired and skid mounted.</p> <p>Customer to provide water to condensers, water to vacuum pump, 440/480 3 phase power to control panel.</p> <p>Price:</p> <p>Customer to supply 6" diameter exhaust stack.</p> <p>The retort will be operationally tested by CEC prior to shipment. Customer may have personnel at the test site (SLC) for purposes of inspection and training.</p> <p><u>Item 4</u></p> <p>Scrubbing Column filled with sulfur impregnated carbon to adsorb away residual mercury vapors, sized for retort gases.</p> <p>Price: Addition</p> | <p>\$29,900.00</p> <p>\$ 3,200.00</p> |

BY R A Wilson  
R. A. Wilson



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Delivery \_\_\_\_\_

Your Inquiry \_\_\_\_\_

A. F. Budge Mining Ltd.

Page 3

| QUANTITY | DESCRIPTION  | AMOUNT      |
|----------|--|-------------|
|          | <p><u>Item 4 - Alternate</u></p> <p>Time Temperature Programmable Controller with automatic shutoff, separate drying and distillation cycles, and variable rate burner modulation installed in panel with burner system changes. (To replace on-off control.)</p> <p>Price: Addition</p> <p>Retort to be installed in an enclosed area out of outside elements.</p> <p>Field engineering services are available at \$500.00 per day plus expenses for installation, supervision, training and start-up, if required.</p> | \$ 4,200.00 |
|          | <u>Item 5</u>  |             |
| 1 Each   | 100 oz. Bullion Mold #CEC BM1  | 75.00       |
| 1 Each   | 200 oz. Bullion Mold #CEC BM2  | 125.00      |
| 1 Each   | 300 oz. Bullion Mold #CEC BM3  | 190.00      |
| 1 Each   | 500 oz. Bullion Mold #CEC BM5  | 300.00      |
| 1 Each   | 1000 oz. Bullion Mold #CEC BM10  | 589.00      |
| 1 Each   | Slag Pot, Sutton Type #CEC SP  | 750.00      |
| 1 Each   | Slag Pot Cart  | 725.00      |

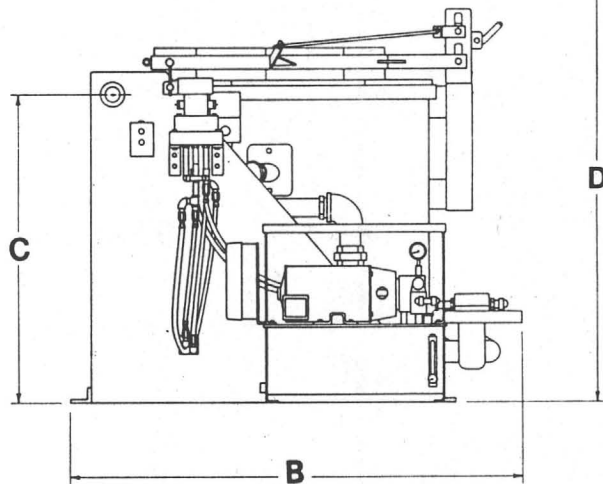
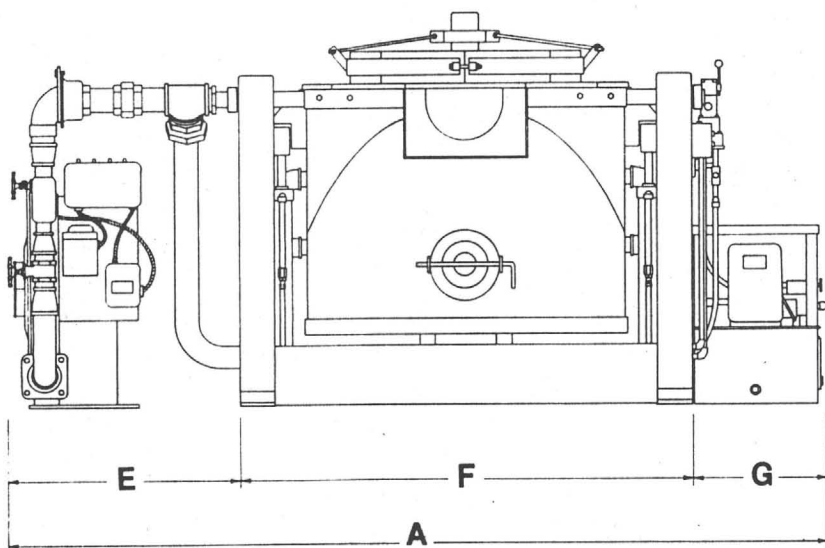
cc: Frank Millsaps

