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PRELIMINARY GEOLOGICAL EVALUATION REPORT

ANDERSON MINE (Uranium)

YAVAPAI COUNTY

ARIZONA

by

Melvin H Jones

I INTRODUCTION

The Anderson Uranium Mine is located about 35 miles West of Congress, Arizona near the Santa Maria river in Yavapai County. (See exhibit A). It is an open pit operation in an ancient lake bed formation (sedimentary). Although the property is surrounded by numerous mining claims (Klock-Sharp and Osbourne group of claims), the Anderson Mine proper consists of the Moonbeam, Cosmo, and JacSar groups (See exhibit B) presently owned by Daniel C Jacobs, Melvin H Jones, Lee Hammons, William Sargent and Charles E Johnson. There are 31 Moonbeam, 13 Cosmo, and 26 JacSar claims, totaling 70.

These claims were located in 1964 by the present owners, with some additions from time to time, since then. The Anderson Mine was originally the "Uranium Aire" claims located by Anderson and Moore in the 1950's and a little ore was shipped by these individuals in 1955 and by Interstate Oil and Dev elopment Company from the open pit operation during 1957 and 1958. However, the claims were abandoned by the original ~~xxxxxx~~ locators and re-located by the present owners as outlined above. It appears that with the discovery of richer uranium deposits in the Grants, N.M. area and the Uravan belt, coupled with the necdssity of shipping the unmilled ore to distant uranium plants, and the lower uranium prices in those days, caused the original owners and operators to give up the claims.

A visit to the Anderson mine will reveal two areas where Carnotite ore is exposed on the surface. These are the main pit area(Moonbeam) and the Flat Top region (Cosmo). There are many stockpiles of ore that has been assayed to run between .11% and .26% U_3O_8. (See exhibit C-1)

Getting back to the history of the mining property again, it is pointed out that the present owners of the mentioned claims entered into a lease agreement, with option to buy, with Getty Oil Company at the start of 1968. The Getty people(who were then new in the uranium business) spent in excess of $100,000.00 in a drilling program and returned the property to the owners after a year with a remark indicating that ore bodies had been found, but the property was too small for the size of operation that Getty wanted to engage in. It is of course common knowledge that the Getty people moved to some more lucrative uranium fields in Wyoming where their operations are now extensive. The Getty drilling results are covered in detail later on in this report.

The main reason for this report is to consolidate information from a variety of piecemeal sources, as-well-as to reflect the study and research accomplished by the writer, in a period extending into more than a year. It is hoped the information will be easily comprehensive as a preliminary evaluation report forthe owners, and others, who may be interested. Acknowledgement is hereby made of assistance by Mr. Lee Hammons and Mr. Carl Homme, geologists, in portions of the report. The Summary, conclusions and recommendations are exclusively mine.

Involved in making this report are many visits to the mine area, often in company with other Mining Engineers and Geologists who ~~often~~ frequently had differing views and observations, examination and sampling of the litho-graphic facies and outcrops, search of the area for missing drill holes and the mapping of the same (some past drilling was poorly recorded and mapped), correlation of older data and studies, trips to Grand Junction, Colorado,(and elsewhere) for research into old records and for the compilation of ore reserve quality and quantity data, consultations with metallurgists and processing experts, etc.

DRAFT

II SUMMARY AND CONCLUSIONS

The Anderson Mine (uranium) was first discovered by Mr. T.R. Anderson in January 1955 with an airborne scintillation counter. Mr. Anderson and his associates located what was known as Uranium-Air claims and made some small shipments of ore to the Cutter buying station. Successors to Anderson was the Interstate Oil and Development Company and they made some small ore shipments to the Cutter and Grants buying stations. IOD stockpiled 13,870 tons of ore and accomplished a small drilling program coming up with 225,209 tons of ore reserves averaging .22% U_3O_8 according to their computations.

With the advent of the discovery of richer ores in the Uravan belt and Grants, N.M. the mentioned owners and operators abandoned the claims. They were then re-located by the present owners in 1964, with additional claims added from time to time since then. The claims comprising the Anderson Mine are now known as the Moonbeam, Cosmo, and Jacsar groups and the boundaries of the original Uranium-Air claims have been extended somewhat.

In 1968, Getty Oil Company took a lease, with option to buy, on the Anderson Mine properties and instituted a drilling program. It was Getty's first uranium venture and the drilling was poorly and inadequately accomplished, (in the opinion of the writer.) The results were inconclusive. At about the same time, Getty entered into the apparently more lucrative uranium fields of Wyoming, where they are now in the uranium mining business. After a year, Getty gave up the Anderson Mine claims with remarks indicating that it was not rich enough, nor large enough for a Getty operation.

The Anderson Mine property consists of 70 unpatented mining claims. It is in Tertiary lake sediments. The ore is ~~a low grade~~ Carnotite in a limey mudstone that will average .19% U_3O_8 in an estimated tonnage of 207,809. Water for ore processing can be obtained from the Santa Maria river and there is a railhead at Congress, Arizona 35 miles from the mine.

The major reason that the mine has not been operated in recent years is that it is too far from an ore processing plant and transportation costs would preclude the making of a suitable profit from the ore. The nearest mill is at Grants, N.M. (500 miles).

The AEC at Grand Junction is currently re-computing the ore reserves at the Anderson Mine, using the data from the Getty drilling program.

If, and when, the price of uranium goes up, the mine can be operated profitably. It is a valuable property and should be retained by the present owners, or their successors. Should a mill be established within a close proximity, the mine can be operated.

Ways and means of up-grading or concentrating the Anderson Mine ores at the mine should be examined into. A reliable firm of consultants in this field should be contacted. This may pave the way for early operation of the property.

A large company should consider the possibilities of uranium ore known to be at Blythe, California, also at Payson, Globe and Ponto-Roosevelt District, Arizona, as well as the Anderson Mine with a view to building a centrally located ore processing plant.

III RECOMMENDATIONS

Unpatented mining claims known as the MoonBeam, Cosmo, and JacSor groups (ANDERSON MINE) are valuable properties and should be retained by the owners. The uranium (and vanadium) markets will show increasing demand for these metallics in the future. The drilling programs reveal that mineable ore bodies are present.

The feasibility of up-grading or concentrating the ore at the mine site should be examined into. The following persons and firm are experts in this field and one or the other should be contacted and retained to make laboratory tests and ascertain the best upgrading method that is amenable to the Anderson Mine carnotite ores:

Robert Porter
304 1st Security Building
Salt Lake City, Utah

or

Hazen Research
4801 Indiana St
Golden, Colorado

If an economical mine/process is found and suitable facilities are constructed in the mine area, the mine can be operated at a profit at present uranium prices. Should some large company erect a uranium processing plant in Arizona, it is quite probable that the raw ore can be shipped there and show a profit. The future should bring such a plant to the vicinity.

While some ore bodies have been blocked out as a result of past drilling programs, some areas that were "skipped" should be explored by future drilling. (See Exhibit N).

IV GEOGRAPHY

The Anderson Mine is located in T-11-N, R-10-W., Gila and Salt River Meridian, and is in the South West corner of Yavapai County (County seat is Prescott, Arizona). It is in what is known as the Sonoran Desert that extends down into Mexico, and is just South of the Transition Zone in the Mountain region of the Basin and Range Physiographic Province.

It is West of U.S. Highway 93, and is South of the Santa Maria river. In fact the NW corner of the Cosmo claims is on this river. It is 35 miles West of Congress, Arizona. Congress, Arizona is on the Santa Fe railroad ~~and a loading platform is there~~ and this place could be used for shipping ore or concentrates, if desired. Access to the mine is by a county unimproved road that is usually in good condition, that leaves paved Hwy. 93 and ultimately goes to the Palmerita ranch.

The climate is typical desert, meaning that rainfall is under 10 inches a year. There are only infrequent rains, but they sometimes reach cloud burst intensities for a short period of time. Winters are pleasant and Summers are extremely hot. Vegetation is scarce and small with typical desert cacti and brush (~~Sagauro~~, Ocotillo, Cholla, Mesquite).

To the North and East of the Mine are volcanic mountains (Arrastra Mtns) that rise several hundred feet above the alluvial basins. To the South are the typical desert flat lands. The mine is in a depression that has been cut by intermittent streams, which drain into the Santa Maria river. The elevation there ranges from about 2500 feet down to 1700 feet above sea level.

Water is scarce and the only close water source would be the Santa Maria river, where it is understood there is an undersurface flow, even when the surface is dry. Wells could be placed adjoining the river to tap this flow. A few miles to the West, is the Almo Dam, understood to be a flood control project under the Corps of Engineers and this is being built up as a recreation area. The following table is taken from a Water Resources study [1]:

SANTA MARIA RIVER NEAR ALMO.

10 year period:	Momentary Max. cfs:	Minimum cfs:	Mean cfs:
	33,600	.3	28.9

V STRATIGRAPHY AND PETROGRAPHY (and Mineralology)

Apparently, no one has accomplished a comprehensive stratigraphic study of the formations in the immediate area of the mine. Thusly, the formations are not named (nor age dated) to any significant extent. No coorelation has been made of the formations there with other known formations in Arizona. However, further to the West during a Manganese boom during the 1940's, a limited geologic study of the Artillery Mountains was made [2]. They came up with the Martin and Redwall limestones in the vicinity of Almo, and the Chapin Wash formation of the Gila Conglomerates (early Pliocene) The ore bearing Mudstones of the Anderson Mine are probably of similar age to the Chapin Wash fm (Others date the Ms as Miocene, however). The bulk of the mountains in the mine vicinity are Tertiary Andesites [3].

The State of Arizona Bureau of Mines publishes Geologic Maps by Counties of Arizona, and they are available for a small fee. But, they are rather vague on formations and can be used as a very general guide, only. Anyone wishing to research further into the Stratigraphy should examine Eldred Wilson's Geology of Arizona [4].

Ore values at the Anderson mine are in the mineral Carnotite of which the standard formula is $K_2(UO_2)_2V_2O_8 \cdot 2H_2O$, thusly it is a Potassium Uranium Vanadate/5. Normal carnotite contains 10% K_2O, 63% UO_3, 20% V_2O_5 and 6% water. Chrystal system is monoclinic-prismatic and the mineral can be considered as a uranium mica. This uranium ore is the result of secondary mineralization and at the Anderson Mine it is in a matrix of Grey to Greenish Mudstone. At some lower levels, the Carnotite is in a black carbonaceous matrix, probably organic material akin to Lignite. Other carnotite in the upper bedding is in a quartoze rock (opal and/or agate) resulting from subsequent supergene silicious waters. Small amounts of Tyuyaminite, with a greenish luster, has also been observed by the writer. This is the uranium vanadates with a calcium fraction.

The uranium present is believed to be approximately in equalibrium with its daughter products. Most geologists who have spent some time on the property agree with this. Thusly a good scintillation meter can be used for ore evaluation. Generally, the radio-activity meters are found to give slightly lower value readings than chemical tests reveal, on the Anderson ores. The Uranium to Vanadium values are about 1 to 1. (See exhibit C-1).

As the ore values are basically carried in mudstone formations, it is believed well to go into a discussion of this rock. Mudstone is understood to be a sedimentary rock of combinations of clay, silt and sand (size, grade and composition have a bearing) and it is without laminations or fissility /5. It is considered to be a transported and indurated mud which slake upon wetting. This mudstone grades to marl in places at the Anderson Mine. I have gone into a discussion on this, for the reason that some experienced geologists disagree on the "eyeballed" material.

Obviously this mudstone and its uranium-vanadium contents will be a matter of serious consideration relative to processing and milling this ore, and the costs thereof. The writer has made a study of this mudstone and has arrived at some findings:

a The mudstone is composed of mostly fine detrital rocks with a portion of Bentonitic clays (volcanic ash) deposited by fluvial action from an allogenic source.

b The paragenesis of the uranium in the mudstone is that it arrived supergenetically after the formation of the mudstone, entering into the same thru seems, cracks, and fractures and it became enplaced where it had an ionic affinity for the detrital material already there. The source of the uranium was elevated igneous and granitic formations that have weathered away in the distant past and the uranium was water borne to its present situ. It is noted that the granitic rocks in Arizona have a high uranium content.

c A sample of the mudstone from the main pit area gives the following results from sizing with Tyler sieves: (See exhibit D).

18.47%	250 Mesh	Silt (includes clay -400 Mesh).
42.60%	115+ Mesh	Very fine sand
28.88%	60+ Mesh	Fine sand
9.50%	32+ Mesh	Medium sand
.55%	16+ Mesh	Sand (or larger particles)

d The mudstone is calcarious (contains Calcium Carbonate). Tests show that the bulk of the mudstone is about 2% $CaCO_3$, but some goes as high as 10% (See exhibit C-3-4). However, as I have mentioned earlier, all of the ore values are not mudstone; neither the opalized or carbonaceous beds are calcarious.

Note: I would like to go into some definations here. Some writers of past papers on the Anderson Mine have used the word "carbonaceous" when I'm sure they ment "calcarious". And this has resulted in some confussion. A dictionary of Geological terms /7

defines "Carbonaceous"as (1) Coaly (2)Pertaining to and largely composed of carbon. Calcareous" is defined as (1) containing calcium carbonate.

VI GEOLOGIC STRUCTURE

The Anderson Mine is in ancient lake bed sediments estimated to be 5 miles wide and 40 miles long. The mudstone beds dip about 15 degrees to the South. There are two major faults in the main pit area that trend about N. 45 degree W. [1].

