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08/05/91

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: QUEST HEAP LEACH OPERATION

ALTERNATE NAMES:

YAVAPAI COUNTY MILS NUMBER: 23B

LOCATION: TOWNSHIP 13 N RANGE 9 W SECTION 13 QUARTER NE  
LATITUDE: N 34DEG 28MIN 17SEC LONGITUDE: W 113DEG 09MIN 05SEC  
TOPO MAP NAME: THORN PEAK - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:  
GOLD

BIBLIOGRAPHY:  
ADMMR QUEST HEAP LEACH OPERATION FILE

QUEST HEAP LEACH OPERATION

Yavapai County  
Eureka District

Sec. 13, T13N, R9W

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KAP WR 3/16/80: In the company of H. Mason Coggin and Jim Graham, traveled to Homestake, Big Stick, Quest Leaching Operation, and unnamed prospects, Eureka District, Yavapai County (Separate reports will be written.)

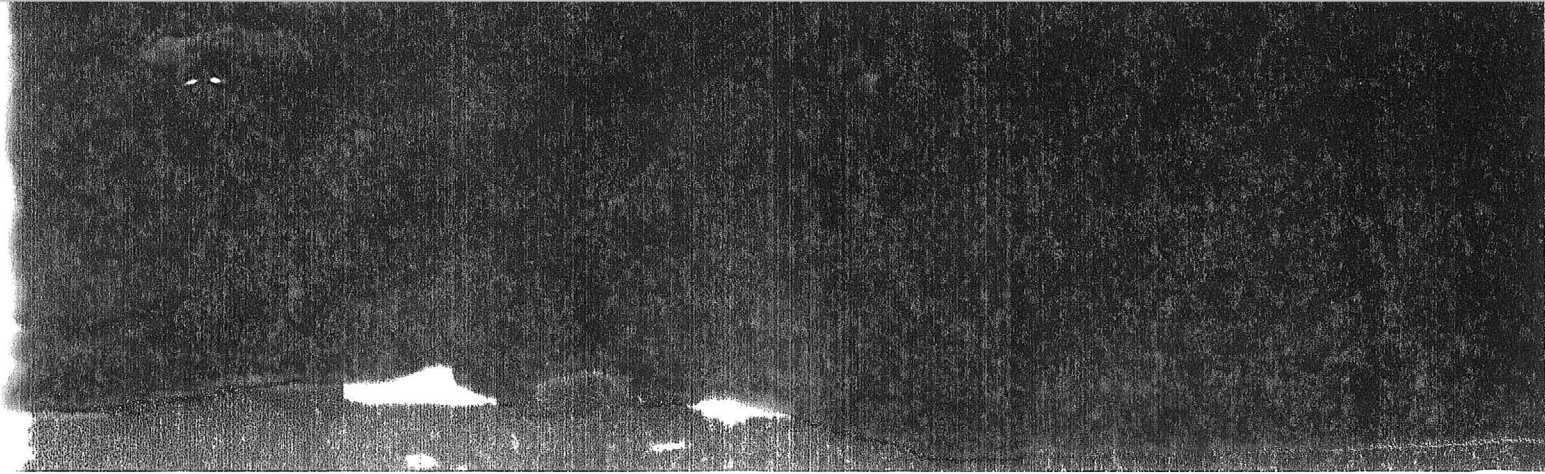
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KAP WR 3/5/82: Harold Best reported that the Quest Heap Leach operation was built and run by a Canadian organization and abandoned by them. He did the initial sampling and testing which he said showed the surface material to run 0.08 - 0.1 tr/oz/Au/ton.

ARK

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Properties: (1) Silver-gold ore, 50% in 1986-87





QUEST HEAR LEACH (F)

# Company Brief





SAWYER CONSULTANTS INC.

*retracted ap  
4/20/82  
MWD K  
on*

*QUEST HEAR LEACH OPERATION FILE  
(ABSTRACT UNDERLINED ITEMS)*

REPORT ON THE  
✓ LEACH CLAIMS GOLD PROSPECT  
Yavapai County, Arizona

for  
✓ ARK ENERGY LTD.

