



CONTACT INFORMATION  
Mining Records Curator  
Arizona Geological Survey  
416 W. Congress St., Suite 100  
Tucson, Arizona 85701  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

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SAWYER CONSULTANTS INC.

PROGRESS REPORT ON GOLD RECOVERY RESEARCH  
KELLWEBB PROPERTY  
Yavapai County, Arizona

for

PHOENIX ELECTRIC OIL REFINERS (CANADA) LTD.

OCTOBER 9th, 1980

4,500,000

## PHOENIX ELECTRIC OIL REFINERS CANADA LTD.

2050 - 200 GRANVILLE STREET • VANCOUVER, B.C. V6C 1S4

TELEPHONE (604) 687-1444

+ PRESS RELEASE +

The Kellwebb Property, Yavapai County, Arizona U.S.A.

### Gold Potential Evaluated—More Work Recommended

In a report dated August 8, 1980, Sawyer Consultants Inc., Vancouver, B.C. recommend a more complete evaluation of the gold mineralization on the Company's total claim holdings on the Kellwebb property.

Over the past two years, the Company has carried out a considerable amount of work including geological mapping, geophysical surveys (magnetometer and radiometer) and percussion drilling aimed primarily at investigating the uranium potential of the property. The results of this work have been encouraging and the property holds considerable potential for development as a source for uranium ore. However, the area in which the property is located also has a significant history as a gold producing area and the existence of former producing gold properties on ground adjoining the Kellwebb property and the possibility, not to say probability, that gold bearing structures on adjacent ground extend onto the Kellwebb ground, has been kept "in mind".

The controversy surrounding nuclear generating facilities over the past year have led to abandonment or at least temporary shelving of a number of nuclear power generating plants.

Consideration of these factors plus the rise in the price of gold have led the management of Phoenix Electric Oil Refiners (Canada) Ltd. to change the emphasis of their continuing exploration on the Kellwebb property and adjacent areas from uranium to gold.

The Consultants recommend that a fairly comprehensive exploration and mine development program be started on the Kellwebb property as early as practicable. Equipment is presently being assembled on site for a pilot plant, control grid, geological mapping to proceed with bulk sampling etc.

... /2

Oil and Gas, Ohio, U.S.A.

In their report to the Company dated August 14, 1980, independent petroleum consultant J. P. Sigler, Inc., Cambridge, Ohio state:

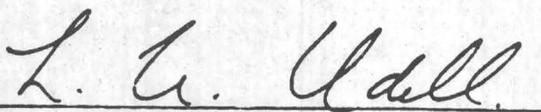
RE: Status Report on Monroe Wells, Tostenson Wells and Rio Grande Well

The Monroe #1 well (6½% W.I.) was scheduled to be turned into the line August 18. The Monroe #2 (6½% W.I.) was turned on August 6th and is producing at the approximate rate of 350 MCF/day. In addition it has been making one to three barrels of oil per day. The natural gas is being sold to the East Ohio Gas Co. at a price of \$1.97/MCF. The oil is currently being stored in tanks and will be hauled to various refiners on a tank load basis; it will be sold to Devco Oil, a trucking company and oil broker, at a price of \$38.00/Bbl.

Both the Tostenson #1 and #2 (30% W.I. reducing to 26¼% Net Rev.) were turned on Thursday, August 7th, with the gas being sold to the East Ohio Gas Co. at \$1.97/MCF. The Tostenson #1 is currently making approximately 110 MCF and 8 barrels of oil per day. The oil is being sold to Devco Oil Co. at a price of \$38.00/Bbl. The Tostenson #2 was turned-on at an approximate rate of 350 MCF/day; however, very little of the frac water has been pumped off this well, and thus, a definite estimate of oil and gas production cannot be derived at this time. Furthermore, the low-land field which the Tostenson #2 well is located is currently flooded, which has shorted out the electric lines to this well, and these lines cannot be repaired until the flood conditions have dissipated.