The general geologic column is as follows [1]:

Quaternary	-	Alluvium
	Angular unconformity	
Upper Pliocene	-	Capping conglomerate group.
Lower Pliocene	-	Upper conglomerate.
(incls. Lake sediments and lava flows)	-	Mudstone (calcareous).
(also erosional unconformities)		(includes uranium, mollusks, agate, petrified wood).
Lower Pliocene	-	Interbedded Andesite flow. Lower conglomerate
	Angular unconformity	
Miocene	-	Vitrophyric Andesite flows. Tuffs and Basalt flows.
	Angular unconformity	
Pre-cambrian	-	Basement complex. Biotite granite, schist, Meta quartzites, Basalt, and Pegmatic dykes.

The Uranium-Vanadium ore is in beds of varying thickness, lengths, and concentration in the Mudstone unit. It is in a series of lens, parallel to each other, and possibly overlapping (see exhibit E-(2)). In the main pit area the lake bed sediments have been warped into a series of minor folds. There is also minor faulting.

An example of the bedding might be Getty drill hole No. 155 (See exhibit G-2). There is ore at the surface that does not show on the gamma reading drill log; then at 43 to 45 feet ther is a 2 foot bed of .12% U_3O_8; then at 121 to 122.5 feet there is a 1.5 footbed of .20% ore; then from 124 to 125 feet there is .04% ore; then from 128 to 129 there is .05% ore; then from 135 to 136.5 feet there is .13% ore; then again from 206 to 208 feet there is 10% U_3O_8. This totals up to 9 feet of ore averaging .11% U_3O_8. The richest drill hole bed (No.203) shows .91% U_3O_8 at the 161 foot level.

From the drilling program accomplished on the Anderson Mine by Getty Oil Company (see exhibit G). and the previous drilling during the 1950's by Interstate Oil and Development Company and John Gaither (See exhibit H), several areas of uraniferous ore have been blocked out (See exhibit 2). Irrespective of the mentioned drilling in the past, in the opinion of the writer, much of the Anderson Mine and adjoining claims, remains unexplored as far as sub-surface examinations are involved. A large potential remains.

VII GEOLOGIC HISTORY

This subject is well covered in the AEC RME 2057 /[E] and for the purposes of this study, it is not particularly pertinent. Suffice it to say that the ore values (Uranium and Vanadium) are in late Cenozoic formations. Age dating has resulted from Paleontology studies of both vertibrate and invertibrate fossils found in the lucustrine beds /[L]. It might be of interest that a jaw bone of a miocene Diceratherum (rhinoceros) has been found in the Mudstone, and the writer has found bones of a protohippus and Camelops. / The mine area is not a lucrative fossil field. as these fossils are not profuse, by any means. I found three fossil bones in a period of 5 years.

The concept that the Anderson Mine is an ancient Lake bed needs some elucidation. Most people think this is a rare incidence here in this desert state. Actually Wickenburg is an ancient lake bed, as is Kingman, Arizona and a great many other places. The lucustrine Mudstones are found in Wickieup and on towards Bagdad. (It is not believed that these areas have been explored for uranium to any extent.) The classification of the Anderson Mine as a lake bed deposit, puts it in the same category as many deposits in California, and elsewhere in the West.

VIII ECONOMIC CONSIDERATIONS.

As has been covered elsewhere in this report, there havebeen two drilling programs and one minor one on the Anderson Mine property. The Getty Oil Company drilling program of 1968 gamma ray logs are in the possession of the writer and have been studied thoroughly by several geologists (including the writer) and computations have been made converting the factors on these logs to U_3O_8 values (See Exhibit G). This in itself involved a great deal of time consuming work. At this point I would like to make it very clear that the Getty Oil people gave us none of their interpretative data. When we started to coorelate the logs with the drill hole map given us by Getty, we found that we had logs for which there were no drill holes on the map, and there were some drill holes shown on the map for which we had no logs. When we quizried Getty about this, we received no satisfactory answer (See Exhibit). Also on some logs, drill hole collar elevations were missing and this is of course very important in making up an ore ~~contour~~ Isopach map or a structural profile. This situation was corrected to a large degree by making a field examination of drill holes (and elevations) and making up a new map in coorelation with the Getty Map. Fortunately, many of the drill holes had stakes near them giving numbers. This situation is mentioned to indicate our problem in computing ore reserves. The Getty drilling map is Exhibit O . It is important to mention here that copies of the Getty logs, Getty maps, and our own data concerning same have been sent to the AEC at Grand Junction, Colorado and they have indicated that they will run this information thru their computers and will have the indicated ore reserves finished sometime in September, 1970. At that time, the owners of the Anderson Mine will go to Grand Junction and compare ore reserve data. For the information of those not familiar with AEC proceedure, the AEC will not give ore reserve data to anyone, except the owners, as this is considered as confidential and privy information.

Isopach

Relative to the Interstate Oil and Development Company's drilling program during 1956-58, we do not have complete information on this. The present location of the original logs, maps, and interpretative data is unknown to the present Anderson Mine owners. The former owners and operators have departed from Arizona some years ago, according to what little information we have been able to glean from some of their former associates. However, the writer, as a representative of the present mine owners, was permitted to examine the records that are on file at the AEC at Grand Junction. While not permitted to copy the records, ~~nor make notes,~~ I made notes and remembered enough of the data to make a memorandum covering some of the high points (See exhibit). From information stated on the old "Uranium Lire" mining claims on file with the County Recorder, Yavapai County, Arizona, I was able to make up a map showing the old claim locations (See exhibit).

The John Galter drilling activity consists of 8 drill holes on the West side of Flat Top, that is now part of the Cosmo group of claims. The writer has no information concerning the results of this drilling, although further perusal of the AEC records may reveal something. However, there is an outcrop of uraniferous ore at this location.

To sum up the mentioned drilling programs, and in particular the Getty one, a lot of money has been spent in the past to garner a small amount of inconclusive information and the programs failed to encompass promising areas that were left untouched.

For the present (and until we learn of the AEC computations), the undersigned agrees with an earlier Interstate Oil and Development Company estimate of ore reserve bodies (with some modifications ~~on uranium content~~), as a conservative figure: (See Exhibit H)

Main pit area	-	Pit #1	-	57,457	tons	containing	.20% U_3O_8
"	-	Pit #2	-	70,332	"	"	.17% "
West Main pit	-	Pit #2 West	-	21,720	"	"	.20% "
Further W. pit	-	Pit #7 West	-	2,000	"	"	.20% "
Flat Top	-	Cosmo	-	42,200	"	"	.19% "
Stockpiles	-		-	13,600	"	"	.11%* "
		Totals		207,309	Tons		.18% U_3O_8

* Two of the larger stockpiles were assayed at .26% and .11% respectively, by Getty (See Exhibit C-1).

Excluding the cost of mining and processing, the uraniferous ore would in theory produce 748,112 lbs of U_3O_8 valued at $5,984,896.00 (figured at $8.00 per pound). If vanadium is also recovered on a one-to-one basis, then an additional $1,496,224.00 would be received (figuring Vandium pentoxide at $2.00 per pound [redacted] - EWJ Aug. 1970)

Inasmuch as going into the basic economics of producing uranium at a profit at the Anderson Mine, brings to light many factors that have to be seriously considered. To start off the consideration of the problems involved, it should be understood that .10% ore is the cut-off point for many mines, and ores below this figure are uneconomical to mine at present uranium prices. Then, transportation becomes a factor, especially if raw ore is to be shipped long distances. The nearest uranium mills to the Anderson Mine are at Grants, N.M. a distance of slightly over 500 miles and the best offer we received to transport the ore to that point was $5.00 per ton. The matter of mining and loading the ore is, of course, most important. Considering that this report is a preliminary evaluation of the Anderson Mine (and not a feasibility or viability study), I am primarily outlining discovery work that has been accomplished and values ascertained both below and above the ground. Thusly, I do not want to get involved in metallurgical problems, mining engineering costs and marketing data, (at this ~~xxxx~~ stage,) and only some generalities can be given.

For open pit mining at the Anderson Mine, an initial purchase of new heavy equipment could be costly. Involved would be stripping the overburden down to ore bedding and a cost of $.35 per cubic yard could be used, at the present time, for these computations. Due to the inflationary trends, these days, the costs could go upwards. Haulage costs of approximately $.05 per ton mile from mine stockpiles to the mill are involved[8]. At this point it should be stated that one cubic yard of natural ore material at the Anderson Mine will weigh one and one half (1 1/2) short tons. It will cost about $2.75 per ton to mine the ore. These mining costs include labor, supplies, maintenance, supervision, insurance, taxes, and administrative charges at the mine[9].

As some readers may not know, uranium buyers at the processing plants usually make a contract with a producing mine, and this outlines the prices that will be paid for given grades of ore. This may vary from mine to mine. Several months ago, I had the opportunity to look at such a contract made at the Moab, Utah mill. The price paid for delivery of ore at the mill ~~was set at $8.00 per pound for .10% U_3O_8 and increased logarithmically until $30.00 was paid per pound for 30.0%~~

was as follows:

Percentage of U_3O_8	Price paid per Ton
.10%	$4.39
.15%	9.98
.20%	15.79
.30%	26.48
.40%	36.73
.50%	$46.05

For uranium ore values in between the percentages given, the price varied arithmetically from the indicated prices. After .50% U_3O_8 is reached, then for each additional .01% $1.00 is paid per ton ~~ad infinitum~~ (plus the $46.05). Moab does not pay for the Vanadium content. However, at the Vanadium Corporation mills they pay about $.40 per pound for V_2O_5 content, in addition to the monies paid for uranium. It should be understood by all that uranium prices can fluctuate, and at the present time, the uranium market is in a slump.

From the factors above given, the writer is not going the arithmatically compute the feasibility of mining and shipping the Anderson Mine ore at the present time. However, anyone can make a rough estimate. Suffice it to say that the transportation factor in shipping raw ore, alone, will not permitt an adequate profit to be made. If a mill is close to the mine, a good profit could be made. Also the new ore reserve data should be on hand to ascertain the economics involved.

But the future of uranium mining appears to be bright. It has been predicted that the uranium prices will double or triple. It seems that some of the contemplated nuclear fuel plants were not constructed, as soon as anticipated by some authorities, and as a result the demand for uranium did not rapidly increase. But it is generally conceded that fossil fuels are on the way out and nuclear fuels will replace them, largely due to air pollution.

Most of the information outlined in this report, so-far, has been relative to direct shipping ore from the Anderson Mine. Now let us consider the possibilities of upgrading, beneficiation or concentrating the ore at the mine site. First off, let me say that this is in the fields of Chemical Engineering and Metallurgy (ore dressing) and this is beyond the expertese of the average mining geologist. The shipping of concentrates from the mine should greatly enhance profits. The writer has no information on the costs of building a suitable plant and the expense of processing the ore in such an operation.

However, uranium ore can be concentrated by leaching in situ (when rock stratigraphy is suitable), heap leaching, bulk precipitation, solvent processing and/or ion exchange. When the ore is not too limey, sulfuric acid can be used to place the uranium in solution, and it is then precipitated by adding ammonia, MgO, or other bases, and the concentrates can then be shipped to a processing plant "as is", for example. In the case of the Anderson ore with a high calcium carbonate content (see Exhibit C-3-a), it may prove too expensive to use sulfuric acid. In this case, it may be preferable to use the alkaline carbonate solutions for leaching. It is to be pointed out that ore having a 2% $CaCO_3$ content will require 60 lbs of acid to neutralize a ton of ore, plus additional acid to place the uranium in solution. Sulfuric acid can be purchased in large bulk amounts at from 1 to 2 cents a pound. I have outlined this information to give the reader some idea of what is involved in up-grading uranium ore. Needless to say, the Anderson Mine owners, or other interested individuals, should have the ore tested by a competent research laboratory to determine an

inexpensive and feasible way of up-grading the same. Also the cost of building and operating a proper processing plant should be ascertained.

Certain other information concerning the Anderson Mine is in the attached Exhibits pertinent to the overall "picture". One of these is a structural profile map of one section of the pit area, that was made from Getty log data, by the writer (See Exhibit E-12).

It is the intention of the undersigned to make a supplement to this report, as soon as AEC computations are completed and a study is made of the results.

Respectfully submitted,

MELVIN H JONES
Mining Geologist

August 31, 1970.

Box 1
Montello, Nevada, 89830.

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UNITED STATES
ATOMIC ENERGY COMMISSION
GRAND JUNCTION OFFICE
GRAND JUNCTION, COLORADO 81501

March 25, 1970

Mr. Melvin H. Jones
Post Office Box 406
Wickenburg, Arizona 85358

Dear Mr. Jones:

We have received the package of maps and logs that were sent to our office. It will take some time to copy the maps and logs and redo the reserves. Your data will be returned as soon as possible, and we will notify you when we can compare results.

Thank you for taking the time to help us update our information on the Anderson mine.