JANUARY 18th, 1980

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## INTRODUCTION

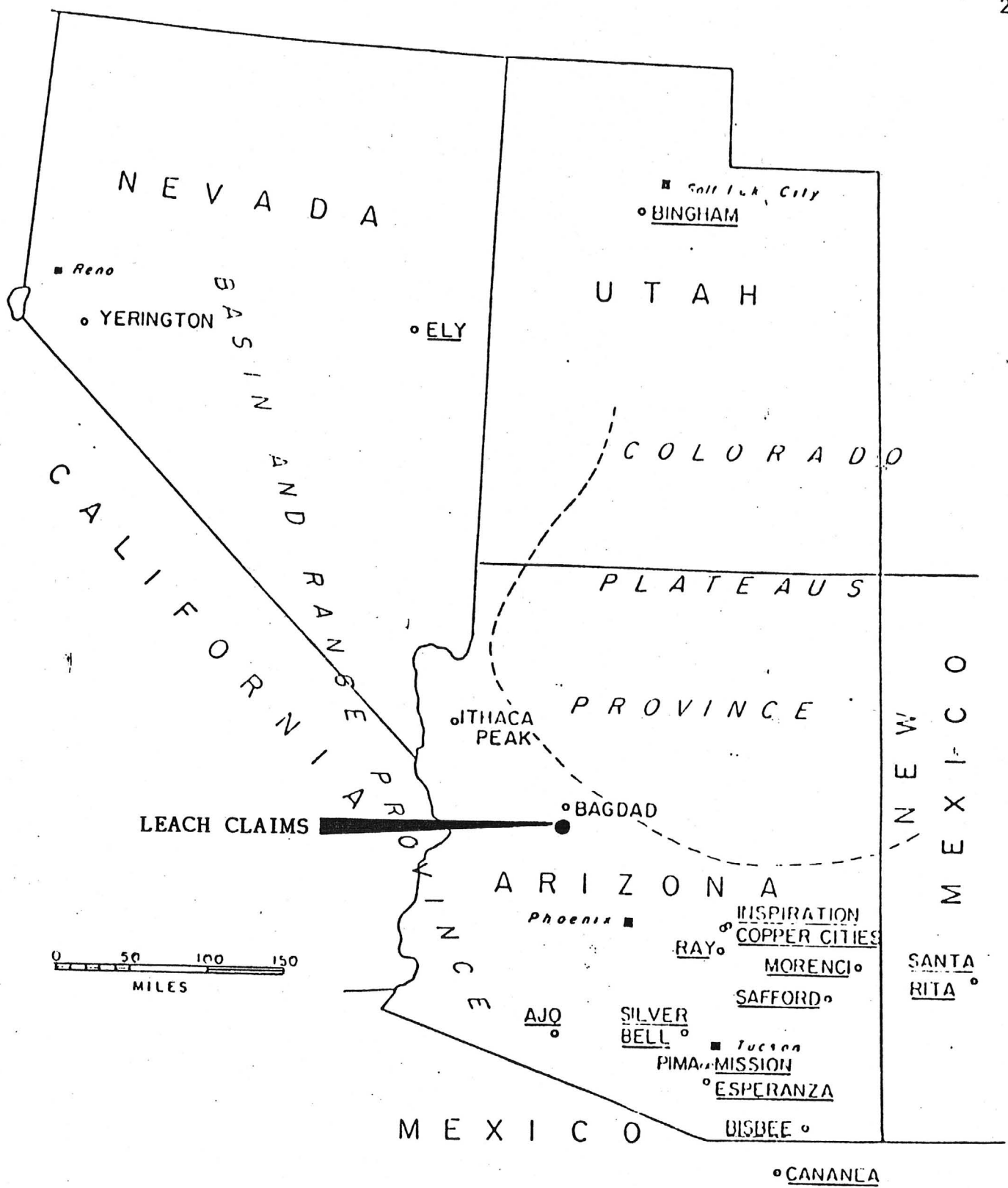
In May 1979 the writer examined several gold prospects in the Bagdad area of Arizona including a property which was at that time staked as the Carl claims on which a number of old surface pits and trenches, and one or two small adits of very limited extent had been excavated by earlier workers. A total of 11 samples, most of them grab samples were taken from these various exposures and were submitted for assay to Arc Laboratories in Phoenix. Almost all of the samples returned significant values in gold and several of them gave surprisingly high gold assays. Since the time of this field examination the area covered by the original Carl claims, which lapsed, has been restaked as the Leach claims and these more recent claims have recently been acquired by Ark Energy Ltd. of Vancouver.

The following report, prepared at the request of Mr. Harry Williams, President of Ark Energy Ltd., is based on the examination made of this property in May 1979.

## SUMMARY

The occurrence of gold mineralization, probably related to Laramide orogenic activity, associated with rhyolitic and other acid rocks which have been intruded in the old Precambrian granitic basement in the Bagdad area of Yavapai County, Arizona, is well known and documented. Early in 1979 local prospectors staked a number of claims covering several old pits and trenches in an area immediately south of Crosby Mountain and approximately 7 or 8 air miles southeast of Bagdad. A number of samples collected by the writer in the course of a May 1979 field examination revealed interesting gold values ranging from less than 0.005 oz/ton to a high of 2.55 oz/ton. These values are associated with altered and highly fractured zones in which limonitic and hematitic oxidation are the most obvious features. This association is common in the area.

Subsequent to the time of the field examination the claim owners mined a small amount of this material from surface and built a small heap leaching operation, from which significant recovery of gold is reported. The original 16 claims lapsed and the area of the known mineralization was restaked as a group of 17 claims named the Leach claims. Ark Energy Ltd. of Vancouver has purchased the claims and plan further exploration on them as well as resumption of a leaching operation. The probability of defining additional reserves of similar grade material to that sampled in May 1979, and used for the initial leaching operation, is good. This report recommends a program of geological mapping, and additional staking to be carried out in conjunction with a resumption of the leaching operation on this property. The estimated cost for an initial stage program is \$54,750.00.