The Rio Grand College #1 well (30% W.I. reducing to 26¼% Net Rev.) was perforated on 6-16-80. After perforation a good show of oil was noted. It was fraced on 6-17-80 and went in production on 6-21-80. We are currently still pumping frac water with oil. As more and more of the frac water is pumped off the oil ratio increases. Hopefully this well should have most of the frac water pumped off by the first week of September, and should at this time be making mostly oil. This oil will be sold to Devco Oil Co. at a price of \$38.00/Bbl.

ON BEHALF OF THE BOARD OF DIRECTORS



L.N. UDELL

President

September 4, 1980

## PHOENIX ELECTRIC OIL REFINERS CANADA LTD.

2050 - 200 GRANVILLE STREET • VANCOUVER, B.C. V6C 1S4

TELEPHONE (604) 687-1444

October 21, 1980

Dear Shareholder:

It is my pleasure to enclose your copy of the report dated October 9th from our consulting engineers, Sawyer Consultants Inc. of Vancouver. It outlines in detailed fashion the results of studies commissioned to develop an extraction process which will maximize the gold recovery values from the company's Kellwebb property in Arizona and establish reliable techniques for the handling and analysis of ore samples.

Such a study had been recommended in an earlier report by Sawyer, and as a result a large bulk sample was shipped from the Kellwebb property, 58 miles from the city of Phoenix, to the Carol Laboratory in Portland, Oregon.

The successful outcome of the research is testified to by the fact that earlier assays, conducted by other methods, were upgraded by a mean factor of 21.43 — and by the fact that your company is now acting on the recommendation that it ready the property for production and build a pilot plant employing the new processing techniques developed in the laboratory.

As work on this and other Phoenix properties proceeds, every effort will be made to keep you fully and accurately informed of the progress made.

On behalf of the Board,

Leonard N. Udell,  
President

## INTRODUCTION

In a report on the gold mineralization on the Kellwebb Property dated August 8th, 1980, the writer described the gold occurrences presently known within the boundaries of the subject property. That report also noted some of the problems that have been encountered in obtaining reliable and repeatable assays on samples taken from the gold bearing zones and made mention of the fact that Phoenix Electric Oil Refiners (Canada) Ltd. has been carrying out laboratory studies aimed at developing an extractive technique which upgrades the recovery of gold from that previously attained and at establishing sample handling and analytical techniques which are reliable.

This report, prepared at the request of Mr. L.N. Udell, President of Phoenix Electric Oil Refiners (Canada) Ltd., is intended simply as a brief progress report on this work. The details of the extractive and material handling techniques are not given because they have been developed specifically for the type of ores present on the Kellwebb property and may be applicable to other similar ores in the southwestern U.S., and as such might therefore be regarded, at least to some degree, as being proprietary. The writer spent two days in the laboratories in Portland where this work is being carried out in late September. The information provided here is based on this visit and results provided by the laboratory from the complete sampling program.

*proprietary, conformity to established rules or customs, decorum, fitness.*

**SAWYER CONSULTANTS INC.**

## RESEARCH PROGRAM

The work is being carried out at the laboratory of Mr. Lum Carol, located in Portland, Oregon. Mr. Carol is an experienced assayer and chemist who has many years experience in the mining and mineral extraction fields. The test work described has been in progress over the past several months and has now reached the stage where the results can be repeated regularly, and are believed to represent the optimum attainable from these ores. This first phase having been completed preparations have begun to upgrade the process to a pilot plant stage. Materials and equipment have been purchased and are expected to be in operation on the property in Arizona within the next two months.

### Sample Material

An important part of the research program has necessarily been to upgrade the recovery of gold from the samples thus it was necessary that the material used in the research program was the same as material from which earlier assay results were available from a number of different commercial laboratories, and obtained by several different techniques, e.g. fire assay, geochemical assay, etc. To this extent the material available was limited in quantity although it is considered to be representative of the material which will be encountered in the course of mining operations on the property. The sample material therefore is essentially from the same locations or is the same material as that described and listed in our earlier reports. It includes some material taken in 1980 from the same locations as 1979 samples A through M inclusive, and from the same material, in most cases rejects from the same samples, collected by the writer from the property in May and June 1980. In the following descriptions and tables the sample numbers used are the same samples numbers used in our August 8th, 1980 report.