Sincerely,

Carl W. Appelin, Chief
Ore Reserves Branch
Mining Division

MOR:JBP

E X H I B I T S

A	Map showing location of Anderson Mine property.
B-1	Map showing Cosmo,Moonbeam and JacSar claims (Anderson Mine).
2	Approximate locations of presently known Ore bodies.
3	Map of the former Uranium Aire claims.
C-1	Getty Oil company chemical assays of U_3O_8 and V_2O_5.
2	Atlas Minerals, Ore Lot Assay Certificate -Jan.5, 1967.
3	Atlas Minerals, Ore sample work sheet, Oct.11, 1966.
4	Atlas Minerals, Ore sample work sheet, Sept.30, 1966.
D	Laboratory analysis, Dr. Mont M.Warner, ASU, Jan.31,1967.
D-1	Laboratory Test, ASU, Oct.27, 1966.
E-1	Structural profile, line A-B, Main pit area.
2	Structural profile, Line C-D, Main pit area.
3	Map of drill holes, lines A-B and C-D, Main pit area.
F-1	Estimates of U_3O_8 mineralization in drill holes line A-B.
2	Estimates of U_3O_8 mineralization in drill holes line C-B.
G-1	Tabulated Data showing Calculated U_3O_8 in probed drill holes #1.
2	Tabulated data showing Calculated U_3O_8 in probed drill holes #2.
H	Memorandum for the Record - Jones - Mar.17, 1970.
I	Letter, Getty Oil Company, Feb.24, 1969.
J	Extract, Engineer's report, Bur. of Mineral Resources,Ariz.9/25/58.
K	Drill Log information, Osbourne claims, July 5, 1967.
L	Geological Survey, Moonbeam claims, Lee Hammons,Geologist,Aug.25, '66
M	Letter, A E C, Grand Junction, Colo., April 7, 1970.
N	Letter, A E C, Grand Junction, Colo., June 26, 1970.
O	Map - Getty Oil Company drilling program - Drill holes.

MEMORANDUM FOR THE RECORD

March 7, 1970

1. The following information is applicable to the Anderson Mine (uranium) located 35 miles West of Congress, Arizona, and in particular to the Moonbeam, Cosmo, and JacSar claims that now cover this mine. The data outlined below has been obtained from various old reports, basically records dated 1956-58 covering the Uranium Aire group of claims (Original locators of Anderson Mine, now superceded by the Cosmo, Moonbeam and JacSar groups).

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Natural ore material - 18 Cu.Ft. per short ton.
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(the ore is Mudstone and Siltstones, composed of tuffaceous material, largely, and some chert).

b Ore shipped in 1958:

3,145 tons to AEC, Cutter, Arizona.
1,163 tons to Grants, N.M. buying station.
4,308 tons total averaging .21% U_3O_8.

c Interstate Oil and Development Co.'s estimate of ore bodies:

	Thickness (ore bed)	Overburden
Pit #1	4.65'	42'
Pit #2	3.75'	
Pit #2W	3.50'	32'
Flat Top	3.75'	70'
Claim 7W	4.00'	10'

d Ore estimates: (IOD)

				(another estimate)	
Pit #1	57,457 tons	containing	.20% U_3O_8.	- 19,224 tons	.21%
Pit #2	70,832 "	"	.20% "	- 14.900 "	.17%
Pit #2W	21,720 "	"	.20% "	- 13,500 "	.20%
Flat Top	42,200 "	"	.35% "	- 9,300 "	.19%
Claim 7W	2,000 "	"	.20% "		
Stockpiles	31,000 "	"	.15% "	- 13,670	.11%
Total	225,209	tons average	.22% U_3O_8	- 70,594 tons.	

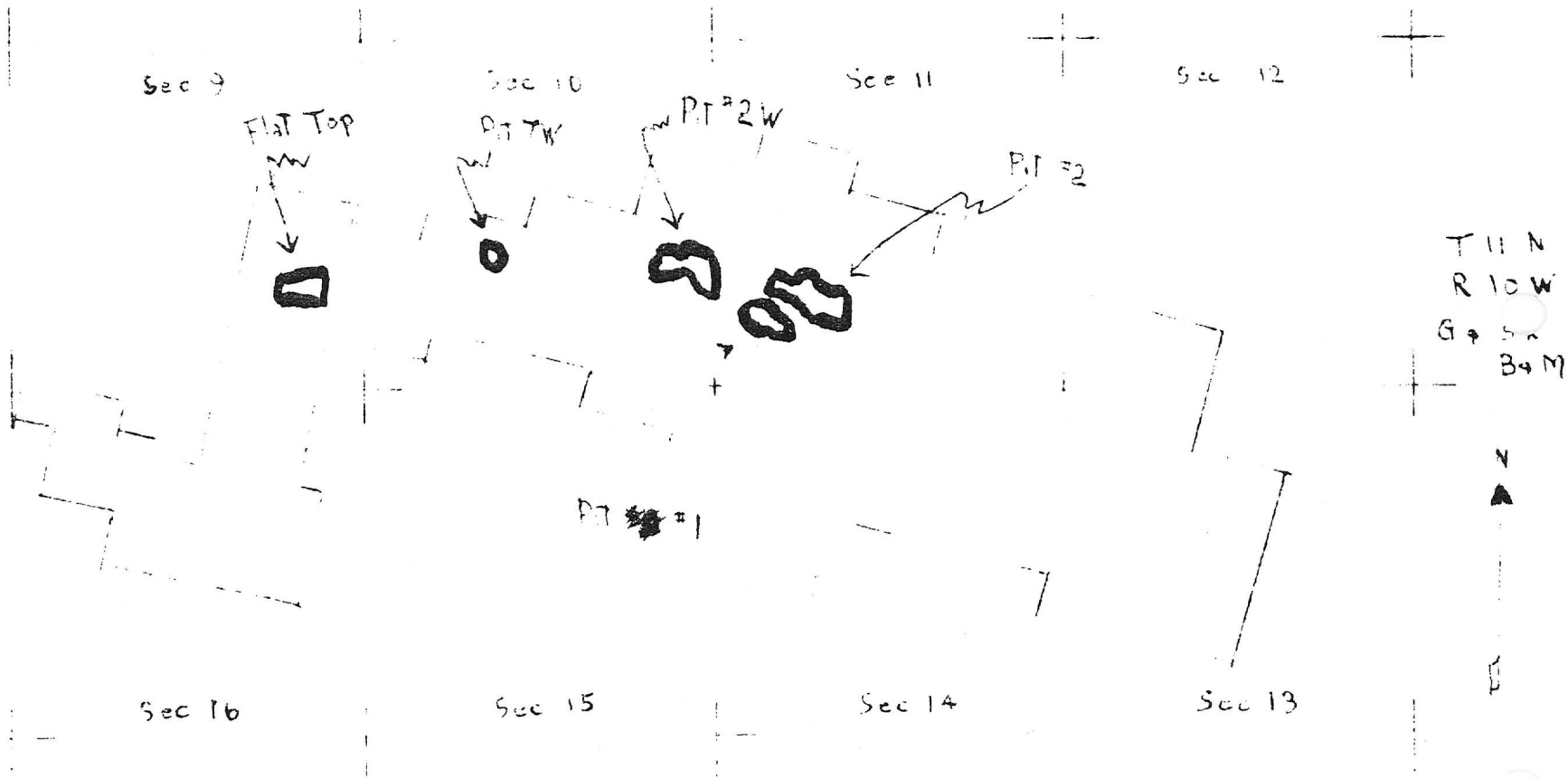
e Map of Uranium Aire Group (1956) (Inclosure No.1)

f Approximate location of above mentioned ore bodies (Inclosure No.2)

2. These ore bodies are now part of what are now the Cosmo and Moonbeam claims. Stockpiles also remain on the Cosmo and Moonbeam groups.

Melvin H. Jones

Encl. #2



URANIUM AIRE GR.

COSMO claims

Hole	Depth	U_3O_8
146	187-189	.14
147	55-56	?
152	305-310	.08
154	190-192	.17
155	215-216	.15
"	279-284	.13

MOONBEAM claims

Hole	Depth	U_3O_8
11	53-56	.07
"	130-133	?
7	42-44	.19
"	117-128	?
9	52-54	.04
"	134-136	.08
10	14-17	?
"	95-98	?
11	43-44	.002
"	106-108	.005
12	44-46	.005
"	46-48	.017
"	131-136	.04
13	25-30	.002
"	30-32	.03
"	126-128	.002
"	128-130	.13
14	110-111	.04
"	125-128	.13
"	132-136	.09
"	143-151	.05
15	107-113	.04
"	127-133	.07
"	135-137	.43
"	217-218	.05
16	36-38	.45
"	122-148	.021
17	49-54	.08
"	111-115	.05
"	125-130	.04
"	139-143	.06
18	80-90	?
"	100-105	?
57	85-95	?
62	70-75	?
"	84-86	.002
63	74-76	.05
79	80-90	?
93	20-22	.09
"	90-100	?
95	95-97	.04
84	90-92	?
78	112-114	.004
101	65-70	.06
103	34-36	.15
105	10-11	.08

MOONBEAM claims

Hole	Depth	U_3O_8
105	67-76	.04
"	105-112	.04
"	121-127	.02
"	147-151	.10
"	196-197	.05
107	48-55	?
"	135-144	?
108	118-119	.07
"	119-120	.13
"	120-121	.37
"	121-122	.12
"	122-123	.69
"	123-124	.16
"	128-129	.16
123	130-131	.19
"	138-139	.11
124	50 -55	.28
125		Nil
126		Nil
127	130-135	?
"	210-212	?
128	62-64	.22
"	60-62	.08
130		Nil
165	43-45	.12
"	121-122	.20
"	135-136	.13
"	206-208	.10
167	103-105	.08
"	125-129	.22
"	207-212	.05
169	150-15	.11
170	127-129	.08
177	209-212	.05
"	222-224	.04

JACSAR claims

Hole	Depth	U_3O_8
10	15-20	?
"	96-100	?
24	60-70	?
82	32-33	?
134	149-151	?
137		Nil
138		Nil
139		Nil
141	233-234	.08
130		Nil

MOONBEAM stockpiles

Mill run samples	
#1	.26
#2	.11

ARIZONA STATE
UNIVERSITY ~~Mont M. Warner, Geology Department, Jan. 31, 1967~~ TEMPE, ARIZONA

Colonel Melvin Jones
3721 West Tonto
Phoenix, Arizona

Dear Colonel Jones:

The enclosed report contains the results of my laboratory analysis of the outcropping lithologies of your uranium property, The Anderson Mine. I hope the results are favorable and will be beneficial to your mining venture.

Sincerely,

Mont M. Warner
Ass't. Professor of Geology
Arizona State University

MMW/kw

LABORATORY ANALYSIS OF THE ANDERSON MINE LITHOLOGIES

Location - The Anderson uranium mine is located in Section 11, Township 11 North, Range 10 West, Yavapai County, Arizona.

Field Description of Lithologies Analyzed

Unit #1 is the basal unit of the outcropping formations in the mine's open pit. It was measured and described at the south bank of the pit. Only 3½ feet of the unit's uppermost layers are exposed. These upper layers consist of light greenish gray mudstone. It is semi-consolidated for the most part, and laminated. It is fissil in part, and stained with patches of carnotite, and in a few places with limonite. It contains fossilized palm fragments, and at least one mammalian skull has been taken from it. Unit #1 is capped by a ten inch bed of dense, light gray chert, which is uniform in thickness and weathers white. It is also stained with patches of carnotite.

Unit #2 is an 11 foot layer of light greenish gray mudstone, which overlays the 10 inch chert cap of Unit #1. It is very much like Unit #1 in every respect, with the exception of the carnotite content. It is not stained with the yellow patches of carnotite. This unit is capped with 19 inches of dense, well consolidated cherty mudstone.

Unit #3 - 10 to 30 feet of white argillaceous limestone, containing three distinct layers of red chert, each of which is 4 to 6 inches thick. Unit #3 is the top layer forming the surface around the mine pit. It contains no carnotite. Most of this bed is semi-consolidated, but does contain a few layers of dense, indurated mudstone, in addition to the dense chert beds.

Laboratory Analysis

Each of the three units were analyzed for grain size, calcium carbonate content and water content, with the following results:

Unit #1 -

Fine Sand	Silt	Clay	Calcium Carbonate	Water
21 - 51% Avg. - 26%	43 - 70% Avg.- 67%	6 - 8% Avg. - 7%	12.1%	6.4%

This unit could be called a calcareous sandy mudstone. It contains considerable mica(muscovite and biotite) and many of the sand size particles consist of these two minerals.

Unit #2 -

Fine Sand	Silt	Clay	Calcium Carbonate	Water
21 - 70% Avg. 26%	30 - 70% Avg. - 67%	2 - 8% Avg. - 7%	17.8%	5%

This unit is essentially the same as Unit #1, a calcareous, sandy mudstone.

Unit #3 -

Fine Sand	Silt	Clay	Calcium Carbonate	Water
?	?	?	75.4%	2.2%

The high lime content of this unit prevented an accurate grain size analysis. It does contain much mica, as do the other units, and is probably an argillaceous or muddy limestone.

The lime content increases from top to bottom of the measured stratigraphic section as the figures indicate, so it is very likely that most of the bottom portion of Unit #1, which is beneath the present surface, will contain very little or no lime. Unit #3, which is the surface layer, is mainly a limestone, and it is very probable that the lime content of Units 1 and 2 was derived from Unit 3 by leaching and downward filtration of ground water. The lime content of Units 1 and 2 is patchy and many parts of these two units do not contain any lime.

Getty Oil Company 2330 So. Main St., Salt Lake City, Utah 84115 | (801) 487-0851

Minerals Exploration & Mining Department
District Uranium Exploration Office

February 24, 1969

Mr. Melvin Jones
Box 406
Wickenburg, Arizona 85358

Dear Mel:

Enclosed please find gamma logs from Anderson Mine drill holes, No's 1, 3, 5, 142 and 203. I'm sorry that I didn't give these five logs to you when you were here. It was an oversight on my part.