GENERAL LOCATION SKETCH  
 ARK ENERGY LTD. - LEACH CLAIMS

Figure 1

## PROPERTY AND OWNERSHIP

The property consists of 17 staked claims, called Leach 1-11 inclusive and 14-19 inclusive, staked on BLM land on August 2nd and August 9th, 1979 by Harold E. Best of Apache Junction, Arizona. The claims are standard Federal U.S. claims measuring 600 feet by 1500 feet. They were recorded at the Yavapai County Court House in Prescott on September 4th and 5th, 1979, and the appropriate documents were filed with the Bureau of Land Management Phoenix office, as now required by U.S. Federal Regulations, on October 1st, 1979. The following table summarizes this information.

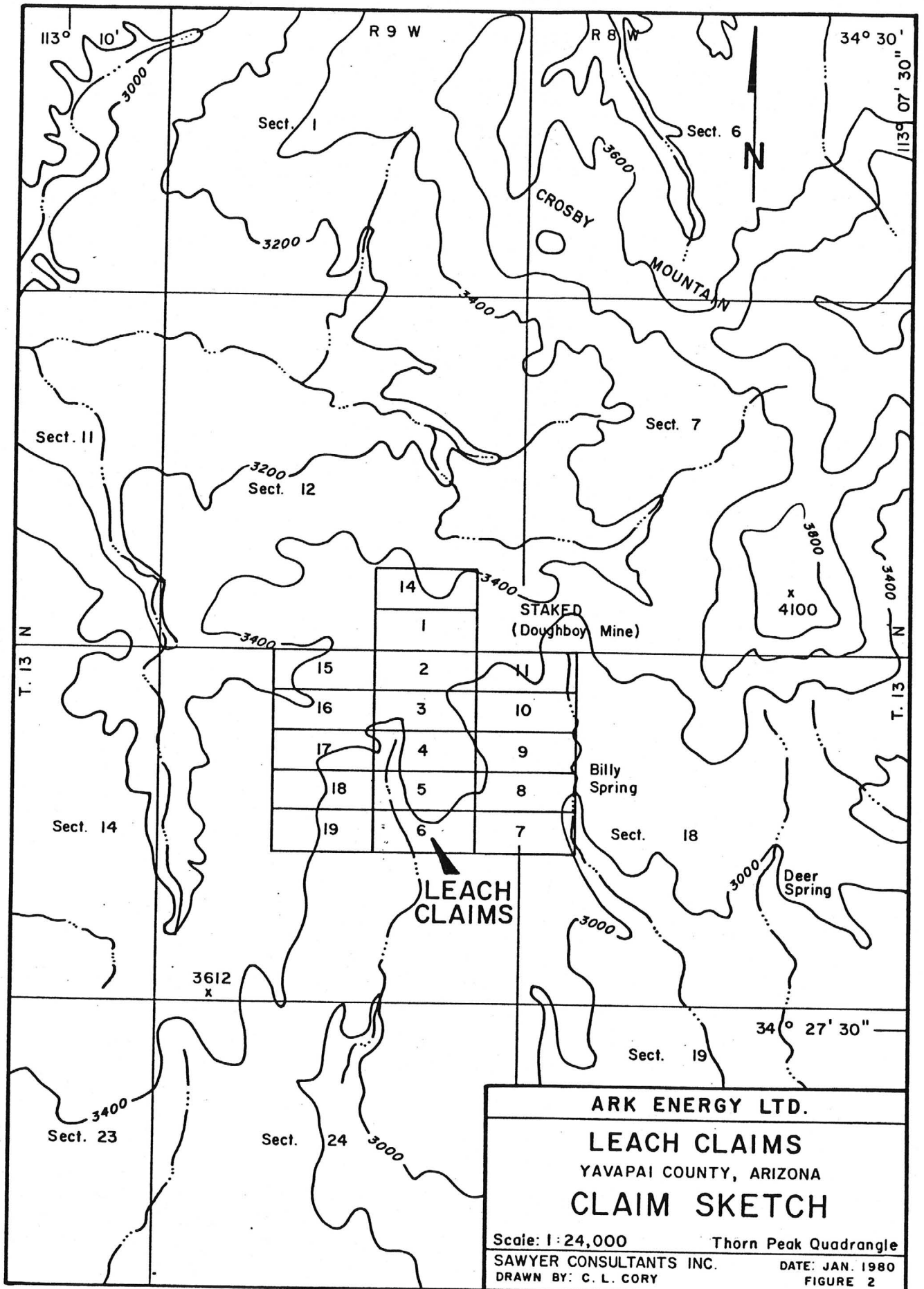
TABLE I

Claim	Staked	Recorded Yavapai County	Application to BLM Made	BLM Record No. Assigned Dec. 3/79	Range	T.13N Section
Leach 1	Aug. 2/79	Sept. 4/79	Oct. 1/79	A MC 68490	9W	12
Leach 2	Aug. 2/79	Sept. 4/79	Oct. 1/79	A MC 68491	9W	13
Leach 3	Aug. 2/79	Sept. 4/79	Oct. 1/79	A MC 68492	9W	13
Leach 4	Aug. 2/79	Sept. 4/79	Oct. 1/79	A MC 68493	9W	13
Leach 5	Aug. 2/79	Sept. 4/79	Oct. 1/79	A MC 68494	9W	13
Leach 6	Aug. 2/79	Sept. 4/79	Oct. 1/79	A MC 68495	9W	13
Leach 7	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68496	8W,9W	13 & 18
Leach 8	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68497	8W,9W	13 & 18
Leach 9	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68498	8W,9W	13 & 18
Leach 10	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68499	8W,9W	13 & 18
Leach 11	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68500	8W,9W	13 & 18
Leach 14	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68503	9W	12
Leach 15	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68504	9W	13
Leach 16	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68505	9W	13
Leach 17	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68506	9W	13
Leach 18	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68507	9W	13
Leach 19	Aug. 9/79	Sept. 5/79	Oct. 1/79	A MC 68508	9W	13

All of the claims are in Township 13N, Ranges 8 and 9 West, Yavapai County, Arizona. The sections in which they lie are indicated in the table above.

The claims have been acquired by Ark Energy Ltd. from the owners for considerations of cash and royalty from production. The details of this agreement are beyond the scope of this report.

Figure 2 of this report is a claim sketch showing the Leach claims in relation to topography and the adjacent Doughboy Mine claims. Other than these (Doughboy) claims, no other claims are located in the immediate area. On the basis of this writer's field examination of May 1979 additional staking to the west of the present Leach claims is desirable and recommended.