BY R. A. Wilson  
R. A. Wilson

T-200

# NOSE POUR FURNACE

MAXIMUM HEIGHT IN TILTED POSITION



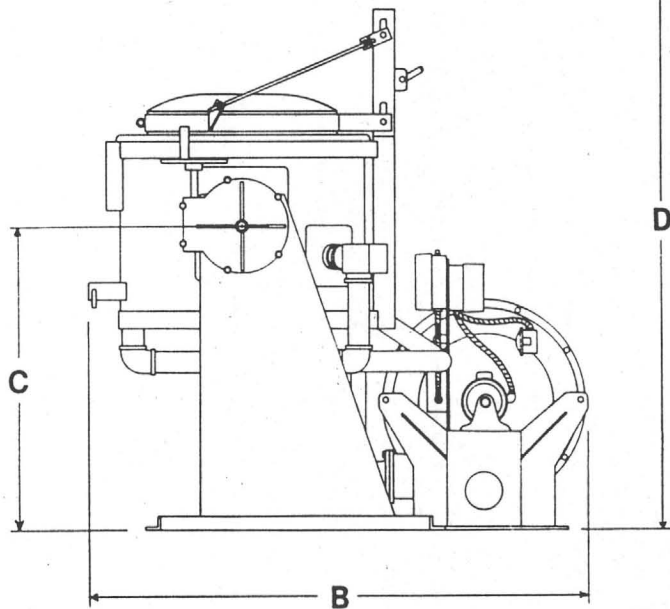
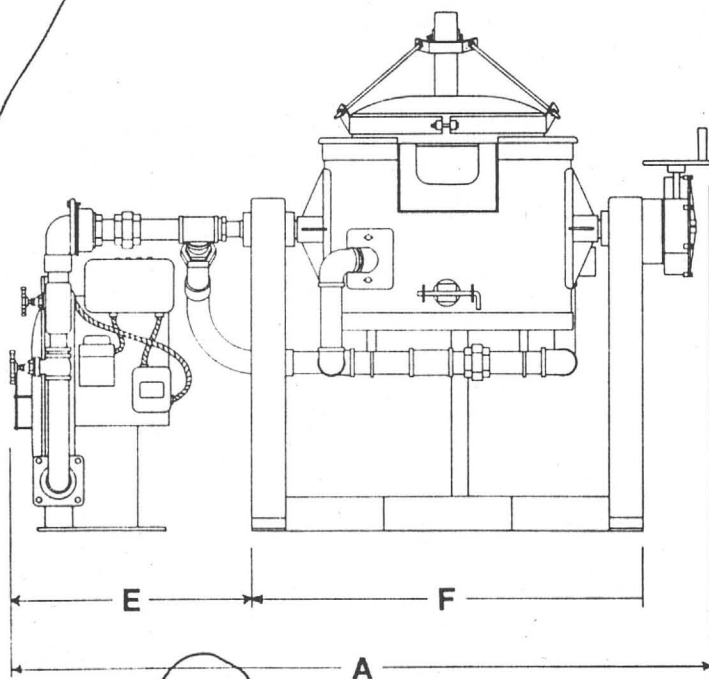
| FURNACE MODEL | CRUCIBLE SIZE        | CAPACITY PER MELT | COMBUSTION CHAMBER DIMENSIONS |      | A  | B   | C   | D   | E   | F   | G   | BLOWER AND MOTOR RATING | GAS RATING | GAS LINE | GAS VALVE | APPROX. SHIPPING WEIGHT |
|---------------|----------------------|-------------------|-------------------------------|------|----|-----|-----|-----|-----|-----|-----|-------------------------|------------|----------|-----------|-------------------------|
|               |                      |                   | DIA.                          | DEEP |    |     |     |     |     |     |     |                         |            |          |           |                         |
| T-200         | No. 200 thru No. 250 | 750 lbs.          | 23"                           | 25"  | A" | 62" | 40" | 90" | 30" | 60" | 18" | 230 CFM<br>2 HP         | 1,200,000  | 2"       | 1/4       | 4,000 lbs.              |

Dimensions Approximate

T-80

# CENTER PIVOT TILT

MAXIMUM HEIGHT IN TILTED POSITION



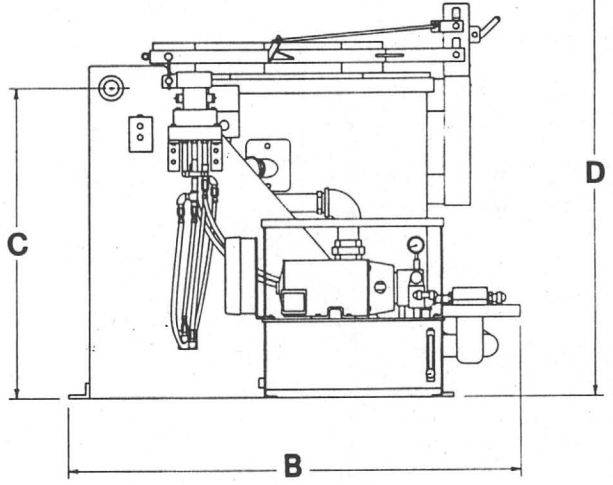
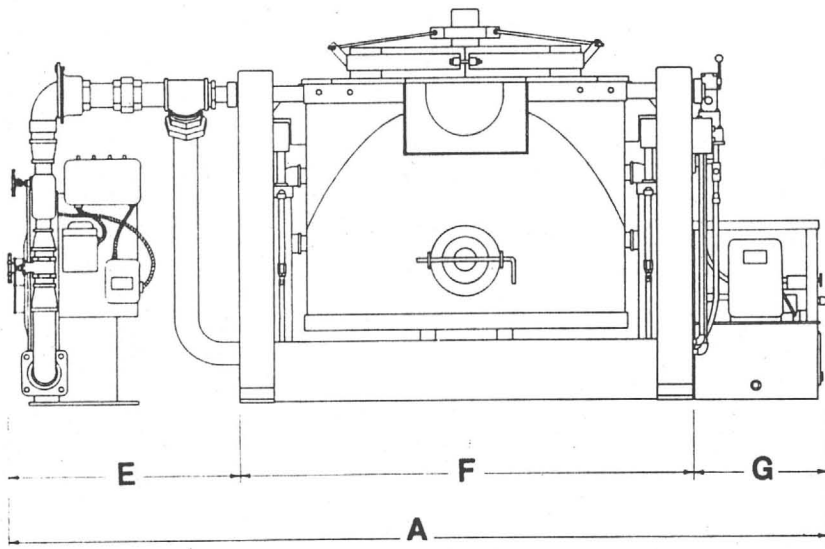
| FURNACE MODEL | CRUCIBLE SIZE       | CAPACITY PER MELT | COMBUSTION CHAMBER DIMENSIONS |      | A   | B   | C   | D   | E   | F   | G                   | BLOWER AND MOTOR RATING | GAS RATING | GAS LINE | GAS VALVE  | APPROX. SHIPPING WEIGHT |
|---------------|---------------------|-------------------|-------------------------------|------|-----|-----|-----|-----|-----|-----|---------------------|-------------------------|------------|----------|------------|-------------------------|
|               |                     |                   | DIA.                          | DEEP |     |     |     |     |     |     |                     |                         |            |          |            |                         |
| T-80          | No. 80 thru No. 100 | 300 lbs.          | 17"                           | 20"  | 82" | 60" | 36" | 67" | 28" | 46" | 180 CFM<br>1 1/2 HP | 850,000                 | 2"         | 1/4      | 2,000 lbs. |                         |