Although log numbers go to 208, we did not drill that many holes. We drilled 126 holes, 25 on KS Claims and 101 on your land. The change in geologists last May (when I came back to Salt Lake) coincides with the time that we began skipping numbers. I'm sorry that I neglected to give you these five additional gamma logs.

Hope to see you again soon.

Sincerely yours,

RHD

Robert H. Dickey
Geologist

RHD:alr
Encls.

MEMORANDUM FOR THE RECORD

March 17, 1970

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f Approximate location of above mentioned ore bodies (Inclosure No.2)

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Melvin H Jones

Atlas Mining Co.

FORM M-177

ORE SAMPLE WORK SHEET Moab, Utah

Date Sample Received 11 Oct 66.

SAMPLE IDENTIFICATION:
Moonbeam (Grid)

Submitted by:
Jack Day

Date Desired

Assay For:
U_3O_8 Fl
V_2O_5
$CaCO_3$

AMENABILITY

Acid	Head	Residue	Extraction
Carbonate	Head	Residue	Extraction

OTHER TEST WORK REQUIRED:

Save Rejects

RESULTS TO BE SUBMITTED TO:

Newman

		U_3O_8	$CaCO_3$	V_2O_5
37	Sample #1 4' thickness	.032	1.8	.068
38	✓ #2 Small Stockpile	.11	7.4	.092
39	✓ #3 Large ✓	.091	2.0	.092

Note: Requested rerun on sample #1 – it gave .07 % U_3O_8

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Chemical	Lab e U_3O_8	G.O. e U_3O_8
1	D.H.	36	38	16	GRN F SDY SLTST	.450				
2	"	122	148	16	SDY SLTST + LIGNITIC SH	.021				
3	"	54	56	17	SDY SLTST					
4	"	44	46	8		.005	.06			
5	"	46	48	8		.002	.08			
6	"	132	134	8		.025	.07			
7	"	134	136	8		.020	.02			
8	"	140	143	8		.002	.06			
9	"	142	144	8		.040	.14			
10	"	144	146	8		.13	.13			
11	"	150	152	8		.07	.35			
12	"	44	46	12		.005	.05			
13	"	46	48	12		.017	.03			
14	"	132	134	12		.002	.04			
15	"	"	136	12		.04	.02			
16	"	"	138	12		.035	.03			

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5		Lab e U_3O_8	G.O. e U_3O_8
17	D.H.	135	140	12		.020	.03			
18	"	140	143	12		.006	.03			
19	"	145	150	12		.035	.10			
20	"	25	30	13		.002	.03	29-32		.03
21	"	30	33	13		.030	.06			
22	"	120	124	13		.002	.05	125-130		.15
23	"	128	130	13		.13	.20	128-131		
24	"	140	143	13		.020	.07			
25	"	142	144	13		.015	.03	141-147		.04
26	"	144	146	13		.007	.05			
27	"	145	148	13		.010	.03			
28	"	160	165	13		.015	.16	162-166		.04
29	"	165	170	13		.003	.07			
30	"	[illegible]	[illegible]	18		.001	.03			
31	"	[illegible]	[illegible]	18		.010	.05			
32	"	[illegible]	[illegible]	19		.08	[illegible]			

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Chemical	Lab e U_3O_8	G.O. e U_3O_8
33	D.H.	100	102	15		.020	.03			
34	"	102	104	15		.06	.17			
35	"	104	106	15		.012	.03			
36	"	106	108	15		.07	.05			
37	"	108	110	15		.15	.15	49.5% →		.08
38	"	105	110	15		.015	.05			
39	"	110	118	15		.020	.07	107-113 →		.04
40	"	126	128	15		.010	.06			
41	"	128	130	15		.037	.07		127-133	.07
42	"	130	132	15		.030	.06			
43	"	132	134	15		.037	.07			
44	"	134	136	15		.025	.06		135-137	.43
45	"	136	138	15		.06	.03			
46	"	95	100	5		.007		100-105 74-78		.08 .03 .05
47	"	102	104	3		.05		99-100		.04
48	"	116	118	3		.002				

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Chemical	Lab e U_3O_8	G.O. e U_3O_8
49	DH	124	126	3		.005		125-127.5		.03
50	"	126	128	3		.017				
51	"	290	295	3		.002				
52	"	250	255	3		.004				
53	"	255	260	3		.001				
54	"	42	44	11		.002				
55	"	106	108	11		.005				
56	"	120	128			.003				
57	"	110	112	75		.004				
58	"	112	114	75		.002				
59	"	114	116	75		.002				
60	"	18	20	5		.001				
61	"	74	76	5		.015				
62		100	102	5		.032				
63		103	104	5		.014				
64		76	78	5		.025				

P12

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Chemical	Lab e U_3O_8	G.O. e U_3O_8
						.04				
65	P.H.	52	54	9		.034				
66	"	54	56	9		.006				
67	"	56	60	9		.007				
68	"	103	110	9		.017				
69	"	110	115	9		.03				
70	"	134	136	9		NIL			+ ?	
71	"	70	75	62		.002				
72	"	54	56	62		.001				
73	"	72	74	63		.05				
74	"	74	76	63		.005		42-44		.19
75	"	52	54	7		.010				
76	"	54	56	7		.01%				
77		126	128	7		.015				
78		~~132~~ 128	130	7		.007				
79		130	132	7		.00%				

PHR

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Lab e U_3O_8	G.O. e U_3O_8
51	Cut.	117	118	105		.057			
52	"	118	119	105		.07			
53	"	119	120	105		.13			
54	"	120	121	105		.37			
55	"	121	122	105		.12			
56	"	122	123	105		.69			
57	"	123	124	105		.16			
58	"	124	125	105		.nil			
59	"	125	126	105		.nil			
60	"	126	127	105		.nil			
61	"	127	128	105		.012			
62	"	128	129	105		.16			
63	"	129	130	105		.015			
64	"	130	131	105		.03			
65	"	131	132	105		.04			
66	"	132	133	105		.06			

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Chemical	Lab e U_3O_8	G.O. e U_3O_8
97	"	133	134	108		.015				
98	"	134	135	108		Tr				
99	"	135	136	108		.09				
100	"	136	137	108		.012				
101	Surface									
102		130	131	123		.19				
103		131	132	123		.04				
104		132	133	123		.05				
105		133	134	123		.20				
106		134	135	123		.06				
107		135	136	123		.10				
108		136	137	123		.022				
109		137	138	123		Tr				
110		138	139	123		Tr				
111		139	135	123		Tr				
112		130	137	123		Tr				

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5		Lab e U_3O_8	G.O. e U_3O_8
113		131	132	123		.020				
114		132	133	123		.002				
115		133	134	123		.05				
116		134	135	123		.030				
117		135	136	123		.05				
118		136	137	123		.05				
119		137	138	123		.04				
120		138	139	123		.11				
121		139	140	123		.027				
122		140	141	123		.035				
123		141	142	123		.030				
124		142	143	123		.012				
125		143	144	123		.200				
126		145	146	123		.002				
127		30	35	123		.015			..	
128		35	40	123		.55	.31			

JBS + FP

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5		Lab e U_3O_8	G.O. e U_3O_8
129		40	45	123		.012				
120		45	50	124		.002				
121		45	50	124	not used					
122		50	55	124		.28	.16			
123		55	60	124		.005				
D-1	GRAB				STOCKPILES } SAMPLED FOR MILL RUN	.26				
D-2	GRAB				STOCKPILES }	.11				
136		110	112	88		0.03	0.06			
137		34	36	103		0.15	0.14			.35
138		70	75	101		0.022	0.04			
139		60	65	101		0.02	0.04		56 to 61	.22
140		65	70	101		0.06	0.03			
141		94	96	134		0.08	0.02			
142		60	62	128		0.03	0.13			
143		112	114	93		0.09	0.06			
144		92	94	93		0.017	0.02			

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5	Chemical	Lab e U_3O_8	G.O. e U_3O_8
145		62	67	128		0.22	0.11			
146		10	15	66		0.06				
147		305	310	152		0.08	240.5-242 300 - 305			.07 .12
148		185	190	153		0.05	186 - 188			.20
149		220	225	162		0.06				
150		150	155	169		0.11				
151		50	55	183		0.06		49-52 137-138		.084 .16
152		150	155	183		0.08		146 -147 151 -155		.028 .20

GETTY OIL CO.

Sample No.	Type	Interval From	Interval To	Hole No.	Location and Description	Chemical % U_3O_8	Chemical % V_2O_5		Lab e U_3O_8	G.O. e U_3O_8
179		40	45	123		.012				
180		45	50	124		.002				
181		45	50	124	not used					
182		50	55	124		.28	.16			
183		55	60	124		.005				
D-1	GRAB				STOCKPILES (SAMPLED FOR MILL RUN	.26				
D-2	GRAB				STOCKPILES)	.11				
186		110	112	88		0.03	0.06			
187		34	36	103		0.15	0.14			
188		70	75	101		0.022	0.04			
189		60	65	101		0.02	0.04			
190		65	70	101		0.06	0.03			
191		94	96	134		0.08	0.02			
192		60	62	128		0.03	0.12			
193		112	114	93		0.1	0.06			
194		92	94	93		0.017	0.02			

0.23 - 0.11

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ANDE[illegible] MINE
YAVAPAI Co.
File

I N D E X

I INTRODUCTION

The Anderson Uranium Mine is located about 35 miles west of Congress, Arizona, near the Santa Maria River in Yavapai County (See Exhibit A). It is an open pit operation in an ancient lake bed formation (sedimentary). Although the property is surrounded by numerous mining claims (Kleck-Sharp and Osbourne group of claims), the Anderson Mine proper consists of the Moonbeam, Cosmo, and JacSar groups (See Exhibit B) presently owned by Daniel C. Jacobs, Melvin H. Jones, Lee Hammons, William Sargent and Charles E. Johnson. There are 31 Moonbeam, 13 Cosmo, and 26 JacSar claims, totaling 70.

These claims were located in 1964 by the present owners, with some additions from time to time since then. The Anderson Mine was originally the "Uranium Air" claims located by Anderson and Moore in the 1950s and a little ore was shipped by these individuals in 1955 and by Interstate Oil and Development Company from the open pit operation during 1957 and 1958. However, the claims were abandoned by the original locators and re-located by the present owners as outlined above. It appears that with the discovery of richer uranium deposits in the Grants, N. M. area and the Uravan belt, coupled with the necessity of shipping the unmilled ore to distant uranium plants, and the lower uranium prices in those days, caused the original owners and operators to give up the claims.

A visit to the Anderson Mine will reveal two areas where Carnotite ore is exposed on the surface. These are the main pit area (Moonbeam) and the Flat Top region (Cosmo). There are many stockpiles of ore that have been assayed to run between .11% and .26% U_3O_8. (See Exhibit C-1).

Getting back to the history of the mining property again, it is pointed out that the present owners of the mentioned claims entered into a lease agreement, with option to buy, with Getty Oil Company at the start of 1968. The getty people (who were then new in the uranium business) spent in excess of $100,000.00 in a drilling program and returned the property to the owners after a year with a remark indicating that ore bodies had been found, but the property was too small for the size of operation that Getty wanted to engage in. It is of course common knowledge that the Getty people moved to some more lucrative uranium fields in Wyoming where their operations are now extensive. The Getty drilling results are covered in detail later on in this report.

The main reason for this report is to consolidate information from a variety of piecemeal sources, as well as to reflect the study and research accomplished by the writer, in a period extending into more than a year. It is hoped the information will be easily comprehensive as a preliminary evaluation report for the owners, and others who may be interested. Acknowledgment is hereby made of assistance by Mr. Lee Hammons and Mr. Carl Honume, geologists, in portions of the report. The summary, conclusions and recommendations are exclusively mine.

Involved in making this report and many visits to the mine (and, often in company with other Mining Engineers and Geologists who frequently had differing views and observations, examination and sampling of the lithographic facies and outcrops, search of the mine for missing drill holes and the mapping of the same (some past drilling was poorly recorded and mapped), correlation of older data (and studies, trips to Grand Junction, Colorado (and elsewhere), for research into old records and for the compilation of ore reserve quality and quantity data, consultations with metallurgists and processing experts, etc.

II SUMMARY AND CONCLUSIONS

The Anderson Mine (uranium) was first discovered by Mr. T. R. Anderson in January 1955 with an airborne scintillation counter. Mr. Anderson and his associates located what was known as Uranium-Air claims and made some small shipments of ore to the Cutter buying station. Successor to Anderson was the Interstate Oil and Development Company, and they made some small ore shipments to the Cutter and Grants buying stations. IOD stockpiled 13,670 tons of ore and accomplished a small drilling program coming up with 225,209 tons of ore reserves averaging .22% U_3O_8 according to their computations.

With the advent of the discovery of richer ores in the Ambrosia belt and Grants, N. M. the mentioned owners and operators abandoned the claims. They were then re-located by the present owners in 1964, with additional claims added from time to time since then. The claims comprising the Anderson Mine are now known as the Moonbeam, Cosmo, and JacSar groups, and the boundaries of the original Uranium-Air claims have been extended somewhat.

In 1968 Getty Oil Company took a lease, with option to buy, on the Anderson Mine properties and instituted a drilling program. It was Getty's first uranium venture, and the drilling was poorly and inadequately accomplished (in the opinion of the writer). The results were inconclusive. At about the same time, Getty entered into the apparently more lucrative uranium fields of Wyoming, where they are now in the uranium mining business. After a year Getty gave up the Anderson Mine claims with remarks indicating that it was not rich enough, nor large enough for a Getty operation.