LOCATION AND ACCESS

The property is located approximately seven air miles southeast of Bagdad, Arizona, and approximately 1½ miles southwest of Crosby Mountain within the area of topographic map Thorn Peak in the 7½ minute series. The coordinates of a point approximately at the centre of the property are 113°08'45"W, 34°28'10"N. It is just to the south of paved Highway #96 which links Bagdad with Hillside and Date Creek and between this highway and the main Phoenix to Kingman Highway #93. Access can therefore be had from Bagdad via paved Highway #96, thence southwestwards on Highway #97 which links the Bagdad-Hillside road with the main highway (#93) to Bridal Creek at which point a rough four-wheel drive vehicle road leads into the Crosby Mountain tank area and the Leach claims. The total road distance from Bagdad to the property is approximately 16 miles. Recent reports from Mr. Best indicate that he has upgraded the last few miles of the road to the property as part of work carried out since last summer. The county seat, Prescott, lies about 38 air miles east-northeast of the property.

PHYSIOGRAPHY

This part of western Arizona is characterized by typical semi-arid desert country. Streams are mostly intermittent and growth is restricted to cacti, mesquite, and similar desert shrubs. Elevations in the area range from about 3000 feet to over 3800 feet on Crosby Mountain in the north with the average elevation in the property area being about 3400 feet. Some of the valleys in the area are quite sharply incised locally being eroded into narrow canyons.

GEOLOGY

Regional Geology

Reference to the County geologic map for Yavapai County, published by the Arizona Bureau of Geology and Mineral Technology shows the greater part of the area around Bagdad and in the vicinity of the Leach claims to be underlain by Precambrian granitic rocks and granitic schists and gneisses, and Yavapai schist, with locally, younger centres of Tertiary intrusive and volcanic activity. The major mineralization in the area, including the copper-gold mineralization at the Bagdad Mine are related to these late Cretaceous or early Tertiary intrusive rocks. The gold mineralization occurring on the Leach claims is probably similarly genetically related to Laramide intrusive activity. Unfortunately no detailed geological maps of the area are available or published.