Dimensions Approximate

T-200

# NOSE POUR FURNACE

MAXIMUM HEIGHT IN TILTED POSITION



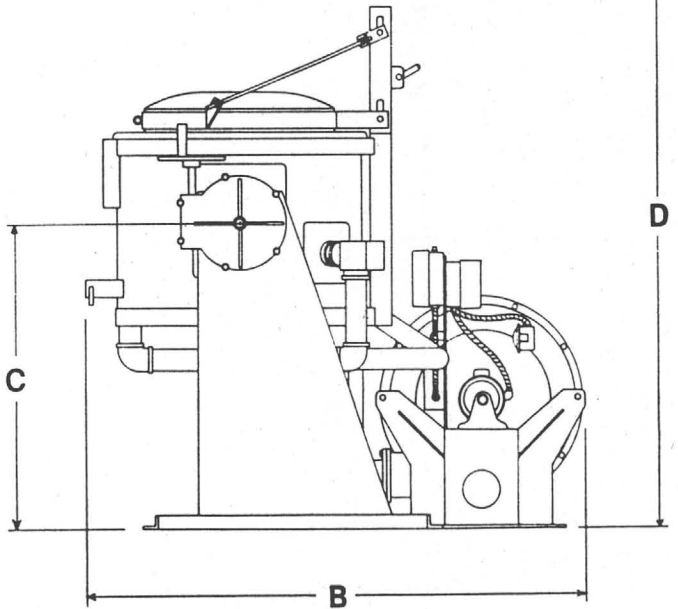
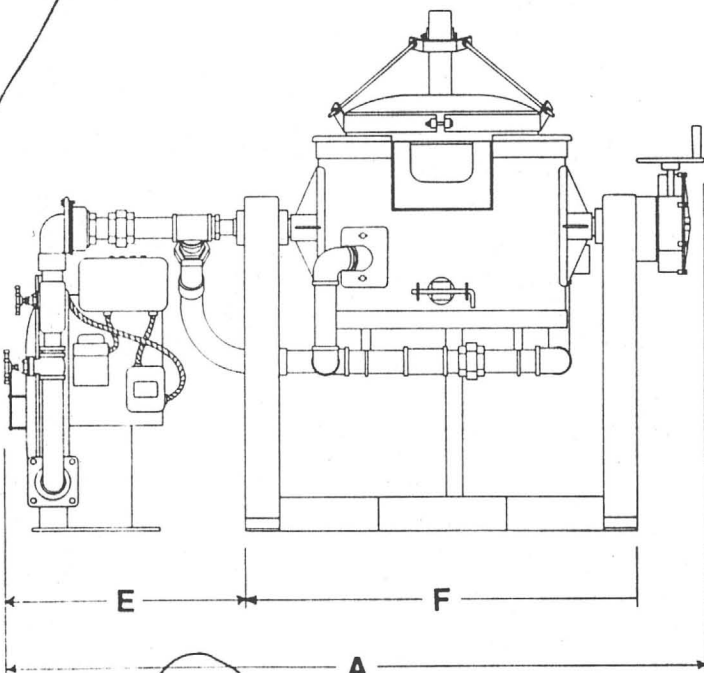
| FURNACE MODEL | CRUCIBLE SIZE        | CAPACITY PER MELT | COMBUSTION CHAMBER DIMENSIONS |      | A  | B   | C   | D   | E   | F   | G   | BLOWER AND MOTOR RATING | GAS RATING | GAS LINE | GAS VALVE | APPROX. SHIPPING WEIGHT |
|---------------|----------------------|-------------------|-------------------------------|------|----|-----|-----|-----|-----|-----|-----|-------------------------|------------|----------|-----------|-------------------------|
|               |                      |                   | DIA.                          | DEEP |    |     |     |     |     |     |     |                         |            |          |           |                         |
| T-200         | No. 200 thru No. 250 | 750 lbs.          | 23"                           | 25"  | A" | 62" | 40" | 90" | 30" | 60" | 18" | 230 CFM<br>2 HP         | 1,200,000  | 2"       | 1 1/4"    | 4,000 lbs.              |

Dimensions Approximate

T-80

# CENTER PIVOT TILT

MAXIMUM HEIGHT IN TILTED POSITION



| FURNACE MODEL | CRUCIBLE SIZE       | CAPACITY PER MELT | COMBUSTION CHAMBER DIMENSIONS |      | A   | B   | C   | D   | E   | F   | G | BLOWER AND MOTOR RATING | GAS RATING | GAS LINE | GAS VALVE | APPROX. SHIPPING WEIGHT |
|---------------|---------------------|-------------------|-------------------------------|------|-----|-----|-----|-----|-----|-----|---|-------------------------|------------|----------|-----------|-------------------------|
|               |                     |                   | DIA.                          | DEEP |     |     |     |     |     |     |   |                         |            |          |           |                         |
| T-80          | No. 80 thru No. 100 | 300 lbs.          | 17"                           | 20"  | 82" | 60" | 36" | 67" | 28" | 46" |   | 180 CFM<br>1 1/2 HP     | 850,000    | 2"       | 1 1/4"    | 2,000 lbs.              |

Dimensions Approximate

# BID SPECIFICATIONS (Con't)

PART NO. 900055 MODEL B-1501 WITH NO. 4UV SAFETY  
Stationary Crucible Furnace as specified in Part No. 900050, plus the No. 4UV ultra violet combustion system, consisting of a Fireye UVM system with automatic spark ignition with blower air switch, magnetic line starter. Provides furnace shut down in

event of air blower failure, flame or power failure. Wiring Conforms to the National Electric Code. Electrical components are UL and CSA listed. Approximate shipping weight 1940 pounds. *(Specify voltage and phase when ordering)*

## TILTING CRUCIBLE FURNACES

PART NO. 900997 MODEL T-160  
High Temperature Crucible Melting Furnace with manual control tilt mechanism. Tilt mechanism to be oil filled gear box with worm-worm gear manual hand wheel. Designed to use No. 16 standard crucible. Tilting mechanism to give infinite control of metal stream when discharging into pouring ladle. Burner system to be equipped with turbo blower and standard induction motor in all standard voltages and phases. Wiring and electrics conform to the National Electric Code. Components UL and CSA listed and approved. Includes one number 8 (eight pound capacity) ladle. Shipped complete with No. 16 standard crucible and crucible rest. Approximate shipping weight 610 pounds. *(Specify voltage and phase when ordering)*

PART NO. 900998 MODEL T-160 WITH 4UV SAFETY  
High Temperature Crucible Melting Furnace, same as specified in Part No. 900997, plus automatic spark ignition and the No. 4UV ultra violet combustion safeguard system, with blower air switch and magnetic line starter. Provides furnace shut down and gas line valve closure in event of air blower failure, flame or electric power failure. Approximate shipping weight 660 pounds.