The Anderson Mine property consists of 70 unpatented mining claims. It is in Tertiary lake sediments. The ore is Carnotite in a limy Mudstone that will average .18% U_3O_8 in an estimated tonnage of 207,809. Water for ore processing can be obtained from the Santa Maria River, and there is a railhead at Congress, Arizona 35 miles from the mine. 0.18%

The major reason that the mine has not been operated in recent years is that it is too far from an ore processing plant, and transportation costs would preclude the making of a suitable profit from the ore. The nearest mill is at Grants, N. M. (500 miles).

The AEC at Grand Junction is currently re-computing the ore reserves at the Anderson Mine, using the data from the Getty drilling program.

If, and when, the price of uranium goes up, the mine can be operated profitably. It is a valuable property and should be retained by the present owners, or their successors. Should a mill be established within a close proximity, the mine can be operated.

Ways and means of up-grading or concentrating the Anderson Mine ores at the mine should be examined into. A reliable firm of consultants in this field should be contacted. This may pave the way for early operation of the property.

A large company should consider the possibilities of uranium ore known to be at Blythe, California, also at Payson, Globe and Tonto-Roosevelt District, Arizona, as well as the Anderson Mine with a view to building a centrally located ore processing plant.

III RECOMMENDATIONS

Unpatented mining claims known as the Moonbeam, Cougo, and JacSam groups (ANDERSON MINE) are valuable properties and should be retained by the owners. The uranium (and vanadium) markets will show increasing demand for these metallics in the future. The drilling programs reveal that mineable ore bodies are present.

The feasibility of up-grading or concentrating the ore at the mine site should be examined into. The following person and firm are experts in this field, and one or the other should be contacted and retained to make laboratory tests and ascertain the best upgrading method that is amenable to the Anderson Mine Carnotite ores:

Robert Porter
304 First Security Building
Salt Lake City, Utah

—or—

Kappen Research
4601 Indiana Street
Golden, Colorado

If an economical mine concentrating process is found and suitable facilities are constructed in the mine area, the mine can be operated at a profit at present uranium prices. Should some large company erect a uranium processing plant in Arizona, it is quite probable that the raw ore can be shipped there and show a profit. The future should bring such a plant to the vicinity.

While some ore bodies have been blocked out as a result of past drilling programs, some areas that were "skipped" should be explored by future drilling (See Exhibit N).

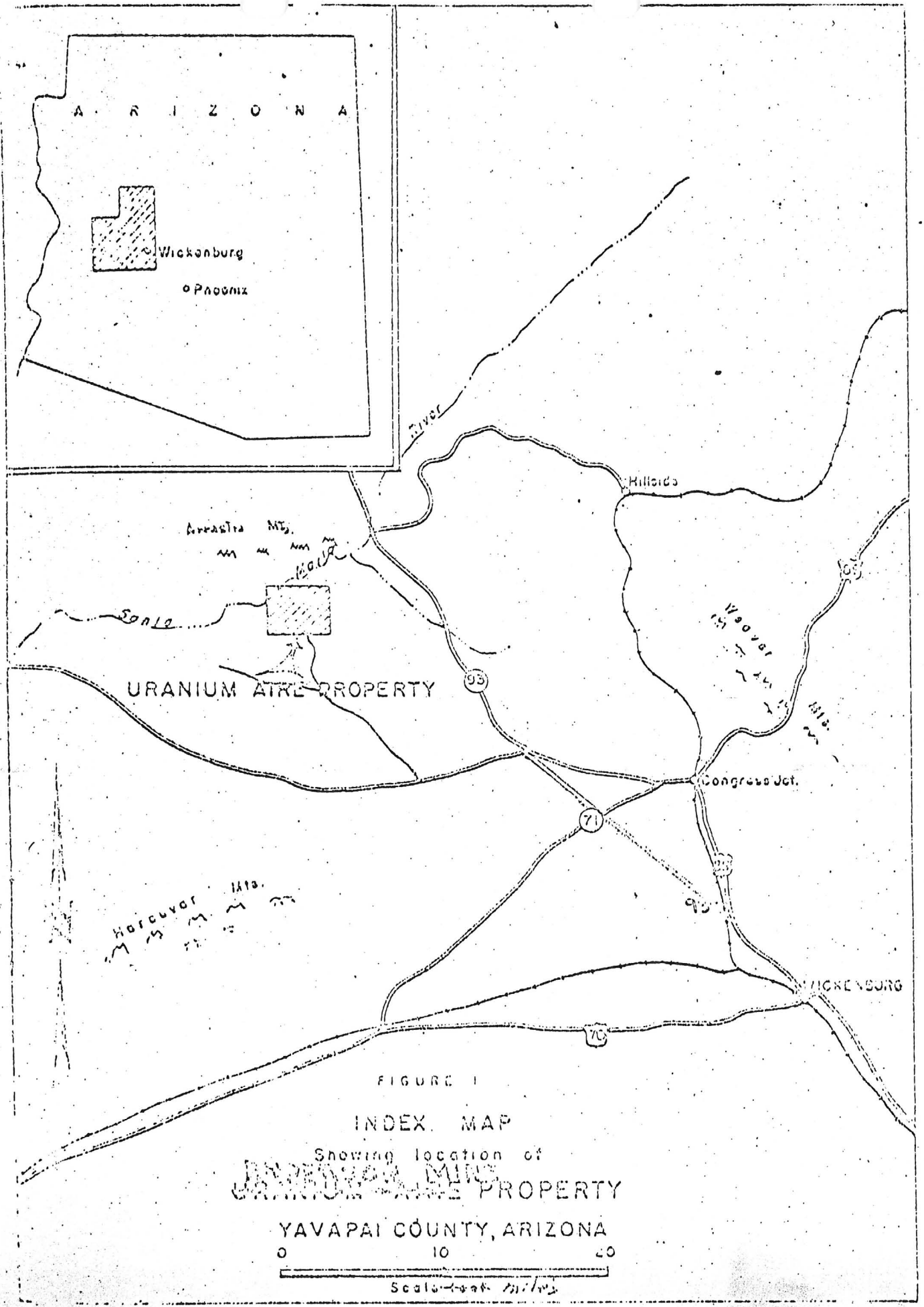


FIGURE 1

INDEX MAP

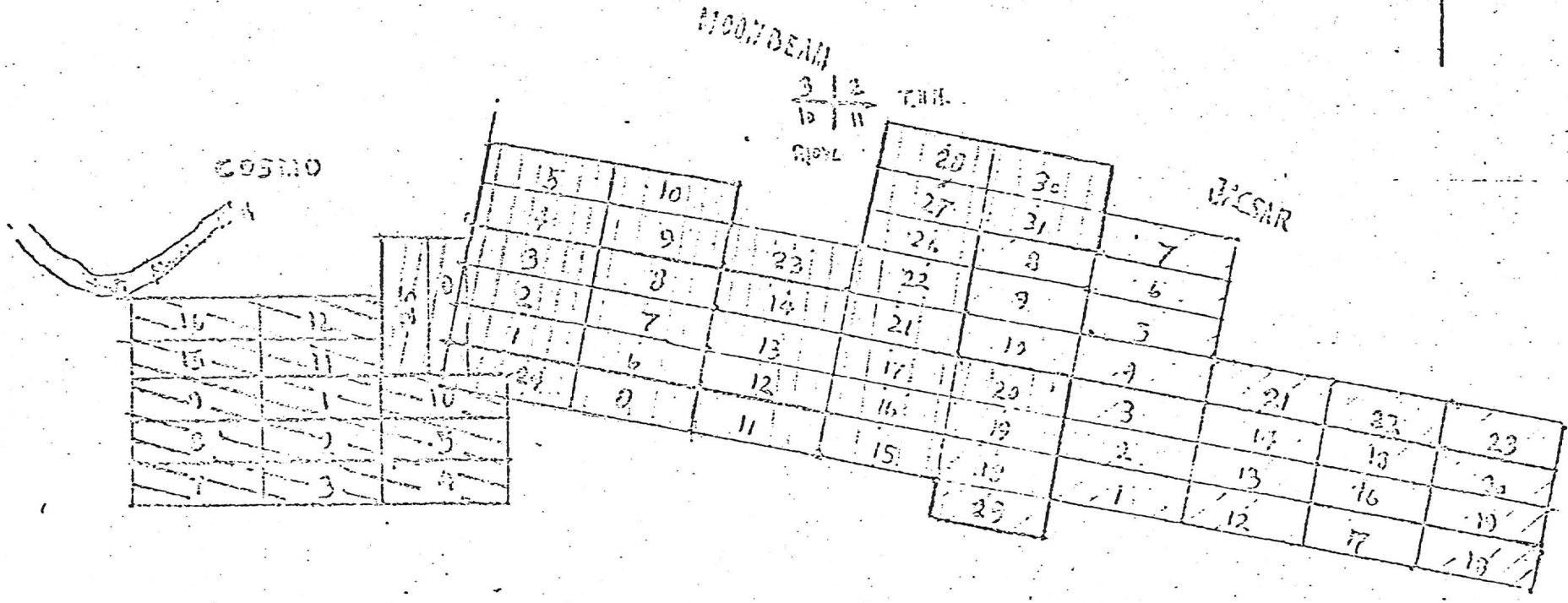
Showing location of

JAMESON MINE PROPERTY

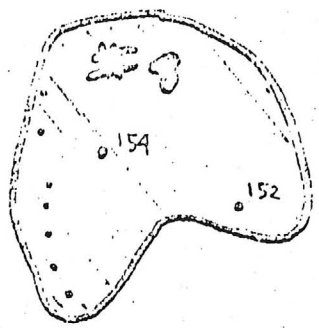
YAVAPAI COUNTY, ARIZONA

0 10 20

Scale-road miles



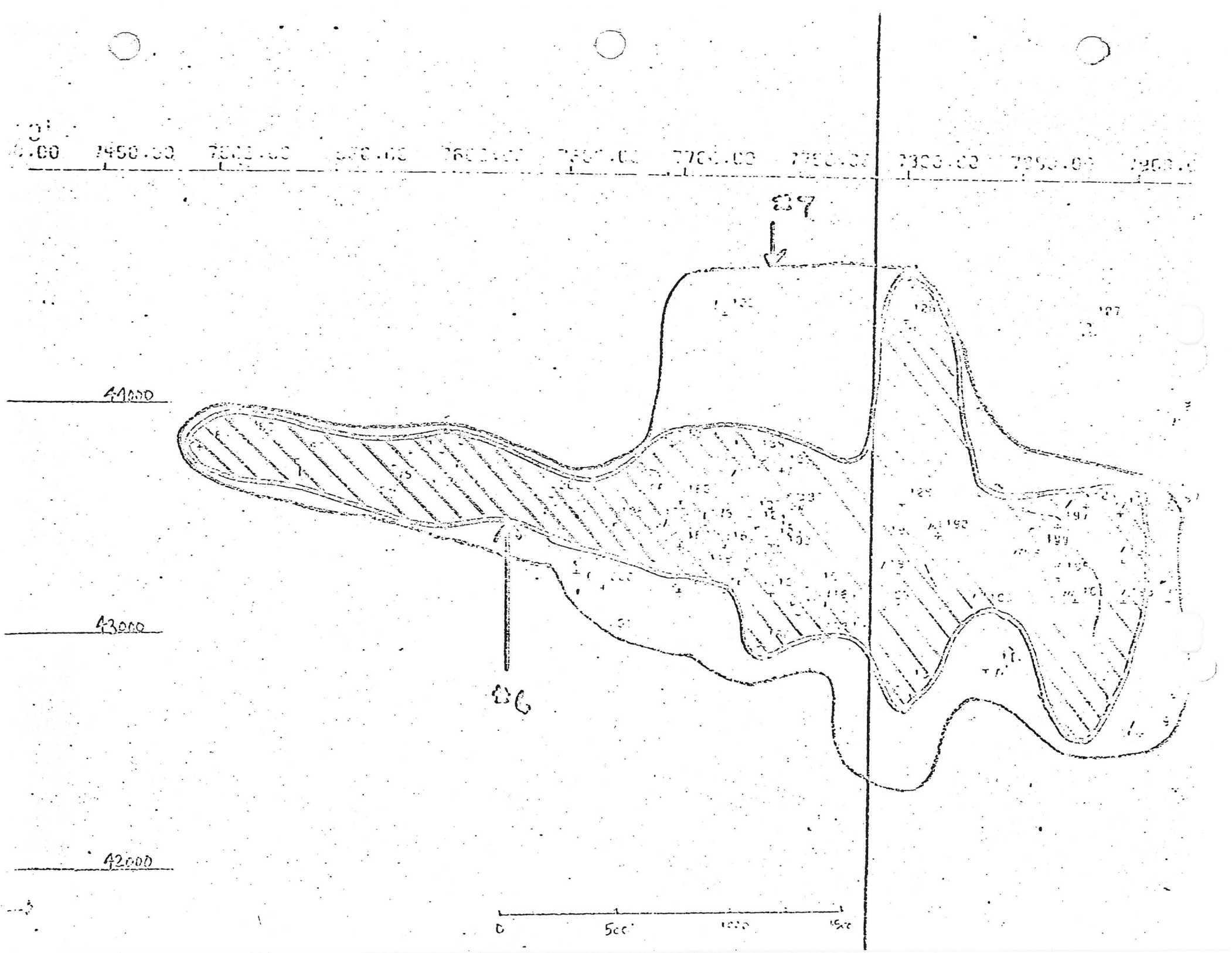
Aug 31 1970



Flat Top

Contour Int.