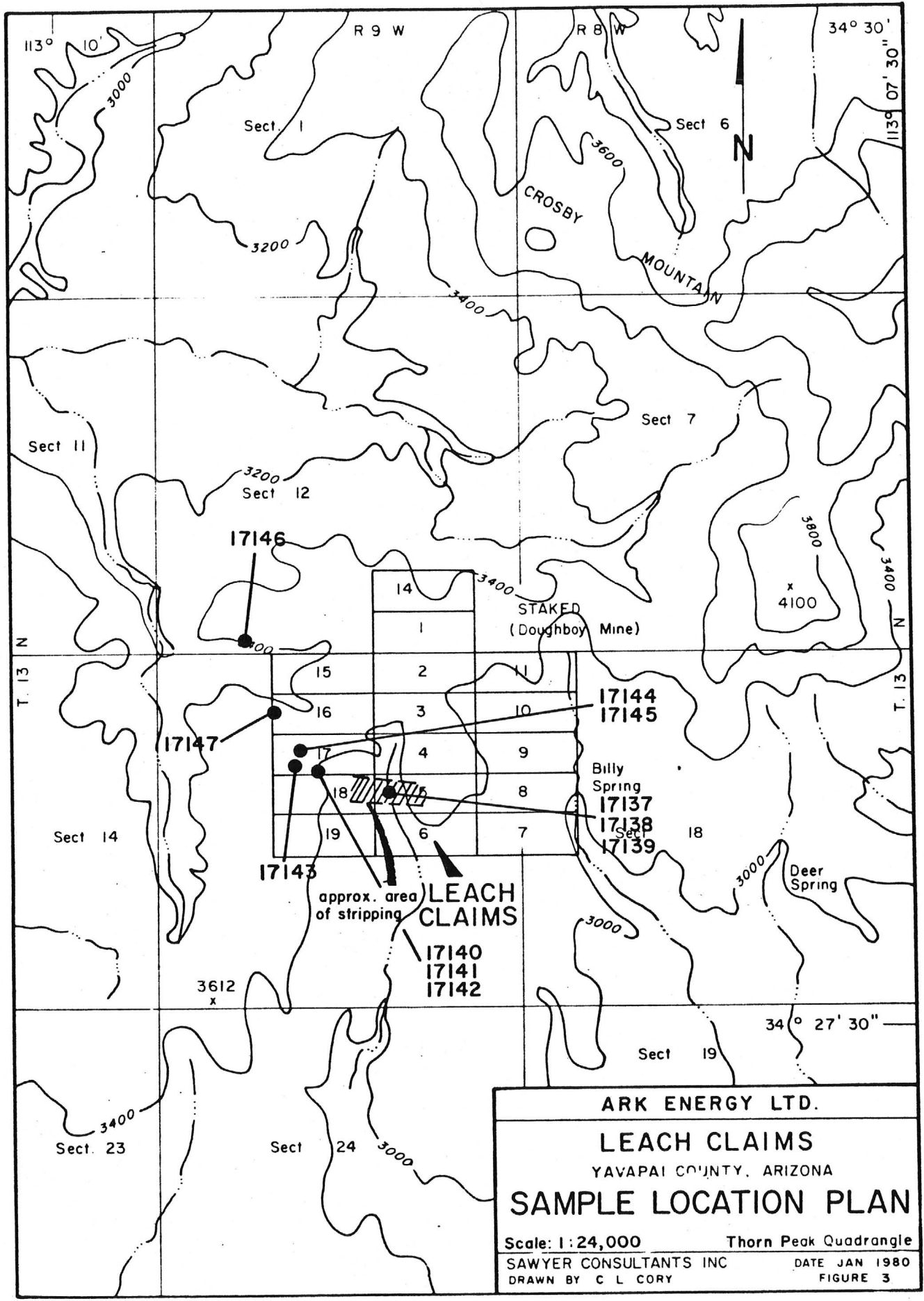
## Local Geology

The property has not been mapped and no attempt to map it, other than to record major features was made during the May 1979 field examination. The general country rock in the property area are the old Precambrian granites and granite gneisses which, locally, are intruded by younger acid dykes and related rhyolitic rocks. The mineralization occurs in zones of fracturing and alteration usually locally referred to as veins. However these are probably not veins in the true sense of the word but rather zones of alteration and oxidation having a generally tabular shape and sometimes appearing veinlike in their surface trace. Gold mineralization is associated with zones of limonitic and hematitic alteration within these rhyolitic or late stage acid intrusions. The mineralized zones can be picked out as areas of red and brown stained oxidation products which when examined more closely are frequently found to be oxide boxworks in which the gold has remained as sulphide minerals were leached out. Visible gold is not uncommon in these rocks, several such samples being found by the writer during the May 1979 field examination.

The main part of that examination was confined to a fairly restricted zone which appeared to have a roughly east-west or west-north-westerly strike. A series of nine samples over a distance of some 800-900 feet, all in similar material, were collected by the writer on May 25th, 1979. The following table lists and describes these samples and gives the assays obtained from them. The last two samples listed are from a second zone which lies to the northwest of the main zone sampled and is part of the area which is to be covered by the recommended additional staking. All of the assays were performed by Arc Laboratories of Phoenix, Arizona.

TABLE II

<u>Assay Tag No.</u>	<u>Assay</u>			<u>Description</u>
	<u>Au oz/ton</u>	<u>Ag oz/ton</u>		
17137	0.699	0.16	#1	Grab sample from first location, up hill to east of prospect.
17138	2.55		#2	Grab sample from same vein as #1, but 25 ft. to east.
17139	0.213		#3	Grab, from same vein as #1 but 10 feet east and 5 feet above sample #2.
17140	0.537	0.07	#4	Grab sample from area of 4 or 5 old pits, approx. 300 feet northwest (310) from samples #1,2,3.
17141	0.201		#5	Special grab sample from large cut, shaft, and drift - 200 feet west of #4 pits area.
17142	0.049		#6	Chip sample across about 8 feet in west wall of pit which includes some hematitic stained material.



**ARK ENERGY LTD.**

**LEACH CLAIMS**  
YAVAPAI COUNTY, ARIZONA

**SAMPLE LOCATION PLAN**

Scale: 1:24,000      Thorn Peak Quadrangle

SAWYER CONSULTANTS INC      DATE JAN 1980

DRAWN BY C L CORY      FIGURE 3

Table II (cont.)