### Extractive Techniques

As mentioned in the Introduction above it is not proposed to give the details of the physical and chemical extractive processes which have been employed to arrive at the results described below for obvious reasons of security. In general terms, to illustrate the fact that the research has been comprehensive in scope we can say that the extractive work has been carried out on a variety of sample sizes from 3/4 inch down to -200 mesh, and it has been established that a fairly fine grind will provide the optimum recovery. The extractive techniques will employ a cyanide leach which will be a modified vat leach type of process. Heap leach techniques will not be employed because of their well recognized inefficiency in recovery. At current gold prices it makes little economic sense to achieve only a 60% recovery of metal. The techniques which will be employed on the Kellwebb property will improve very substantially on this recovery level. The work completed to date has been essentially on laboratory scale. The extractions and analyses have been repeated many times with considerable accuracy of repetition and are now at the stage where they are considered acceptable. Some preliminary studies indicate that there should be little or no difficulty in upgrading these techniques to a pilot plant and eventually to operational stages.

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## RESULTS

Table 1 (page 4) sets out the assays in oz./ton gold obtained at the Portland laboratories on a series of samples. The sample numbers used are those used in our August 8th, 1980 report and include material taken by the writer in May and June 1980 as well as some material from the same locations as some of the 1979 samples A through M. The table also shows the original assay values obtained from commercial laboratories at the time the samples were first collected. The table distinguishes between fire assays and chemical or leach assay techniques, and shows the commercial laboratories at which the original assaying was carried out. The right hand column in the table shows the factor by which the new Portland laboratory assays have upgraded the original assays.

Reference to this table shows a very significant upgrading in every instance. Two points should be made here. The first is that in most of these cases the results presented here have been repeated several times and in the case of the first four samples, Nos. 165801 to 165804 inclusive, were repeated again while I was present in the laboratory in late September. By all the normal standards of assay laboratory practise then the degree of repetition achieved is satisfactory and the results are therefore considered to be reliable. The second point is that although the degree of upgrading may seem exceptionally high the new assay values are much more in line with values reported by former operators when the property was in production on a very small scale some years ago. It was to a large degree because of the discrepancy between the assay values obtained from our original sampling and those reported by the former operators that the current research work was undertaken. This better degree of correspondence with the values obtained from ore shipments, which of course are the most reliable guides to the tenor of the ore, also adds some weight to these latest assay results.

It is apparent from Table 1 that the grade of the sample material is quite variable, which is not unusual in gold ores, and also that the amount of upgrading of the assays is similarly extremely variable. An interesting point to note is that some of the highest values obtained in the new assays are from material from which the original assays, chemical or fire, were the lowest. From our present knowledge of the techniques used in this latest work, and the reasons for the development of these techniques, these apparently extremely high upgrading factors are seen in reality to be acceptable. The original low assays were undoubtedly falsely low because of the chemistry of the original sample. The new techniques were designed to recognize these chemical characteristics and to compensate for them. From our review of all of the data developed from the research program the new results appear to be realistic and are, if anything, perhaps conservative. The best assay results obtained are not reported here either because the amount of material available was not sufficient to allow of several check assays or the degree of upgrading was so great that the original sample may not have been representative, for example it may, just through the quirks of physical sampling, have included several small pieces of gold which tend to upgrade the sample disproportionately. Looking at the right hand column of Table 1 it is apparent that the upgrading factor in a number of samples is exceptionally high. In the case of sample 25793 the original

B.R. DUMP .056 .056 No AMER.