PART NO. 900060 MODEL T-80 MANUAL TILT  
Center Pivot Tilting Crucible Furnace, with Pivot Trunnion Bearings at its center of gravity for easy tilting with gear reducer and hand wheel. For crucible sizes number 80 through number 100. Attainable combustion chamber temperature 2400°F., for melting aluminum and copper alloys. With cover derrick, exhaust and charging hole in cover. Furnace lining and cover are high alumina, air rammed sections, backed with high temperature insulation. Chamber size 17" diameter x 20" deep, with two tangent fired burners, nominal BTU.\* Furnace equipped with manual two valve mixer to use either manufactured or natural fuel gas. With No. 1611 turbo blower, 180 CFM at 12 oz. with 1 1/2 HP, 360 RPM, ODP, ball bearing motor, 115/230 single or 230/460 poly phase motor with magnetic starter. Complete with silicon carbide crucible rest block 11" diameter x 2" high. Floor space required 7' x 5', lowered height to trunnion 3'; maximum overall height tilted 6'. Approximate shipping weight - 2000 pounds. *(Specify voltage and phase when ordering) \* 250,000 BTU*

PART NO. 900065 MODEL T-80 WITH NO. 4UV SAFETY  
Tilting Crucible Furnace, same as part number 900060, plus the No. 4UV ultra violet safeguard system, consisting of Fireye UVM system with automatic spark ignition, with blower air switch and magnetic starter. Provides furnace shut down in the event of electric power failure, air blower failure, or flame outage. Wiring conforms to the National Electric Code. Electrical components are UL and CSA listed. Approximate shipping weight 2000 pounds.

PART NO. 900070 MODEL T-80 MOTORIZED TILT  
Tilting Crucible Furnace, same as specified in part number 900065 above, with combustion safeguard system, plus motorized tilt. The motorized tilt employs a reversing switch, magnetic contactor and start-stop station. Available only in poly phase electrics. Approximate shipping weight 2000 pounds.

PART NO. 900075 MODEL T-200 MANUAL TILT  
Tilting Crucible Furnace, with nose pour configuration with Pouring Spout Coaxial with trunnions. For crucible sizes 200-250. Attainable combustion chamber temperature to 2300°F., for melting aluminum and copper alloys. With cover derrick and charging hole in cover. Furnace lining and cover are high alumina, air rammed sections, backed with high temperature insulation. Chamber size 23" diameter x 25" deep, with four tangent fired burners, nominal 1,200,000 BTU. Furnace equipped with manual two valve mixer to use either manufactured or natural fuel; with No. 1912 turbo blower, 230 CFM at 16 oz., with 2 HP, 3600 RPM, ODP, ball bearing motor, 115/230 single or 230/460 poly phase, 60 hertz, with magnetic starter, complete with silicon carbide crucible rest block, 11" diameter x 2" high. Hand tilt requires separated over-head hoist (either hand, electric or air driven) to tilt furnace. Hoist not furnished with furnace. Floor space required 9' x 6'; lowered height to trunnion 40" maximum height tilted 8'. Approximate shipping weight 3750 pounds. *(Specify voltage and phase when ordering)*

PART NO. 900080 MODEL T-200 WITH 4UV SAFETY  
Tilting Crucible Furnace, same as specified in part number 900075 above, plus the No. 4UV ultra violet combustion safeguard system, consisting of a Fireye UVM System with automatic spark ignition; with blower, air switch and magnetic starter. Provides furnace shut down in the event of electric power failure, air blower failure, or flame outage. Wiring conforms to National Electric Code, electrical components are UL and CSA listed. Approximate shipping weight 4000 pounds.

PART NO. 900085 MODEL T-200 HYDRAULIC TILT  
Tilting Crucible Furnace, same as specified in part number 900080 above, with combustion safeguard system, plus hydraulic tilt. The hydraulic tilt employs two rams actuated by a motorized hydraulic pump with self contained reservoir, strainers, safety valves, and three position hydraulic hand valve. With magnetic contactor and start-stop station. Hydraulic system same voltage and phase as blower system. Approximate shipping weight 4000 pounds.





# BID SPECIFICATIONS (Con't)

PART NO. 900055 MODEL B-1501 WITH NO. 4UV SAFETY  
Stationary Crucible Furnace as specified in Part No. 900050, plus the No. 4UV ultra violet combustion system, consisting of a Fireye UVM system with automatic spark ignition with blower air switch, magnetic line starter. Provides furnace shut down in

event of air blower failure, flame or power failure. Wiring Conforms to the National Electric Code. Electrical components are UL and CSA listed. Approximate shipping weight 1940 pounds. *(Specify voltage and phase when ordering)*

## TILTING CRUCIBLE FURNACES

PART NO. 900997 MODEL T-160  
High Temperature Crucible Melting Furnace with manual control tilt mechanism. Tilt mechanism to be oil filled gear box with worm-worm gear manual hand wheel. Designed to use No. 16 standard crucible. Tilting mechanism to give infinite control of metal stream when discharging into pouring ladle. Burner system to be equipped with turbo blower and standard induction motor in all standard voltages and phases. Wiring and electrics conform to the National Electric Code. Components UL and CSA listed and approved. Includes one number 8 (eight pound capacity) ladle. Shipped complete with No. 16 standard crucible and crucible rest. Approximate shipping weight 610 pounds. *(Specify voltage and phase when ordering)*

PART NO. 900998 MODEL T-160 WITH 4UV SAFETY  
High Temperature Crucible Melting Furnace, same as specified in Part No. 900997, plus automatic spark ignition and the No. 4UV ultra violet combustion safeguard system, with blower air switch and magnetic line starter. Provides furnace shut down and gas line valve closure in event of air blower failure, flame or electric power failure. Approximate shipping weight 660 pounds.

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Center Pivot Tilting Crucible Furnace, with Pivot Trunnion Bearings at its center of gravity for easy tilting with gear reducer and hand wheel. For crucible sizes number 80 through number 100. Attainable combustion chamber temperature 2400°F., for melting aluminum and copper alloys. With cover derrick, exhaust and charging hole in cover. Furnace lining and cover are high alumina, air rammed sections, backed with high temperature insulation. Chamber size 17" diameter x 20" deep, with two tangent fired burners, nominal BTU.\* Furnace equipped with manual two valve mixer to use either manufactured or natural fuel gas. With No. 1611 turbo blower, 180 CFM at 12 oz. with 1 1/2 HP, 360-RPM, ODP, ball bearing motor, 115/230 single or 230/460 poly phase motor with magnetic starter. Complete with silicon carbide crucible rest block 11" diameter x 2" high. Floor space required 7' x 5', lowered height to trunnion 3'; maximum overall height tilted 6'. Approximate shipping weight - 2000 pounds. *(Specify voltage and phase when ordering) \$ 250,000 BTU*

PART NO. 900065 MODEL T-80 WITH NO. 4UV SAFETY  
Tilting Crucible Furnace, same as part number 900060, plus the No. 4UV ultra violet safeguard system, consisting of Fireye UVM system with automatic spark ignition, with blower air switch and magnetic starter. Provides furnace shut down in the event of electric power failure, air blower failure, or flame outage. Wiring conforms to the National Electric Code. Electrical components are UL and CSA listed. Approximate shipping weight 2000 pounds.