Assay Tag No.	Assay		Description
	Au oz/ton	Ag oz/ton	
17143	0.132		#7 Grab sample from a vein in the pit.
17144	0.361		#8 Grab sample of selected material from a dump from another cut.
17145	0.230		#9 Chip sample across 4½ feet.
17146	0.136		#10 Grab sample of altered hematitic and limonitic material similar to that at the earlier locations.
17147	>0.005		#11 Grab sample from 4'-5' quartz vein between road and wash (southeast of wash) collected by Carl Clay.

Subsequent to the writer's examination the claim owner, H.E. Best, through his own company, Quest Inc., has carried out a limited amount of mining of this material and constructed a small leaching operation. The writer has not seen these latest developments and the following information is based on conversations with Mr. Best and Mr. Williams of Ark Energy Ltd. The mining was done by simple open cut methods using a bulldozer and a pad was constructed upon which a few tons of mineralized material were heaped. The heap was then sprayed with cyanide solution to initiate the leaching and this process was allowed to continue for a few days. Pregnant liquors percolating through the heap were collected and pumped through towers of activated carbon on which the gold cyanide complex is adsorbed. Gold recovery from the activated carbon was carried out by stripping and electrowinning the values from the resultant strip solutions. The writer has no detailed or accurate figures of the grade of material on the heap nor of recoveries but from tentative figures presented all of the initial costs and a reasonable profit appears to have been realized from this initial phase of the operation. It is understood that the material used for the initial leach was essentially the same material sampled by the writer last year. From the examination described it is clear that considerably more rock of similar type, and presumably similarly mineralized, occurs in the area, only a very small part of that seen in 1979 having so far been processed in the initial heap leach. In addition, other areas of similar mineralization, such as that represented by sample #17146 (see Table II above), occur in the general area and no doubt additional reserves of similar material can be defined in these areas by some further mapping and sampling. This being so a fairly small low cost operation such as that initiated by Quest Inc. could be expected to yield a significant cash flow at current precious metal prices.

### CONCLUSIONS

From the foregoing descriptions the following conclusions can be drawn concerning the Leach claims gold prospect.

(1) Gold mineralization associated with altered and oxidized acid igneous rocks intruded into old granitic terrain in the Bagdad area occurs on the Leach claims.

(2) Mineralized areas recognized to date include a considerable amount of material of good to high grade, of the order of 0.3 oz/ton gold.

(3) Much, if not all, of this material can be mined by cheap open cast mining methods.

(4) A preliminary leach test conducted by the claim owners has produced satisfactory results demonstrating that this material is amenable to leaching. Recoveries can probably be improved over those obtained in the initial test run with more careful operation and longer leaching time.

(5) On the basis of the earlier results further work to outline additional ore grade material, and to continue and improve the preliminary leaching operation is warranted. A suitable program to continue this work is recommended below.

#### RECOMMENDATIONS

(1) Additional claims should be staked to cover all presently known mineralized zones in the immediate vicinity of the Leach 1-19 claims. Specifically, at least one additional row of claims should be staked on the western side of the existing Leach claims and contiguous with them.

(2) The material on the leach pad should be augmented with additional ore and the leach operation should be re-started. Studies should be made to determine optimum leaching time and most cost efficient way of recovering the gold from the activated carbon, i.e. by stripping and electro-winning, or simply burning the carbon.

(3) The entire claim area, and adjacent ground should be geologically mapped, and sampled to define additional areas and reserves of ore grade material.

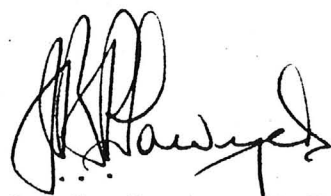
(4) It will be necessary, because of the value of the product, to substitute adequate security procedures at the operation site.

COST ESTIMATES

Additional staking, say 12 claims @ \$150.00/claim* (*includes cost of recording, registration with BLM, etc.)	\$ 1,800.00
Geological mapping and sampling	5,750.00
Assaying, estimate 100 samples @ \$12.00	1,200.00
Capital costs for equipment and supplies re leaching operation	12,000.00
Assay and analytical work re leaching operation	4,000.00
Supplies, accommodation, say average 3 men for 90 days	10,000.00
Travel, vehicle rental, fuel, etc.	5,000.00
Engineering, supervision, reporting, consulting - (geological/mining and chemical re leach operation)	10,000.00
Contingency	<u>5,000.00</u>
	\$54,750.00

Respectfully submitted,

SAWYER CONSULTANTS INC.

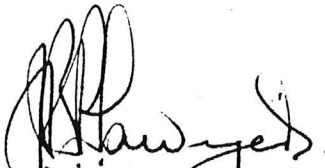


J.B.P. Sawyer, P.Eng.

CERTIFICATE

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

- (1) That I am a consulting geologist with business office at 1 - 425 Howe Street, Vancouver, B.C., V6C 2A9, 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 and 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 reports are based on a personal field examination of the subject area made in May 1979, on a general knowledge of the geology and style of mineralization in the Bagdad area, and on preliminary review of the initial leaching results obtained by Quest Inc. of Arizona. I have not personally seen the Leach operation set-up which was only initiated after my May 1979 field examination.
- (7) That I own no interest in the shares or securities of Ark Energy Ltd. nor do I expect to receive any such interest.