UNDEFINED MINE GRID - 1 IN = 500 FEET


37
36
44000
43000
42000
0
500
1000
1500

EXTRACT - AEC Computer run on Anderson mine drilling data 11/19/70

OPEN PIT study considering uranium at $ 7.50 per pound.

A ratio of .05 to 1 was used to calculate the backslope of pit.
Tonnage factor used ---18.0 cubic feet per ton.

Costs used per ton -		
	Mining &	1.75
	Milling	[illegible]
	Indirect	.60
	Haulage	.50
	Royalty	0
	advalorem	.04
	Cost per ton to mine ore	$[illegible]

Average grade of ore [illegible]
Percent recovery [illegible]
Tons of ore [illegible]
Recoverable pounds U_3O_8 [illegible],000
Gross value of deposit $ [illegible]

Pit area in Sq.feet [illegible]
Cost per ton to mine ore [illegible]
Total cost to mine ore [illegible],000
Net value before stripping $ 3,592,000.00

Ratio of yards overburden to pounds U_3O_8 6.5
Ratio of tons overburden to pounds U_3O_8 [illegible]
Pounds U_3O_8 per square foot of area [illegible]
Pounds U_3O_8 discovered per hole drilled [illegible]
Pounds U_3O_8 per foot drilled [illegible]

Total cost of mining and stripping $ [illegible].00
Profit per recoverable pound $ [illegible]
Cost per recoverable pound $ [illegible]
Percent profit [illegible]

Pit perimeter in feet [illegible]
Stripping cost per yard $ [illegible]
Total volume of overburden [illegible]
Total cost of stripping $ [illegible],000.00

Net value after mining and stripping $ [illegible],000.00

EXHIBIT [illegible]

OPEN PIT study considering uranium at $ 12.25 per pound.

A ratio of .85 to 1 was used to calculate the backslope of pit.
Tonnage factor used ---18.0 cubic feet per ton.
Costs used per ton -

Mining $	1.75
Milling	3.00
Indirect	.60
Haulage	.50
Royalty	0
Advalorem	.04
Cost per ton to mine ore	$5.89

Average grade of ore .275
Percent recovery 90
Tons of ore 900,000
Recoverable pounds U_3O_8 4,950,000
Gross value of deposit $ 59,400,000

Pit area in Sq.feet 630,000
Cost per ton to mine ore 5.89
Total cost to mine ore 5,301,000

Net value before stripping $ 54,099,000

Ratio of yards overburden to pounds U_3O_8 2.3
Ratio of tons overburden to pounds U_3O_8 1.2
Pounds U_3O_8 per square foot of area 7.86
Pounds U_3O_8 discovered per hole drilled 4,950
Pounds U_3O_8 per foot drilled 275

Total cost of mining and stripping $ 9,180,000
Profit per recoverable pound $ 10.93
Cost per recoverable pound $ 1.854
Percent profit 86

Pit perimeter in feet 4350
Stripping cost per yard $ .24
Total volume of overburden 2,160,000
Total cost of stripping $ 3,780,000

Net value after mining and stripping $ 44,919,000.00

EXHIBIT 13

1" = 500 ft.

[illegible] study considering uranium at $ 6.00 per pound.

A ratio of .05 to 1. was used to calculate the backslope of pit.
Tonnage factor used ---13.0 cubic feet per ton.
Costs used per ton -

Mining	1.75
Milling	3.00
Indirect	.60
Haulage	.50
Royalty	0
Development	.04
Cost per ton to mine ore	$5.89

Pit area in Sq. Feet 390,000
Cost per ton to mine ore 5.89
Total cost to mine ore 2,295,000.00

Average grade of ore .12%
Percent recovery 75%
Tons of ore 975,000
Recoverable pounds U_3O_8 130,000
Gross value of deposit $ 780,000.00 Net value before stripping $345,000.00

Ratio of yards overburden to pounds U_3O_8 3.7
Ratio of tons overburden to pounds U_3O_8 [illegible]
Pounds U_3O_8 per square foot of area .3
Pounds U_3O_8 discovered per hole drilled 14.444
Pounds U_3O_8 per foot drilled 3.71

Total cost of mining and stripping $ 605,000.
Profit per recoverable pound $ 1.35
Cost per recoverable pound $ 4.65
Percent profit 29

Pit perimeter in feet 3,000
Stripping cost per yard $ .35
Total volume of overburden 487,000
Total cost of stripping $ 170,000.00

Net value after mining and stripping $ 175,000.00

EXHIBIT E

ore had ready considering an mine at $ 6.00 per ton.

A ratio of 1 on to 1 was used to calculate the tonnage of ore.
Tonnage factor used 20.0 cubic feet per ton.
Costs used per ton -

Mining U	$ 2.75
Milling	3.00
Indirect	.00
Haulage	.50
Royalty	0
Advalorem	.04
Cost per ton to mine ore	$ 6.29

Average grade of ore 13.2
Percent recovery .700
Tons of ore 197,000
Recoverable pounds U_3O_8 197,000
Gross value of deposit $1,182,000.00

Pit area in Sq. Feet 230,000
Cost per ton to mine ore $ 6.29
Total cost to mine ore 1,240,000.0

Net value before stripping $ 552,000.00

Ratio of yards overburden to pounds U_3O_8 6.3
Ratio of tons overburden to pounds U_3O_8 9.5
Pounds U_3O_8 per square foot of area .8
Pounds U_3O_8 discovered per hole drilled 15.15
Pounds U_3O_8 per foot drilled 10.4.0

Total cost of mining and stripping $ 1,068,000.00
Profit per recoverable pound $ 2.55
Cost per recoverable pound $ 5.42
Percent profit 11

Pit perimeter in feet 3500
Stripping cost per yard $ .35 ¢
Total volume of overburden 1,250,000
Total cost of stripping $ 438,000.00

Net value after mining and stripping $ 114,000.00

EXHIBIT D

open pit study considering uranium at $ 12.50 per pound.

A ratio of .05 to 1 was used to calculate the backslope of pit.
Stripping factor used ---18.0 cubic feet per ton.
Costs used per ton -

Mining $	1.45	2.25
Milling	2.80	2.80
Indirect	.00	.75
Haulage	.50	
Royalty	0	
Advalorem	.04	
Cost per ton to mine ore		$ 6.34

Average grade of ore .15%
Percent recovery .70
Tons of ore 51,920
Recoverable pounds U_3O_8 114,000
Gross value of deposit @ $22.00.00 Net value before stripping

Pit area in Sq. feet 183,000
Cost per ton to mine ore 6.34
Total cost to mine ore 329,000.00

$ 193,000.00

Ratio of yards overburden to pounds U_3O_8 3.6
Ratio of tons overburden to pounds U_3O_8 5.5
Pounds U_3O_8 per square foot of area .4
Pounds U_3O_8 discovered per hole drilled 19,333
Pounds U_3O_8 per foot drilled 447.0

Total cost of mining and stripping @ 477,000.00
Profit per recoverable pound $ .29
Cost per recoverable pound $ 4.11
Percent profit 9

Pit perimeter in feet 2550
Stripping cost per yard $ .354
Total volume of overburden 423,000
Total cost of stripping @ 149,000.00

Net value after mining and stripping $ 45,000.00

EXHIBIT C

(Name) PEN study considering a mine at a $ 8.50 per pound.

A ratio of .85 to 1 was used to calculate the backslope of pit.
Average factor used ---15.0 cubic feet per ton.
Costs used per ton -

Mining $	~~2.45~~	2.25
Milling	~~3.03~~	2.80
Indirect	~~.80~~	.75
Haulage	.50	
Royalty	0	
advalorem	.04	
Cost per ton to mine ore	~~6.82~~	6.34

Average grade of ore .182
Percent recovery .700
Tons of ore 24,206
Recoverable pounds U_3O_8 42,000
Gross value of deposit $ 279,000.00

Pit area in Sq.Foot 43000
Cost per ton to mine ore 6.34
Total cost to mine ore 153,000.
Net value before stripping $ 126,000.00

Ratio of yards overburden to pounds U_3O_8 3.6
Ratio of tons overburden to pounds U_3O_8 5.4
Pounds U_3O_8 per square foot of area 1.0
Pounds U_3O_8 discovered per hole drilled 12,600
Pounds U_3O_8 per foot drilled 125.9

Total cost of mining and stripping $ 231,000.00
Profit per recoverable pound $ .77
Cost per recoverable pound $ 3.73
Percent profit 21

Pit perimeter in feet 1100
Stripping cost per yard $ .35
Total volume of overburden 224,000
Total cost of stripping $ 78,000.00

Net value after mining and stripping $ 48,000.00

EXHIBIT B

[illegible] study considering uranium at $ 8.50 per pound.

A ratio of .05 to 1 was used to calculate the backslope of pit.
Dumage factor used — 13.0 cubic feet per ton.
Costs used per ton -

Mining $	2.45	2.25
Milling	3.00	2.80
Indirect	.00	.75
haulage	.50	
royalty	0	
advalorem	.04	
	5.99	= $ 6.34

Cost per ton to mine ore

Average grade of ore .170
Percent recovery .700
Tons of ore 9,100
Recoverable pounds U_3O_8 21,060
Gross value of deposit $ 179,000.00

Pit area in Sq. feet 41,000
Cost per ton to mine ore $ 6.34
Total cost to mine ore $ 58,000.0
$ 121,000
Net value before stripping

Ratio of yards overburden to pounds U_3O_8 3.4
Ratio of tons overburden to pounds U_3O_8 7.1
Pounds U_3O_8 per square foot of area .5
Pounds U_3O_8 discovered per hole drilled 11,000
Pounds U_3O_8 per foot drilled $10.5

Total cost of mining and stripping $ 84,000.00
Profit per recoverable pound $ .68
Cost per recoverable pound $ 3.32
Percent profit 18

Pit perimeter in feet 850
Stripping cost per yard $ .35 ¢
Total volume of overburden 75,000
Total cost of stripping $ 26,000.00

Net value after mining and stripping $ 15,000.00

EXHIBIT A

- I N D E X -

EXHIBITS

MEMORANDUM FOR THE RECORD

March 7, 1970

1. The following information is applicable to the Anderson Mine (uranium) located 35 miles west of Congress, Arizona, and in particular to the Moonbeam, Cosmo, and JacSar claims that now cover this mine. The data outlined below has been obtained from various old reports, basically records dated 1956-58 covering the Uranium Aire group of claims (original locators of Anderson Mine, now superceded by the Cosmo, Moonbeam and JacSar groups).

a Data used to compute ore tonnages:
Natural ore material - 18 Cu.ft. per short ton.
Dry ore material - 21 Cu. ft. per short ton.
Stockpiles - 26 Cu.ft. per short ton.
(the ore is mudstone and siltstones, composed of tuffaceous material, largely, and some chert).

b Ore shipped in 1958:
3,145 tons to AEC, Cutter, Arizona.
1,163 tons to Grants, N.M. buying station.
4,308 tons total averaging .21% U_3O_8.

c Interstate Oil and Development Co.'s estimate of ore bodies:

	Thickness (ore bed)	Overburden
Pit #1	4.65'	42'
Pit #2	3.75'	
Pit #2W	3.50'	32'
Flat Top	3.75'	70'
Claim 7W	4.00'	10'

d Ore estimates: (IOD)

				(another estimate)	
Pit #1	57,457 tons	containing	.20% U_3O_8.	- 19,224 tons	.21%
Pit #2	70,832 "	"	.20% "	- 14.900 "	.17%
Pit #2W	21,720 "	"	.20% "	- 13,500 "	.20%
Flat Top	42,200 "	"	.35% "	- 9,300 "	.19%
Claim 7W	2,000 "	"	.20% "		
Stockpiles	31,000 "	"	.15% "	- 13,670	.11%
Total	225,209 tons	average	.22% U_3O_8	- 70,594 tons.	

e Map of Uranium Aire Group (1956) (Inclosure No.1)

f Approximate location of above mentioned ore bodies (Inclosure No.2)

2. These ore bodies are now part of what are now the Cosmo and Moonbeam claims. Stockpiles also remain on the Cosmo and Moonbeam groups.