PART NO. 900070 MODEL T-80 MOTORIZED TILT  
Tilting Crucible Furnace, same as specified in part number 900065 above, with combustion safeguard system, plus motorized tilt. The motorized tilt employs a reversing switch, magnetic contactor and start-stop station. Available only in poly phase electrics. Approximate shipping weight 2000 pounds.

PART NO. 900075 MODEL T-200 MANUAL TILT  
Tilting Crucible Furnace, with nose pour configuration with Pouring Spout Coaxial with trunnions. For crucible sizes 200-250. Attainable combustion chamber temperature to 2300°F., for melting aluminum and copper alloys. With cover derrick and charging hole in cover. Furnace lining and cover are high alumina, air rammed sections, backed with high temperature insulation. Chamber size 23" diameter x 25" deep, with four tangent fired burners, nominal 1,200,000 BTU. Furnace equipped with manual two valve mixer to use either manufactured or natural fuel; with No. 1912 turbo blower, 230 CFM at 16 oz., with 2 HP, 3600 RPM, ODP, ball bearing motor, 115/230 single or 230/460 poly phase, 60 hertz, with magnetic starter, complete with silicon carbide crucible rest block, 11" diameter x 2" high. Hand tilt requires separated over-head hoist (either hand, electric or air driven) to tilt furnace. Hoist not furnished with furnace. Floor space required 9' x 6'; lowered height to trunnion 40" maximum height tilted 8'. Approximate shipping weight 3750 pounds. *(Specify voltage and phase when ordering)*

PART NO. 900080 MODEL T-200 WITH 4UV SAFETY  
Tilting Crucible Furnace, same as specified in part number 900075 above, plus the No. 4UV ultra violet combustion safeguard system, consisting of a Fireye UVM System with automatic spark ignition; with blower, air switch and magnetic starter. Provides furnace shut down in the event of electric power failure, air blower failure, or flame outage. Wiring conforms to National Electric Code, electrical components are UL and CSA listed. Approximate shipping weight 4000 pounds.

PART NO. 900085 MODEL T-200 HYDRAULIC TILT  
Tilting Crucible Furnace, same as specified in part number 900080 above, with combustion safeguard system, plus hydraulic tilt. The hydraulic tilt employs two rams actuated by a motorized hydraulic pump with self contained reservoir, strainers, safety valves, and three position hydraulic hand valve. With magnetic contactor and start-stop station. Hydraulic system same voltage and phase as blower system. Approximate shipping weight 4000 pounds.



# DENVER MINERAL ENGINEERS, INC.

P.O. BOX 3556  
LITTLETON, CO 80161  
303-791-6065

October 2, 1987

Milsaps Mineral Services  
3865 Wasatch Blvd.  
Room 202  
Salt Lake City, UT 84109

Attention: Mr. Frank Milsaps

Subject: Merrill-Crowe Equipment Quotation  
A.F. Budge Mining

Gentlemen:

Denver Mineral Engineers is pleased to provide a quotation for the supply of equipment for a Merrill-Crowe gold recovery circuit designed to handle 95 to 125 gallons per minute.

- (1) Deaeration Tower, 3'-0" Dia. X 13'-0" s/s with 4' legs, ballast ring packing, feed distributor, support plate, hold down plate, level gage, and Fisher Level-Trol level controller and feed solution control valve.

NET PRICE: \$12800.00

- (1) Vacuum Pump, Liquid Ring type, Nash Model MHF-50 with 3 HP 1750 RPM TEFC 480 volt motor, water trap silencer, solenoid valve, cast iron housing & stainless steel rotor

NET PRICE: \$3300.00

- (1) Zinc Cone, 24" Dia X 33" High, non-stick industrial grade polypropylene construction with 18" Dia X 28" steady head tank and level float valve

NET PRICE: \$800.00

- (1) Smelting Furnace, Tilting Crucible Type, Propane Fired with U.L. Approved flame safety system, # 80 crucible capacity, 800,000 BTU Burner, burner blower, manual tilt

NET PRICE: \$6800.00

- OR (1) Smelting Furnace same as above except #125 crucible capacity, 900,000 BTU Burner

NET PRICE: \$8680.00

DELIVERY

6 to 8 weeks

ACCEPTANCE

This offer shall remain in effect for 30 days unless changed in the interim by Denver Mineral Engineers, Inc. (Company).

PAYMENT SCHEDULE

To be determined.

GENERAL PROVISIONS

The general provisions on the following page form a part of this offer.

Sincerely,

DENVER MINERAL ENGINEERS, INC.

A handwritten signature in cursive script that reads "John L. Fast".

John L. Fast, P.E.  
President

## General Provisions

1. **WARRANTY**—Company warrants title to the product(s) and, except as noted below with respect to items not of Company's manufacture, also warrants the product(s) on date of shipment to Purchaser, to be of the kind and quality described herein, merchantable, and free of defects in workmanship and material.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, AND CONSTITUTES THE ONLY WARRANTY OF COMPANY WITH RESPECT TO THE PRODUCT(S).

If within one year from date of initial operation, but not more than eighteen months from date of shipment by Company of any item of product(s), Purchaser discovers that such item was not as warranted above and promptly notifies Company in writing thereof, Company shall remedy such nonconformance by, at Company's option, adjustment or repair or replacement of the item and any affected part of the product(s). Purchaser shall assume all responsibility and expense for removal, reinstallation, and freight in connection with the foregoing remedies. The same obligations and conditions shall extend to replacement parts furnished by Company hereunder. Company shall have the right of disposal of parts replaced by it.

ANY SEPARATELY LISTED ITEM OF THE PRODUCT(S) WHICH IS NOT MANUFACTURED BY COMPANY IS NOT WARRANTED BY COMPANY, and shall be covered only by the express warranty, if any, of the manufacturer thereof.

THIS STATES PURCHASER'S EXCLUSIVE REMEDY AGAINST COMPANY AND ITS SUPPLIERS RELATING TO THE PRODUCT(S), WHETHER IN CONTRACT OR IN TORT OR UNDER ANY OTHER LEGAL THEORY, AND WHETHER ARISING OUT OF WARRANTIES, REPRESENTATIONS, INSTRUCTIONS, INSTALLATIONS OR DEFECTS FROM ANY CAUSE. Company and its suppliers shall have no obligation as to any product which has been improperly stored or handled, or which has not been operated or maintained according to instructions in Company or supplier furnished manuals.