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

Dated at Vancouver, British Columbia, this 18th day of January, 1980.

SAWYER CONSULTANTS INC.

SELECTED REFERENCES

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DEPARTMENT OF MINERAL RESOURCES  
STATE OF ARIZONA  
FIELD ENGINEERS REPORT

Mine Quest Heap Leach Operation  
District Eureka (Yavapai County)  
Subject: Mine Visit

Date March 16, 1980  
Engineer Ken A. Phillips

*MMS*  
*GH*  
KAP

Location: Section 13, T13N, R9W

Discussion: While visiting mines and prospects in the area, an abandoned heap leach cyaniding operation was noted.

The operation consists of rock bedded in a heap 3'X25'X100' on reinforced black plastic. The plastic now shows some punctures and rips. At the low side of the pad there are two pregnant solution pits and a surge pond. Solution was sitting in one pregnant solution tank and the pond. Rock on pad appears to be mostly soil and surface rock. Water was pumped from a nearby cattle tank. 1"X2" sticks were driven in the ground around the area and had Quest Inc. stenciled on them. The area has other such sticks scattered about and may be some one's idea of location posts. None of the sticks were noted to contain a description of what they were (i.e., end centers, corners, etc.).

An area of ground 1000 feet to the south of heap shows signs of surface stripping and may be the source of rock on the pad.

The installation was probably operated some time in mid-1979.