PORTLAND  
LAB  
↓

Table 1

Sample No.	Original Chem.	Assay Fire	Company	Carol Lab New Assay	Remarks	Upgrade Factor
A 165801	0.011		Vangeochem	0.032		2.9091*
B 165802	0.011		Vangeochem	-	blew slag	-
C 165803	0.002		Vangeochem	0.032		16X*
D 165804	0.001		Vangeochem	0.032		32X*
E 17091		0.05	Bondar-Clegg	0.90		18X*
F 17093	0.0024		Vangeochem	0.1929	2 lbs. @ -1/8 ground to -150 m.	80.37
G 17095	0.004		Vangeochem	0.07 0.09	2 lbs. @ -1/8 1 lbs. @ -1/8 roasted	17.5* 22.5*
H 17096		0.021 0.18	Arc Bondar-Clegg	0.2250		10.71* 1.25*
I 17099		0.01	Iron King	0.1919		19.19*
J 25793		Tr	Iron King	0.1929		192.9. <del>SECRET</del>
K 50 lb. sample from 500 lb. bulk.	[0.045]		Iron King		1000 gm. sample @ -100, cyanide leach for 32 hrs.	
" " "				0.5463	-1/4"	49.55
same as 26779	[0.016]		Iron King	[2.23]	-100 mesh	139.37
L (TW Old Adit) D		0.016	Arc	0.2893		18.08*
M TW from cut ahead of PPK-5. same as 17095	0.004		Vangeochem	0.1981		49.52
Mean =						21.43
Mean of samples marked *						15.81

H<sub>i</sub> 0.18 0.90  
L<sub>o</sub> 0.01 0.03

assay was reported simply as Trace and in the calculation in the table, which shows an upgrading factor of 192.9 times, we used the figure 0.0001 as an assay. For the purposes of the following discussion this sample is ignored. Similarly the other extremely high samples, Nos. 17093, the two 50 lb. samples from the bulk sample taken at the same location as earlier sample No. 26779, and the sample taken from the same location as earlier sample No. 17095, near the drill paid for drill hole PPK-5, have been ignored. Using the remaining results we see that the average upgrading factor is 21.4 times (over 2000%). Having regard to these numbers and to other samples not here reported it appears reasonable to us to use a factor of 15 times. The following calculation applies this 15 times upgrading factor to the rough estimates of gross value in certain known ore zones on the Kellwebb property which were included in our August 8th, 1980 report.

#### Orphan Boy #1 Zone

This zone is described on pages 14 and 15 of our August 8th, 1980 report represented by 1979 samples A, B, C, D, E, F, G, H, I, J, & K, and May 1980 samples 17088 and 17089. The average value calculated over a 4 foot mining width of all these samples was 0.049 oz./ton gold. Upgrading this by our 15 times factor the grade now becomes 0.735 oz./ton gold. For this zone then over a length of 1500 feet, a width of 4 feet, and a depth of 200 feet, to yield 100,000 tons, using a tonnage factor of 12 cubic feet per ton, the gold content would be 73,500 ounces. 73,500 ounces at a price of \$700.00 Canadian per ounce has a gross value of \$51,450,000. From the most recent research work it is considered probable that a recovery in excess of 90% of the gold can be achieved on an operational basis. If for the purposes of this calculation we assume recovery of 85% then the gross value of the recoverable gold from the above zone would be \$43,732,500, or an average of \$437.32 per ton. We noted in our earlier report that mining and metallurgical treatment costs would not likely be greater than \$20.00 per ton at a maximum and the current research work indicates that this figure is still probably a fairly generous one. This being so the per ton profit on material from the Orphan Boy #1 Zone, assuming the 85% recovery factor used above, would be \$417.00 per ton and this on a total of 100,000 tons would be in excess of \$41,000,000. The above figures, of course, do not take into account research and capital equipment costs.