2. **PATENTS**— Company shall pay costs and damages finally awarded in any suit against Purchaser or its vendees to the extent based upon a finding that the design or construction of the product(s) as furnished infringes a United States patent (except infringement occurring as a result of incorporating a design or modification at Purchaser's request) provided that Purchaser promptly notifies Company of any charge of such infringement, and Company is given the right at its expense to settle such charge and to defend or control the defense of any suit based upon such charge. THIS PARAGRAPH SETS FORTH COMPANY'S EXCLUSIVE LIABILITY WITH RESPECT TO PATENTS.
3. **PURCHASER DATA**— Timely performance by Company is contingent upon Purchaser's supplying to Company, when needed, all required technical information, including drawing approval, and all required commercial documentation.
4. **NUCLEAR**— Purchaser represents and warrants that the product(s) covered by this contract shall not be used in or in connection with a nuclear facility or application.
5. **NONCANCELLATION**— Purchaser may not cancel or terminate for convenience, or direct suspension of manufacture, except on mutually acceptable terms.
6. **DELAYS**— If Company suffers delay in performance due to any cause beyond its control, including but not limited to act of God, war, act or failure to act of government, act or omission of Purchaser, fire, flood, strike or labor trouble, sabotage, or delay in obtaining from others suitable services, materials, components, equipment or transportation, the time of performance shall be

extended a period of time equal to the period of the delay and its consequences. Company will give to Purchaser notice in writing within a reasonable time after Company becomes aware of any such delay.

7. **STORAGE**— Any item of the product(s) on which manufacture or shipment is delayed by causes within Purchaser's control, or by causes which affect Purchaser's ability to receive the product(s), may be placed in storage by Company for Purchaser's account and risk.

8. **SHIPMENT**— The term "shipment" means delivery to the initial carrier in accordance with the delivery terms of this order. The shipping date is based upon conditions at the factory on the date hereof, and is subject to revision to meet conditions on date of Purchaser's acceptance. Company may make partial shipments. Company shall select method of transportation and route, unless terms are f.o.b. point of shipment and Purchaser specifies the method and route and is to pay the freight costs in addition to the price. When terms are f.o.b. destination or freight allowed to destination, "destination" means common carrier delivery point (within the continental United States, excluding Alaska) nearest the destination. For movement outside the United States, Company shall arrange for inland carriage to port of exit and shall cooperate with Purchaser's agents in making necessary arrangements for overseas carriage and preparing necessary documents.

9. **SPECIAL SHIPPING DEVICES**— On shipments to a destination in the continental United States or Canada, Company has the right to add to the invoice, as a separate item, the value of any special shipping device (oil barrel, reel, tarpaulin, cradle, crib and the like) used to contain or protect the product(s) invoiced, while in transit. Except as to oil barrels, full credit will be given on the return to Company of the device in a reusable condition, f.o.b. destination, freight prepaid. As to oil barrels, arrangement for return and credit must be made by Purchaser with the refiner.

10. **TITLE AND INSURANCE**— Title to the product(s) and risk of loss or damage shall pass to Purchaser at the f.o.b. point, except that a security interest in the product(s) and proceeds and any replacement shall remain in Company, regardless of mode of attachment to realty or other property, until the full price has been paid in cash. Purchaser agrees to do all acts necessary to perfect and maintain said security interest, and to protect Company's interest by adequately insuring the product(s) against loss or damage from any external cause with Company named as insured or co-insured.

11. **GENERAL**— NEITHER COMPANY NOR ITS SUPPLIERS SHALL BE LIABLE, WHETHER IN CONTRACT OR IN TORT OR UNDER ANY OTHER LEGAL THEORY, FOR LOSS OF USE, REVENUE OR PROFIT, OR FOR COST OF CAPITAL OR OF SUBSTITUTE USE OR PERFORMANCE, OR FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY OTHER LOSS OR COST OF SIMILAR TYPE, OR FOR CLAIMS BY PURCHASER FOR DAMAGES OF PURCHASER'S CUSTOMERS. Likewise, Company shall not, under any circumstances, be liable for the fault, negligence, or wrongful acts of Purchaser or Purchaser's employees, or Purchaser's other contractors or suppliers.

Company will comply with all laws applicable to Company. Compliance with OSHA or similar federal, state or local laws during any operation or use of the product(s) is the sole responsibility of Purchaser.

The laws of the State of Delaware shall govern the validity, interpretation and enforcement of any contract of which these provisions are a part.

Assignment may be made only with written consent of both parties.

### PURCHASER'S ACCEPTANCE

The foregoing is hereby accepted.

\_\_\_\_\_  
(Name of Purchaser)

By \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_



# CUSTOM EQUIPMENT CORPORATION

P.O. Box 747

350 West 300 South  
Phone (801) 533-8557

Salt Lake City, Utah 84110  
Telex 381014

## QUOTATION

Inquiry No. 642

Date Sept. 9, 1987

Terms 25% with Order  
Bal Net 30 Days

Prices quoted  
are F.O.B. SLC, Utah

Delivery 6-8 Weeks

Your Inquiry \_\_\_\_\_

A. F. Budge Mining Ltd.  
Suite 111 B-E  
7340 Shoeman Lane  
Scottsdale, Arizona 85251

Attn: Ms. Carol O'Brien

| QUANTITY | DESCRIPTION   | AMOUNT |
|----------|---|--------|
| 1 Only   | <p>At the request of Mr. F. W. Millsaps, we are pleased to quote a C.E.C. Zinc Precipitation System as follows:</p> <p>C.E.C. Zinc Precipitation System skid mounted suitable for flows from 95 to 125 gpm including:</p> <ul style="list-style-type: none"> <li>24" dia. vacuum tank with polypropylene packing, sight glass and level control valve and spray header.</li> <li>30" dia. zinc feed cone with motor operated valve.</li> <li>C.E.C. positive belt feeder for feeding zinc powder and lead nitrate.</li> <li>Solution pump for 125 gpm at 100' TDH equipped with double mechanical seals for vacuum service.</li> <li>Vacuum pump, water seal type, 43 cfm displacement at 22" mercury at sea level. 3 HP.</li> <li>Steel skids and platform, steps, handrails.</li> <li>Indicating/totalizing flowmeter.</li> <li>Electrical control panels and skid pre-wiring to motor.</li> <li>Piping between units on the skid. (Piping to and from the unit and power to the panels by others.) Unit is factory assembled, match marked and knocked down for shipping.</li> </ul> |        |

BY R. A. Wilson  
R. A. Wilson





# SCOTIA SYSTEMS INC.

4742 SOUTH BROWN STREET  
SALT LAKE CITY, UTAH 84107  
PHONE: (801) 268-9703, 264-8515

DATE September 24, 1987

## QUOTATION

Quotation No. 87-0895

TO Mr. Frank Millsaps  
3865 Wasatch Blvd.  
Room 202  
Salt Lake City, Utah 84109