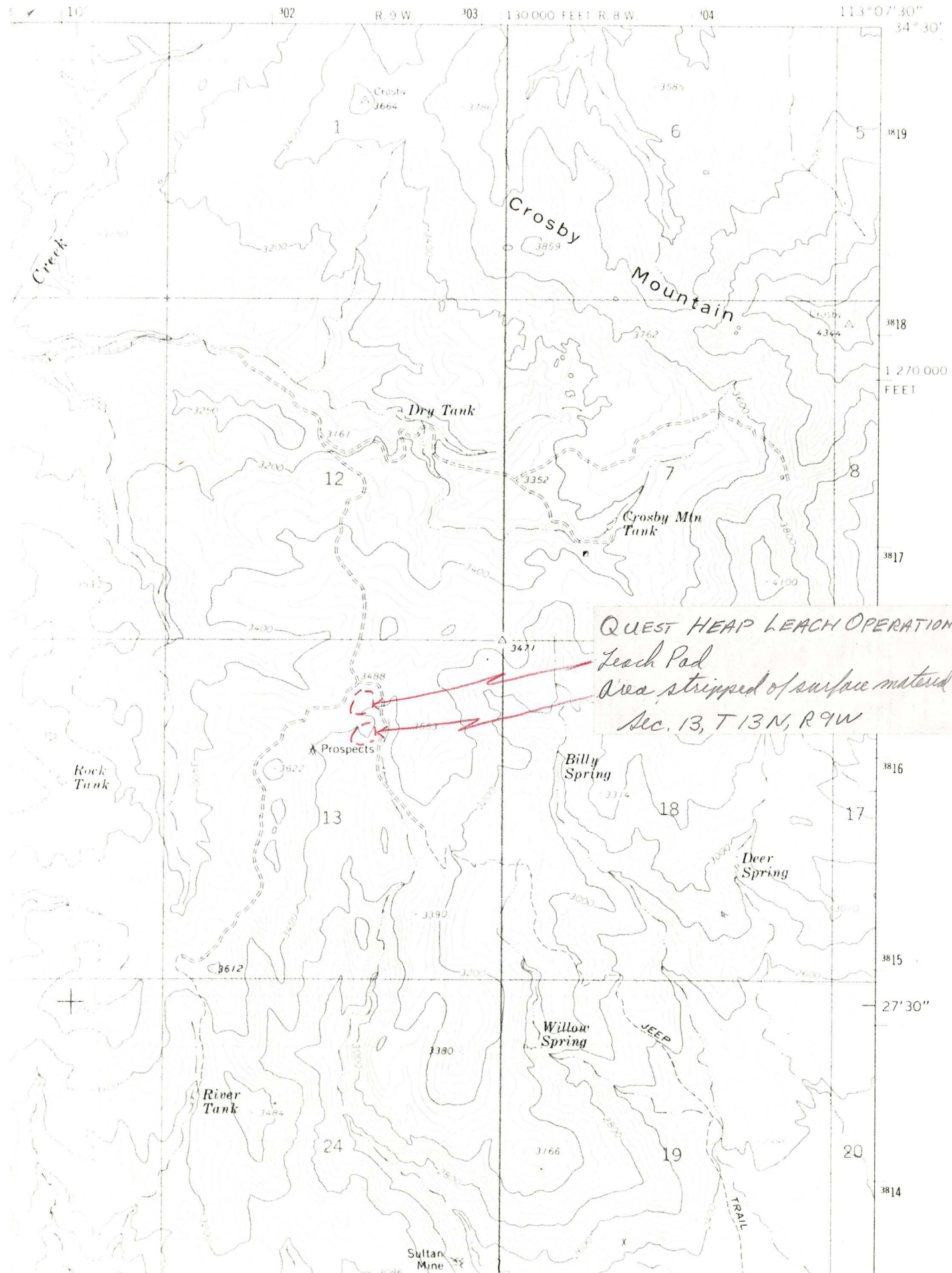
KAP:mw



Ken Phillips

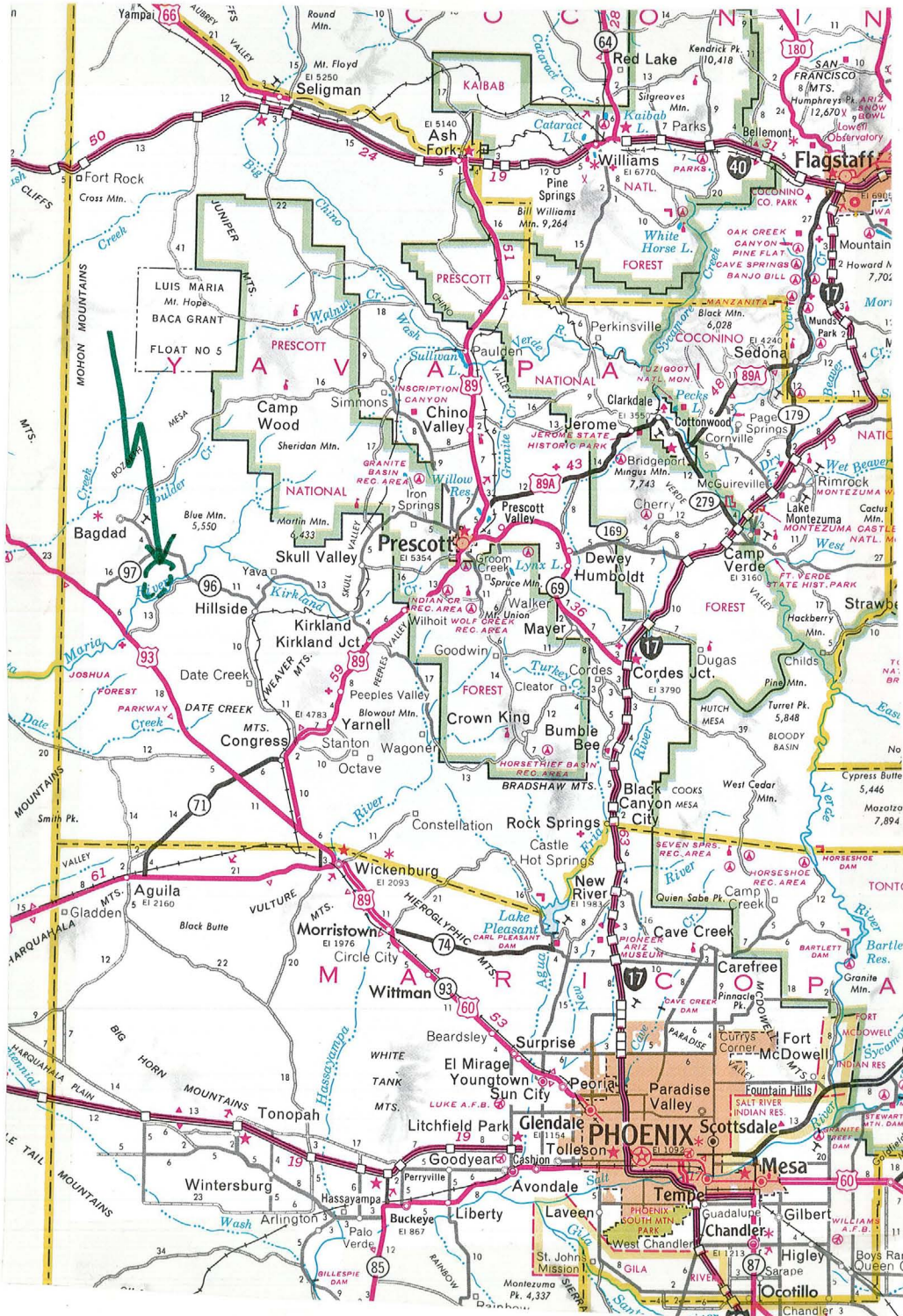
THORN PEAK QUADRANGLE  
ARIZONA - YAVAPAI CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)

3153 II  
(BAGDAD 1 62 500)



QUEST HEAP LEACH OPERATION  
Leach Pad  
Area stripped of surface material  
Sec. 13, T 13N, R 9W

REGIONAL GEOGRAPHIC LOCATION OF THE  
QUEST HEAP LEACH OPERATION





No photos with these negatives

# Prints

QUEST HEAP LEACH  
YAVAPAI

Date

May 1984

Subject

ArK Energy Property  
Yavapai County, AZ

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