Our earlier report similarly indicated the probable existence of at least three other similar zones of mineralization. Some of the sampling results reported in Table 1 are from samples taken from parts of these other zones so that the upgrading factor used can be applied with equal validity to these other potential zones. In addition, the fact that recoveries as well as absolute grade values have been enhanced suggests that the extent of these zones might be greater than projected. One thing that is apparent from all of this work is that the limits of the ore zones will be assay limits since there is little or no visible gold in most of the zones. This being so the importance of establishing a well equipped laboratory on the property for grade control during mining operations as well as to expedite the definition of ore zones during the preliminary work is emphasized again.

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$$\begin{array}{l}
 1500' \text{ Normal Length of Lease Claim} \\
 1500' \times 4' \times 200' = 100,000 \text{ TONS ORE} \\
 12 \text{ CU. FT./TON}
 \end{array}$$

If we assume the other three zones to have at least equal potential to the Orphan Boy #1 Zone then the projected profit figure given for that zone, over \$41 million (\$417.00/ton), could be increased fourfold giving a projected gross recoverable value in excess of \$164 million.

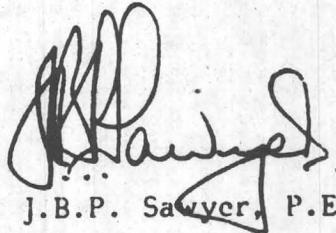
In our earlier report we noted that additional silver values also occur in the ore which were not considered in the economic projections made. Similarly they have not been included in the upgraded projections quoted above however it is to be noted that one of the still unresolved areas in this latest research is concerned with the silver recovery. The techniques developed do not appear to be suitable for recovering silver from these ores. Whether this problem can be resolved by continued research or whether the silver values will be lost is uncertain at this point.

### CONCLUSIONS

The results quoted above are, in our opinion, important and significant and the values quoted are, we feel, probably on the conservative side. Research work is continuing and as noted above the next phase of the program is to upgrade it to pilot plant stage in the field. The above is intended as a progress report only. The work has, we believe, considerably enhanced the potential of the Kellwebb property and has more than justified the expenditures made to date, and those planned for the immediate future in connection with this work.

Respectfully submitted,

SAWYER CONSULTANTS INC.



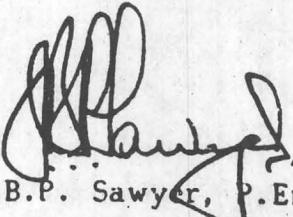
J.B.P. Sawyer, P.Eng.

SAWYER CONSULTANTS INC.

CERTIFICATE

I, J.B.P. Sawyer, DO HEREBY CERTIFY:

- (1) That I am a consulting geologist with business office at 1201 - 675 W. Hastings St., Vancouver, B.C., V6B 1N2, and President of Sawyer Consultants Inc.
- (2) That I am a graduate in geology of Manchester University (B.Sc. - 1953) and of the University of Western Ontario (M.Sc. - 1957).
- (3) That I am a Registered Professional Engineer (geological) in the Association of Professional Engineers of the Province of British Columbia, and a Registered Chartered Engineer with the Council of Engineering Professions, London.
- (4) That I am a Fellow of the Geological Association of Canada, a Member of the Canadian Institute of Mining & Metallurgy, a Fellow of the Geological Society of London, and Fellow of the Institution of Mining & Metallurgy, London.
- (5) That I have practised my profession as a geologist for the past twenty-six years.
- (6) That the information, opinions, and recommendations in the attached report are based on personal knowledge of the geology and mineralization on the subject properties gained from field work over the past two years. In addition, the writer has first hand knowledge of the laboratory work carried out over the past two months and spent two days in September in the laboratory in Portland personally reviewing the assay techniques and results.
- (7) That I own no interest in the subject properties nor in the shares or securities of Phoenix Electric Oil Refiners (Canada) Ltd.

  
J.B.P. Sawyer, P.Eng.

Dated at Vancouver, British Columbia, this 9th day of October, 1980.

**SAWYER CONSULTANTS INC.**

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*11-19-84 Mailed a letter of inquiry regarding the status of the process.*  
*11-20-84 Mailed copy of Black Reef Report.*