WE ARE PLEASED TO QUOTE AS FOLLOWS:

YOUR INQUIRY \_\_\_\_\_

F. O. B. Salt Lake City, Utah      TERMS 25% With Order/Balance Net 30 Days      ESTIMATED SHIPPING DATE 4 to 6 Weeks

| QUANTITY | DESCRIPTION   | PRICE       |  |
|----------|---|-------------|--|
| 1 Only   | Deaeration tower to handle 100 GPM - 36"Ø x 8' on straight sides complete with all nozzles and supplort legs with one coat red oxide primer.<br>Also included:<br>- beta spray nozzle<br>- Heilex 2" packing<br>- vacuum pump - liquid ring Ni-resist construction 3HP - 32cfm - 3500 rpm<br>- Fisher level trol pneumatic<br>- Fisher 2-inch v-ball control valve<br>- piping from control valve to top of tower & top of tower to vacuum pump<br>- Skid-mount tower/vacuum pump and connect instrumentation |             |  |
|          | TOTAL   | \$20,466.00 |  |

ABOVE PRICES GOOD FOR 30 DAYS

OFFICIAL SIGNATURE George Mitchell

# UPE

UNIVERSAL PROCESS EQUIPMENT, INC.  
BOX 338 ROOSEVELT, NEW JERSEY 08555

609-443-4545  
TELEX 833021

Sept. 16, 1987  
Ref: RC2-35445

Frank Milsaps  
3865 Wasatch Blvd.  
Room 202  
Salt Lake City UT 84109

Attention: Frank Milsaps

Dear Mr. Milsaps:

With reference to our telephone conversation, I am pleased to offer the following equipment for your consideration. Should you require further information or wish to inspect the equipment, kindly advise me as soon as possible.

Stock #: 12843

200 sq. ft. 316 SS horizontal pressure filter. 3' diameter x 4' straight side. Mfd. by Hercules Filter Corp., Model 200, SN 29055, National Board #69, 1959. Internal rated 75 psi. Horizontal tank, vertical leaf design. Has rotating filter leaves. Chain driven by 1/2 HP, 220/440 volt gearhead motor and sluicing pipe for wet cake discharge. Quick open front door mounted on davit. 2" feed, 4" bottom discharge. (4) legs.

PRICE: FOB truck, Robbinsville, NJ \$10,000.00

Stock #: 4568

200 sq. ft., Model RSC200, Sparkler, jkt horiz tank, vert leaf pressure filter, 304 SS, with steel jacket. Filter 75 psi, jacket 14.5 psi. SN #14094, new 1961. (8) vertical leaves, with pneumatic shaker assembly and screw conveyor for dry cake discharge. 1.5 HP conveyor motor. Swing bolt closure.

PRICE: FOB truck, Robbinsville, NJ \$14,000.00

Stock #: 1739

200 sq. ft. 304 L SS, U.S. Autojet filter horiz. tank, vert. leaf design, tank measures 42" dia. x 56" str side, furnished with manual quick opening door, & eleven filter screens, approx. 35" dia. designed for 150 psi operating pressure. Openings include: 3" screw discharge for cake, 3" bottom liquid outlet, 2-3" feed openings. Mounted on four legs.

PRICE: FOB truck, Robbinsville, NJ \$8,500.00

*Sold*



This is page 02 of your quotation from:


**UPE** UNIVERSAL PROCESS EQUIPMENT, INC.  
BOX 338 ROOSEVELT, NEW JERSEY 08555

609-443-4545  
TELEX 833021

The above equipment is offered subject to prior sale. Please note there is an additional charge for skidding, crating, or boxing.

I thank you for this opportunity to be of service and look forward to doing business with you. In any event, I will be in touch with you shortly, once you have had the opportunity to review our quotation.

Very truly yours,

  
Amanda Vagell

AV/h1

Reply to: ERIEZ MAGNETICS  
c/o Magnus Corporation  
3427 South 500 West  
Salt Lake City, UT 84115  
Tel.: 801/263-1843



ASBURY ROAD AT AIRPORT ■ P.O. BOX 10608 ■ ERIE, PENNSYLVANIA 16514, U.S.A.  
814/833-9881  
TLX: 91-4470

October 1, 1987

Millsaps Minerals  
3865 Wasatch Blvd. RM. 2021  
SLC, UT 84109

Attention: Frank Millsaps

Subject: ERIEZ VOLUMATIC FEEDER MACHINE  
Magnus Ref. #5E-88-885 R1

We wish to revise our quotation 5E-88-885 of 9-25-87 to offer a unit for easier control for the 1 lb. per hour of zinc.

To handle zinc, at a rate of 1 lb. per hour, we recommend:

2 ea. ERIEZ Model FBV-212 Volumatic Feeder Machine, complete with a 20 A feeder, open 3" wide x 20" long 90° "v" tray, 1½ Cu. Ft. mild steel hopper, and Model VFT control will operate on 115 volts, single phase, 60 Hertz.

Price: 100# Each \$1,135.00 Each  
200# Each \$2,270.00 Lot

Subject to 20% resale discount.

Terms: Net 30 days, F.O.B. Erie, PA

Shipment: 3 weeks after order release.

This quotation is valid for 30 days.

ERIEZ  
C/O Magnus Corporation

  
Jack S. Miller

sy

cc: ERIEZ

**TIM HILDERMAN**  
1393 Dupont Avenue  
Salt Lake City, Utah  
(801) 595-8319

**OBJECTIVE** Seeking a position in mining engineering or mine production.

**EDUCATION** BS in Mining Engineering - University of Utah, 1987  
AS in Secondary Education - Arizona Western College, 1973

**TRAINING &  
CERTIFICATION**

- Certified MSHA Heavy Equipment Operation
- Underground Coal and Metal MSHA 40 Hour Hazard Training
- Advanced First Aid Training
- Certified Underground Rescue Training

**PROFESSIONAL  
SUMMARY**

- Geotechnical instrumentation design and monitoring
- Rockbolting support analysis and design
- Borehole drainage design for underground coal mines
- Roofbolter core barrel design and implementation
- Hydrologic monitoring and reporting
- Long and short-term mine design and sequencing
- Mine economics evaluations
- Mine feasibility studies
- Mine permit preparation
- Longwall gateroads support analysis and design
- Longwall gateroads slusher cleanup design

**EXPERIENCE**

- Project Engineer - Plateau & Getty Mining Companies 1984-1986
- Designed underground coal dewatering and drainage systems capable of handling 1000 gpm.
  - Devised bolting and ground support plans for an underground coal operation that culminated in a \$0.28 per ton savings in material costs.
  - Initiated a geotechnical convergence monitoring program for early detection and warning of ground movement in continuous miner pillar recovery sections.
  - Engineered a \$3,500 core barrel attachment for pneumatic roof bolters capable of retrieving 40 ft. roof cores for geologic interpretation.
  - Technically evaluated mining equipment and made recommendations regarding their purchase and implementation.
  - Supervised a mine hydrologic monitoring program and reported quantitative and qualitative results to governmental agencies.
  - Developed conventional mining scenarios for the underground crossing of a graben to access a 10MM ton coal reserve.
  - Originated long and short-term mine plans and sequencing layouts.