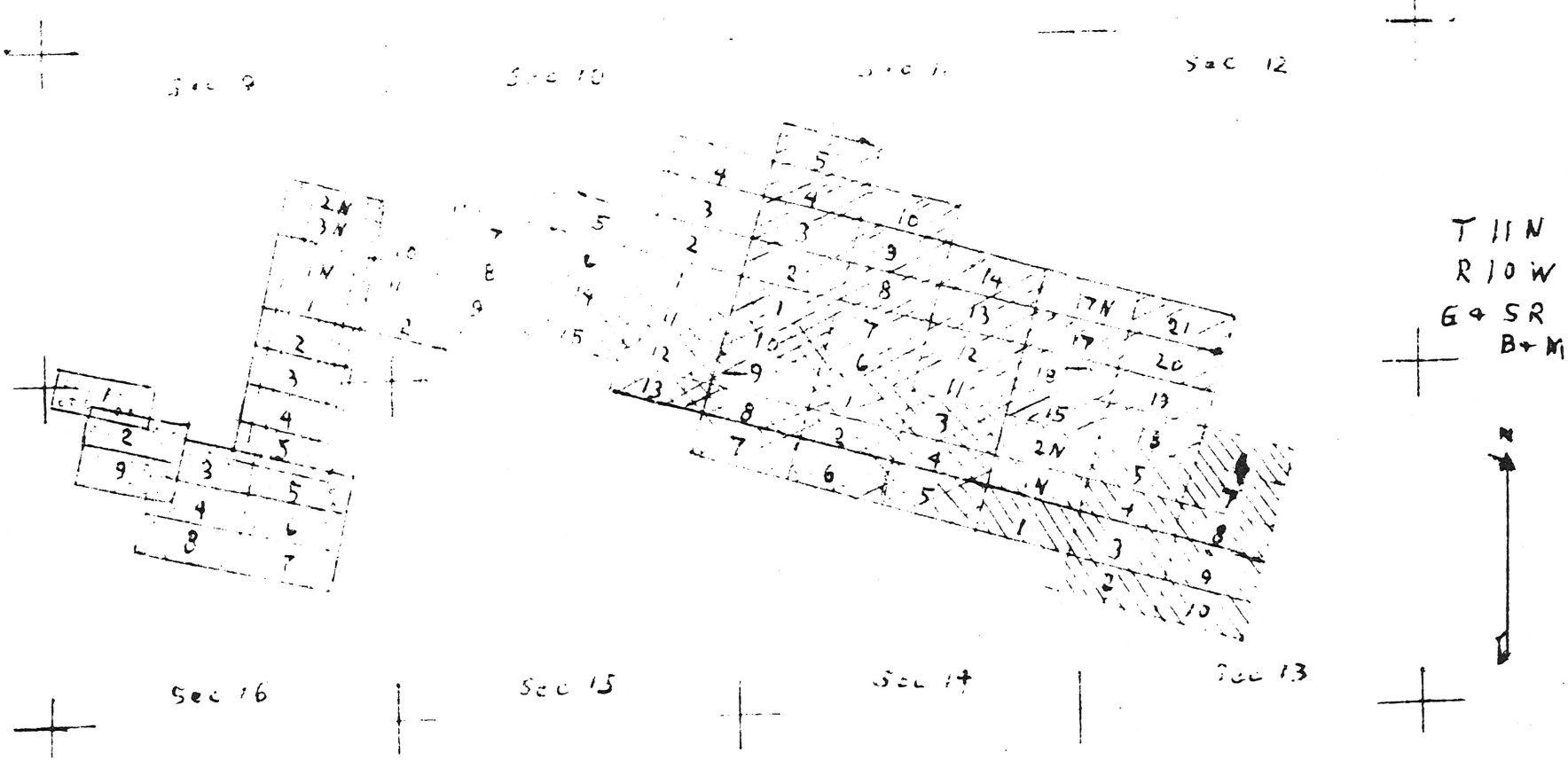
M. H. J.

Melvin H Jones

URANIUM AIRE GR.

Incl. #2

Exh. # 1



URANIUM AIRE 1-21 ETN CLAIMS

URANIUM AIRE East End 1-10 1N 2N CLAIMS

URANIUM AIRE 1-15 South CLAIMS

URANIUM AIRE 1-12 West CLAIMS

URANIUM AIRE Flat Top 1-5 1-3 N CLAIMS

URANIUM AIRE FLAT TOP GP2 1-9 CLAIMS

URANIUM AIRE GROUP

YAVAPAI COUNTY ARIZONA

Scale: 2" = 1 MILE

1956

RESUME'

Anderson Mine(uranium),35
Miles West of Congress,Arizona.

15 March 1970

The Anderson Uranium Mine is located about 35 miles West of Congress, Arizona near the Santa Maria river in Yavapai County,Arizona. At present, it consists of the Moonbeam,Cosmo, and JacSar groups of claims owned by Daniel C. Jacobs, Melvin H Jones, Lee Hammons, William Sargent and Charles E. Johnson. The latter two individuals have the JacSar group. It is the intention of the claim owners to sell all groups as one "package", as all are on the same uranium bearing mudstone formations. All required assessment work has been accomplished. There are 31 Moonbeam, 13 Cosmo, and 26 JacSar claims, totaling 70 claims. There is a railroad siding at Congress(for shipping), and water adjoining the Cosmo group in the Santa Maria river.

These claims were located in 1964 by the present owners, with additions, from time to time, since then. The claims were originally "Uranium Aire" claims located by Anderson and Moore in the 1950's,and some ore was shipped from an open pit operation during 1957 and 1958. See exhibit "B". However, the claims were abandoned by the original locaters, and re-located by the present owners as outlined above. It appears that with the discovery of rich uranium deposits in the Grants, N.M. area and the Uravan belt, and the necessity of shipping the unmilled ore to distant uranium plants, and the lower uranium prices in those days, caused the original owners to give up the claims. Now, some mines in the areas mentioned are "worked out".

A visit to the Anderson mine will reveal two areas where excellent Carnotite ore is exposed on the surface. These are the main pit (Moonbeam) area and the Flat Top region(Cosmo). There are probably in excess of 10,000 tons of ore stockpiled that will run about .1% U_3O_8. One walks across unmined carnotite in several vicinities, that is visible to the eye.

Getting back to the history of the mining property again, it is to be pointed out that the present owners of the mentioned claims entered into a lease agreement, with option to buy, with Getty Oil Company, in early 1968. Getty was to pay $550,000.00 for the claims. Well, to make a long story short, Getty people spent about $200,000.00 drilling the Anderson mine property, including some drill holes on the Kleck-Sharp claims(totaling 350,plus,claims) which surround the described Anderson mine property to the East,South,and West. In 1969, the Getty people returned the claims to us, with comments indicating that the orebody found was too small for the size of operation that Getty wanted to engage in. It is of course, general information, that Getty now has an extensive operation in Wyoming.

We received copies of the Getty(Gamma ray) drill logs, but we received none of their interpretive information. The young geologist who turned the logs over to us said substantially as follows:"there is good ore in the vicinity of the main pit and at Flat Top, but then it thins out. We only got "smells" on the Kleck-Sharp claims". These remarks are self explanitory.

Examination of the logs confirm, to a degree, the preceding remarks. However examination of the logs, in detail, and the accompanying maps, show a very poor drilling program, in the opinion of the writer(and others who are experienced geologists). Some areas were not drilled that should have been - for example, there are only 5 or 6 holes on the JacSar claims. A grid pattern was not generally followed so that reserve ore tonnages can be reasonably computed. We have some logs whose locations are not shown on the maps, coordinates are not entered on most logs, and other deficiencies. We found drill holes on the property that were not mapped. So it appears to bad that so much money was spent on drilling with poor informational results.

Without getting into detailed geological descriptions, suffice it to say that in the main pit area(and at Flat Top) there are several beds of Carnotite ore at varying depths. Lets take drill hole #165 for example: there is ore at the surface that does not show on the log; then at 43 to 45 feet there is a 2 foot vein of .12% ore; then at 121 to 122.5 feet there is 1.5 foot of .20% ore;then from 124 to 125 there is .04% ore; then from 128 to 129 there is .05% ore; then from 135 to 136.5 there is .13% ore; then again from 206 to 208 feet there is .10% U_3O_8 ore. This totals up to 9 feet of ore averaging .11% ore. The best drill hole (203) shows about 2 feet of .91% U_3O_8 at one level.

Now, lets give a little consideration on what the total ore body in the Anderson Mine might encompass to the extreme minimumal degree. One claim(20 acres), if it has an ore body 3 feet in depth will produce about 120,680 tons of ore. If it is .1% ore, it will produce 2 pounds of ore to the ton. At a rate of $8.00 per pound, this will amount to $1,930,880.00 of gross money. If the ore is .2% U_3O_8, then the amount will be just under 4 million dollars. The writer, is of the opinion that there is at least 200,000 tons of good ore in the known areas, and that there is probably 500,000 tons or more that can be obtained. I am not going to get into mining and milling costs, but they are not major.

The Anderson mine owners, at this date, and after floundering around with several potential buyers of the property,(none of whom had a competant geologist make a serious examination of the orebody), have decided to send the drill logs and maps to the AEC at Grand Junction, Colorado, who will compute apparent reserves of ore. This will settle the question of ore reserves, and this is the key to a monetary value of the mine. Perhaps our present asking price is too low.

Other interesting information on the Anderson Mine is in: MME 2057 - Tertiary Uranium deposits in SW Yavapai County, Arizona.

Melvin H. Jones

MELVIN H JONES
Co-owner.

Exhibts.
A - Map of the claims
B - Information from the Bureau of Mineral Resources, Arizona.

But the future of uranium mining appears to be bright. It has been predicted that the uranium prices will double or triple. It seems that some of the contemplated nuclear fuel plants were not constructed, as soon as anticipated by some authorities, and as a result the demand for uranium did not rapidly increase. But it is generally conceded that fossil fuels are on the way out and nuclear fuels will replace them, largely due to air pollution.

Most of the information outlined in this report so far has been relative to direct shipping ore from the Anderson Mine. Now let us consider the possibilities of upgrading, beneficiation or concentrating the ore at the mine site. First off, let me say that this is in the fields of Chemical Engineering and Metallurgy (ore dressing) and this is beyond the expertese of the average mining geologist. The shipping of concentrates from the mine should greatly enhance profits. The writer has no information on the cost of building a suitable plant and the expense of processing the ore in such an operation.

However, uranium ore can be concentrated by leaching in situ (when rock stratigraphy is suitable), heap leaching, bulk precipation, solvent processing and/or ion exchange. When the ore is not too limy, sulfuric acid can be used to place the uranium in solution, and it is then precipitated by adding ammonia, MgO, or other bases, and the concentrates can then be shipped to a processing plant "as is", for example. In the case of the Anderson ore with a high calcium carbonate content (See Exhibit C-3-4), it may prove too expensive to use sulfuric acid. In this case, it may be preferable to use the alkaline carbonate solutions for leaching. It is to be pointed out that ore having a 2% $CaCO_3$ content will require 60 lbs. of acid to neutralize a ton of ore, plus additional acid to a ph 1.0 or 1.5 to place the uranium in solution. Sulfuric acid can be purchased in large bulk amounts at from 1 to 2 cents a pound. I have outlined this information to give the reader some idea of what is involved in up-grading uranium ore. Needless to say, the Anderson Mine owners, or other interested individuals, should have the ore tested by a competent research laboratory to determine an inexpensive and feasible way of up-grading the same. Also the cost of building and operating a proper processing plant should be ascertained.

Certain other information concerning the Anderson Mine is in the attached Exhibits and is pertinent to the overall "picture". One of these is a structural profile map of one section of the pit area, that was made from Getty log data, by the writer (See Exhibit E-1-2).

It is the intention of the undersigned to make a supplement to this report as soon as AEC computations are completed and a study is made of the results.

Respectfully submitted,

MELVIN H. JONES
Mining Geologist

REGISTERED GEOLOGIST
Melvin H. Jones
No. 841
STATE OF CALIFORNIA

August 31, 1970
Box
Monticello, Nevada 89302

Mr. Tom Osborne
Tom Osborne & Associates
1715 North Nineteenth Place
Phoenix, Arizona 85006

Dear Mr. Osborne;

Enclosed in a separate envelope is the report that you requested.

I have personally developed a new process for treating low grade uranium ores. This process is currently being patented and will require testing on a large pilot plant (200-500 tons per day) scale before it can be applied to large volumes of low grade ores. In this new process capital investment requirements are about 1/30 the present costs for a uranium plant, operating costs about 1/4 to 1/5 the current costs and recovery as yellow cake amounts to plus 90% in almost all cases.

I visited the Anderson mine about two months ago and have tested the ores for treatment in this new process. They respond very well to treatment. However, I was not impressed with the Anderson mine. From what drilling has been done and the amount of ore that is exposed, I felt that it is a rather poor property for the first use of my new process.

If I can be of further help to you, please let me know.

Sincerely yours,

Paul H. Johnson

Paul H. Johnson, Ph.D.
Metallurgist

Getty Oil Company 2330 So. Main St., Salt Lake City, Utah 84115 | (801) 487-0851

Minerals Exploration & Mining Department
District Uranium Exploration Office

May 2, 1969

Mr. Melvin H. Jones
P. O. Box 406
Wickenburg, Arizona 85358

Dear Mr. Jones:

I apologize for not having written you sooner with regards to the Ore Claims, as it has been sometime since you were here and were asking Paul Riddell about them.

As you know, we are quite willing to deed them to your group, as well as Kleck & Sharp, provided both groups are in agreement as to what claims each group should get and the terms and conditions required. Getty Oil will also need to be released as to any royalty provisions and liabilities, etc.

An instrument has been furnished to Jim Sharp sometime ago, and apparently he has had some problems getting his attorney to approve or look at it. I suggest you contact Mr. Sharp, and if the instrument is not agreeable to both of you, perhaps both of your groups can prepare a new instrument for our approval, and the matter can be closed.

Good luck with your future plans with the Anderson Mine prospect, and if we can be of any additional help, please let us know.

Yours very truly,

I. C. Trimble Jr.

I. C. TRIMBLE, JR.
District Minerals Landman

ICTJR:jw

Western
EQUIPMENT
Sales Corp.

P.O. Box 6516
6316 West Van Buren
Phoenix, Arizona 85005

Phone: 936-3348
Area Code 602

April 21, 1969

Mr. Melvin H. Jones
P. O. Box 406
Wickenburg, Arizona 85358

Mr. Daniel Jacobs
P. O. Box 53
Congress, Arizona 85332

Dear Mel and Dan:

I have a large Company looking for a large Quartz property to manufacture Silicon. The quartz must be almost pure and a massive deposit capable of many years production. Also I have another large Company looking for Fluorspar. I have records of the following deposits in your area:

(1) Township 9 North, Range 5 West, about Sections 8 and 17, about 4 1/2 miles southeast of Congress.