**EXPERIENCE**  
**(Continued)**

- Prepared short-term and LOM permits and negotiated stipulations with governmental agencies.
- Created mining economic scenarios based on coal market fluctuations and changes in consumer demand.

**MINER** - United Nuclear Corp., Kerr McGee Corp., Magma Copper Corp.,  
Harrison Western Corp., Anaconda Corp. 1974-1981

- Worked with the following mining methods and techniques:
  - \* Room-and-Pillar conventional and continuous mining methods.
  - \* Block Caving methods.
  - \* VCR method.
  - \* Backfilling techniques.
  - \* Trackdrift Development techniques.
  - \* Raise Development techniques.
  - \* Shaft Excavation techniques.
  - \* Continuous Mining methods.
- Responsibilities:
  - \* Lead Miner - Supervised a crew of four miners. Responsible for achieving development and tonnage goals.
  - \* Shift Boss - Supervised 20-25 mining personnel. Responsible for achieving production quotas and outlining daily assignments, while maintaining a safe working environment.

**HONORS &  
AWARDS**

- Old Timer's Graduating Senior Coal Award
- AIME National, Eugene P. Pfleider, Scholarship
- Department of Mining Engineering, Summer Intern Scholarship
- Two time RMCMI Scholarship Recipient
- Two time AIME National Coal Scholarship Recipient
- Two time WAAIME, Utah Section, Scholarship Recipient
- Josephine M. Beam Academic Excellence Scholarship
- Four year, Department of Mining Engineering,  
William B. Browning Academic Scholarship
- AIME, Utah Section, Best Student Technical Paper Award
- AIME Student Section President
- AIME Student Section Representative
- C.A.M.E. Technical Paper Award, Presentation and Publication

**INTERESTS**

Computer Programming, Automobile Repair, Mineral Collecting,  
Sports, Hunting, Fishing and Old Mine Exploration.

April 29, 1987

Mr. Budge:

Please find attached the Notice of Disposal Form to be submitted to the Arizona Dept. of Health Services. This form requires your signature.

Not included is SHB's latest report, a copy of which you have. Item 3c is blank, as I need to locate a copy of the publication that contains the codes. Items 7e and 8c are not required for this type of Notice. SHB and I believe that items 8a, 8b, 8d, and 8e do not apply to our facility; hence the attached statement. We are prepared to provide answers should ADHS decide otherwise. ADHS has 30 days to notify us as to the completeness of the form and 60 days to notify us as to whether or not a permit will be issued. These times run concurrently. During this time, we will probably have to explain and defend our design to ADHS.

Regards,

A handwritten signature in cursive script, appearing to be the name 'Joe'.

# TELLIS GOLD MINING COMPANY

5650 Greenwood Plaza Blvd., Suite 226 Greenwood Village, Colorado 80111 (303) 740-8611

June 19, 1987

DMEA LTD.

JUN 22 1987

RECEIVED

Ms. Carole A. O'Brien  
A. F. Budge (Mining) Limited  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, Arizona 85251

Dear Carole:

Following up on our conversation of Wednesday, I would propose the following schedule for possible Tellis participation at your Vulture mine property.

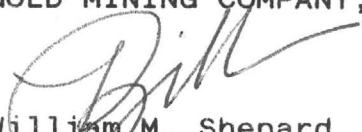
We would first conduct a limited (+ 50) orientation sampling program over known mineralization at the mine site. Following analysis of these samples and interpretation of the data, and assuming positive results from this program, we would conduct a broader sampling program consisting of the collection and analysis of several hundred samples. Assuming delineation of one or more Gas Vapor-Phase anomalies from the second sampling program, we would then conduct a drilling program to investigate these anomalies. All this work would be done at Tellis' expense.

For our program, we would expect to earn an interest in any mineralization discovered, the level of our expenditure and percentage to be earned to be negotiated before commencement of the program.

If this general outline is satisfactory, we will plan to come to Scottsdale to review the data you have on the property; negotiate a mutually satisfactory level for Tellis earn-in expenditure, subject to our pending stock issue with the Vancouver Stock Exchange; and conduct the first phase of sampling.

Very truly yours,

TELLIS GOLD MINING COMPANY, INC.

  
William M. Shepard  
Vice President

WMS:djc

# TELLIS GOLD MINING COMPANY

5650 Greenwood Plaza Blvd., Suite 226 Greenwood Village, Colorado 80111 (303) 740-8611

August 19, 1987

DMEA LTD.

Ms. Carole A. O'Brien, Coordinator  
A. F. Budge (Mining) Limited  
7340 E. Shoeman Lane  
Suite 111 "B" (E)  
Scottsdale, AZ 85251

AUG 24 1987

RECEIVED

Dear Ms. O'Brien:

Tellis Gold Mining Company, Inc. wishes to explore the possibility of participating with Budge in further exploration of the mining claims controlled by Budge at the Vulture mine area, Maricopa County, Arizona.

Tellis proposes the following:

1. Tellis to conduct an orientation gas vapor-phase (GVP) survey consisting of approximately 100 samples over the drilled area of the proposed open pits to determine the applicability of the GVP method to the Vulture area.
2. If the survey proposed above demonstrates the utility of GVP, we would, in conjunction with you and your consultants, select a group or groups of claims to apply the GVP system to search for extensions or new occurrences of gold mineralization.
3. Upon the expenditure of an agreed upon amount for GVP surveys and follow-up drilling, Tellis will earn a participating interest in the designated claim group or groups.

If this proposal meets with your approval, we would like to schedule a meeting at a mutually convenient time and place to plot the orientation survey and further define the earn-in provisions.

Very truly yours,

TELLIS GOLD MINING COMPANY, INC.



William M. Shepard

Vice President, Operations

WMS:djc