(2) Township 6 North, Range 5 West, about Sections 11 and 14, south of the Vulture Mountains.

(3) Township 2 North, Range 3 West, about Sections 3 and 4, on the west side of the White Tank Mountains.

(4) Township 5 North, Range 10 West, about Section 27, Southwest of the Harquahala Mountains.

(5) Township 5 North, Range 9 West, about Sections 27 and 28.

If you can locate any of these properties I can negotiate a deal immediately and perhaps make a few dollars for us.

I am working on the Uranium property as of the moment. I had a meeting with the Chief Geologist of Foote Minerals last week and they are interested. I also had a meeting with the General Manager of Goldfield, Inc., last week and will have a meeting with the President of this Company next week. The Uranium is one of the properties we will be discussing.

Sincerely yours,

Jim

James W. Sharp

JWS:h

RESUME'

Anderson Mine(uranium),35
Miles West of Congress,Arizona.

15 March 1970

The Anderson Uranium Mine is located about 35 miles West of Congress, Arizona near the Santa Maria river in Yavapai County,Arizona. At present, it consists of the Moonbeam,Cosmo, and JacSar groups of claims owned by Daniel C. Jacobs, Melvin H Jones, Lee Hammons, William Sargent and Charles E. Johnson. The latter two individuals have the JacSar group. It is the intention of the claim owners to sell all groups as one "package", as all are on the same uranium bearing mudstone formations. All required assessment work has been accomplished. There are 31 Moonbeam, 13 Cosmo, and 26 JacSar claims, totaling 70 claims. There is a railroad siding at Congress(for shipping), and water adjoining the Cosmo group in the Santa Maria river.

These claims were located in 1964 by the present owners, with additions, from time to time, since then. The claims were originally "Uranium Aire" claims located by Anderson and Moore in the 1950's,and some ore was shipped from an open pit operation during 1957 and 1958. See exhibit "B". However, the claims were abandoned by the original locaters, and re-located by the present owners as outlined above. It appears that with the discovery of rich uranium deposits in the Grants, N.M. area and the Uravan belt, and the necessity of shipping the unmilled ore to distant uranium plants, and the lower uranium prices in those days, caused the original owners to give up the claims. Now, some mines in the areas mentioned are "worked out".

A visit to the Anderson mine will reveal two areas where excellent Carnotite ore is exposed on the surface. These are the main pit (Moonbeam) area and the Flat Top region(Cosmo). There are probably in excess of 10,000 tons of ore stockpiled that will run about .1% U_3O_8. One walks across unmined carnotite in several vicinities, that is visible to the eye.

Getting back to the history of the mining property again, it is to be pointed out that the present owners of the mentioned claims entered into a lease agreement, with option to buy, with Getty Oil Company, in early 1968. Getty was to pay $550,000.00 for the claims. Well, to make a long story short, Getty people spent about $200,000.00 drilling the Anderson mine property, including some drill holes on the Kleck-Sharp claims(totaling 350,plus,claims) which surround the described Anderson mine property to the East,South,and West. In 1969, the Getty people returned the claims to us, with comments indicating that the orebody found was too small for the size of operation that Getty wanted to engage in. It is of course, general information, that Getty now has an extensive operation in Wyoming.

We received copies of the Getty(Gamma ray) drill logs, but we received none of their interpretive information. The young geologist who turned the logs over to us said substantially as follows;"there is good ore in the vicinity of the main pit and at Flat Top, but then it thins out. We only got "smells" on the Kleck-Sharp claims". These remarks are self explanitory.

Examination of the logs confirm, to a degree, the preceding remarks. However examination of the logs, in detail, and the accompanying maps, show a very poor drilling program, in the opinion of the writer(and others who are experienced geologists). Some areas were not drilled that should have been - for example, there are only 5 or 6 holes on the JacStar claims. A grid pattern was not generally followed so that reserve ore tonnages can be reasonably computed. We have some logs whose locations are not shown on the maps, coordinates are not entered on most logs, and other deficiencies. We found drill holes on the property that were not mapped. So it appears to bad that so much money was spent on drilling with poor informational results.

Without getting into detailed geological descriptions, suffice it to say that in the main pit area(and at Flat Top) there are several beds of Carnotite ore at varying depths. Lets take drill hole A165 for example; there is ore at the surface that does not show on the log; then at 43 to 45 feet there is a 2 foot vein of .12% ore; then at 121 to 122.5 feet there is 1.5 foot of .20% ore; then from 124 to 125 there is .04% ore; then from 128 to 129 there is .05% ore; then from 135 to 136 there is .13% ore: then again from 206 to 208 feet there is .10% U_3O_8 ore. This total up to 9 feet of ore averaging .11 ore. The best drill hole (208) shows about 2 feet of .01% U_3O_8 at one level.

Now, lets give a little consideration on what the total ore body in the Anderson Mine might encompass to the extreme minimumal degree. One claim(20 acres), if it has an ore body 3 feet in depth will produce about 120,680 tons of ore. If it is .1% ore, it will produce 2 pounds of ore to the ton. At a rate of $8.00 per pound, this will amount to $1,930,880.00 of gross money. If the ore is .2% U_3O_8, then the amount will be just under 4 million dollars. The writer, is of the opinion that there is at least 200,000 tons of good ore in the known areas, and that there is probably 500,000 tons or more that can be obtained. I am not going to get into mining and milling costs, but they are not major.

The Anderson mine owners, at this date, and after floundering around with several potential buyers of the property,(none of whom had a competant geologist make a serious examination of the orebody), have decided to send the drill logs and maps to the AEC at Grand Junction, Colorado, who will compute apparent reserves of ore. This will settle the question of ore reserves, and this is the key to a monetary value of the mine. Perhaps our present asking price is too low.

Other interesting information on the Anderson Mine is in: TME 2057 - Tertiary Uranium deposits in S.W Yavapai County, Arizona.

Melvin H Jones

MELVIN H JONES
Co-owner.

Exhibts.
A - Map of the claims
B - Information from the Bureau of Mineral Resources, Arizona.

Bureau of Mineral Resour(
State of Arizona

Engineer's report. Travis P.Lane Sept 25, 1958

E X T R A C T

Anderson Mine - 34 miles West of Congress, Arizona.
U_3O_8

Owner and Operator - Interstate Oil and Development Co.
Wickenburg, Arizona (Reno, Nevada).

420 claims - long axis for 3 miles in NW-SE direction.

Main mineralization, principally carnetite occurs in strata in carbonaceous lake sediments of late tertiary age. Host material is calcareous mudstone with varying amounts of tuff. Fragments and chunks of petrified palm roots, trunks, and fronds are abundant in beds.

The workings are of 4 major pits and a great many cuts and trenches and some 30,000 feet of drilling has been done. Drilling depth averaged 30' with a maximum of 500' and a minimum of 20'. The work has indicated a limit of mineralization on the SE end, more or less continuous mineralization from there in a NW trend to the NW end of property. Width of zone is less clearly indicated. In the mining area it is at least 600' width with indicated further lateral extent. The main ore bed, where pit mined, is overlain with about 18' of overburden, and was 3 to 4' thick. Drilling on floor of largest pit encountered other ore beds at 20', 35', 78' and 160'. Thickness and grade is comparable to main bed, except at 78' where thickness of more than 20' of U_3O_8 was penetrated, with lower U_3O_8 content.

Major production was from 4 closely spaced pits along the NW trend of mineralization. Total production was said to have been around 25,000 tons with average grade of 0.30 % U_3O_8. The largest pit in the SE end has been fairly well mined out, although some ore remains in the floor and in places the ore bed dips (at about 10°) under the overburden on the SW side of pit. The other pits are only partially mined out. The operators estimate that ore in stockpiles amounts to 40,000 to 50,000 tons with grade under .2% U_3O_8. Some ore was shipped to the globe ore buying station, but most was sent to AEC stations at Bluewater and Grants, N.M.

Engineer's report. Travis P.Lane Sept 25, 1958

E X T R A C T

50 tons shipped to the Tuba City plant of Rare Metals Corp for ore testing. Material obtained from number of holes on floor, stripped area in pits, and from stockpiles. Three lots were run with reported assays of 0.11, 0.12 and 0.23 %.

Engineer's report. [illegible] Squire March 27, 1957

E X T R A C T

Production about 150 tons per week. Has 4 trucks. Average grade 0.3 to 0.4 % U_3O_8.

Highlights

under fluvial conditions

The U. is supergene and came in with siliceous waters in the lucustrine beds - Mudstone above and below are calcarious.

In previous reports, the term carbonaceous is used again and again in connection with association with the U. Geologists use the term calcarious for calcium carbonates - not carbonaceous. The latter means pyuro carbonates such as lignites, coal, etc. Very little of the Anderson U. appears to be associated with carbonates.

Should

The ore is in beds, probably in the form of lenses. Surface outcrop examination shows that it is rich-lean, alternatingly.

Older reports refer to the Anderson as the lake bed deposit, in the sense, that it is an ancient isolated lake bed. Actually, Arizona is full of ancient lake beds, it is a very common situation. Wickenburg, for example is an old lake bed, so is Kingman. The lucustrine Ms deposits are common in many places such as Wickieup, west of Signal going to Bagdad. It is not believed these areas have been explored for U. to any marked extent.

The classification by AEC as a lake bed deposit, puts the Anderson in the category with scattered U. deposits in California and in other Arizona locations. If enough of these deposits are determined to be economically feasible - then some large company will put in a U processing plant. The U. at Elmo, and at Blythe needs further investigation.

Got AEC reserve ore tonnages for report

Obtain further info on U leaching processes for up grading and costs.

Overburden above ore beds can be removed for $.35 a yard or less.

Quote in report, the waterflow data on the Santa Maria river.

D. Collar

Elevations

Nos.

1 — 1926
3 — 1948
5 — 1923

Drill Hole(prpbe)logs

Anderson Mine.

	Nos.	
1929	7	
1925	10	
1931	11	1938
	13	1943
	14	1934
	15	1933
	16	1938
1935	17	
	18	1797
1952	20	
	21	1902
	25	1760
	26	1796
1750		
1900		
1815	29	1808
	30	1824
	31	1926
	32	1774
	34	1935
	35	1897
	36	1950
	37	1954
	38	1943
	39	1926
	87	1945
1950	88	
	98	1952
	101	1880
	103	1886
1972	105	
	107	1849
	108	1834
	110	1836
	124	1846
1886	125	
	126	1997
	127	1964
	128	1835
	129	1897
	130	1918
1946	134	
1945	137	
	~~137~~	
1965	138	
1972	139	
1982	140	

	Nos.	
1880	141	
1906	~~148~~ 142	
1901	144	
1890	145	
1778	146	
1780	147	
	~~1840~~ 149	
1792	1752 150	
	1748 151	
	1885 152	
	1887 153	
	1885 154	
	1715 155	
	158 — 1895	
	159 — 1908	
	160 — 1905	
	161 — 1910	
	162 — 1921	
	~~163~~ ~~1896~~	
	165 — 1813	
1810	167	
	168 — 1806	
1820	170 — 1837	
	179 — 1825	
1907	180	
	181 — 1897	
1849	182	
	183 — 1867	
1906	184	
	185 — 1848	
1826	186	
1817	187	
1811	188	
1800	189	
1863	190	
1861	191	
1870	192	
1850	193	
1820	194	
1871	195	
1896	196	
1898	197	
1886	198	
1885	199	
1820	200	
1850	201	
1831	202c	
1812	203	

11 Feb 1969 96 Logs

Received 96 Drill logs. To be returned in 3 days. D K Atkinson

For Cutter Corp.

Examination of the logs confirm, to a degree, the preceding remarks. However examination of the logs, in detail, and the accompanying maps, show a very poor drilling program, in the opinion of the writer(and others who are experienced geologists). Some areas were not drilled that should have been - for example, there are only 5 or 6 holes on the Jaegar claims. A grid pattern was not generally followed so that reserve ore tonnages can be reasonably computed. We have some logs whose locations are not shown on the maps, coordinates are not entered on most logs, and other deficiencies. We found drill holes on the property that were not mapped. So it appears to had that so much money was spent on drilling with poor informational results.

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Other interesting information on the Anderson Mine is ims
MME 2057 - Tertiary Uranium deposits in SW Yavapai County, Arizona.

Melvin H. Jones
MELVIN H JONES
Co-owner.

Exhibts.
A - Map of the claims
B - Information from the Bureau of Mineral Resources, Arizona.

COASTAL BEND MARINE

HIWAY 35 NORTH
POST OFFICE BOX 847
ROCKPORT, TEXAS 78382

512/729-5711

Aug. 27, 1973

Dear Melvin:

First of all let me say how good it is to hear from you.

Geo. McCoywas Geohole Geophysical, he owned it. and your callings are correct as nearly as I can remember. The claims at the time of the drilling,in question, were under lease to Louis Lothman, S.H. Glassmire of S.H. Glassmire & Associates, Santa Fe, New Mexico, was the Geologist for Lothman at the time and he and Geo. McCoy personally logged the hole (gamma ray) through the drill stem. There were two readings of three and four feet, one at about twelve hundred and the other at about thirteen hundred feet.

The hole bottomed at something over seventeen hundred feet, the good count started at 1502' and went to 1545', we had a continuous count of from .40 U308 to 1.90 U308, it was estimated at the time that probing through the drill pipe cut the reading by about one third. The mud would settle and the probe simply would not go down and they were afraid of losing the hole if they thinned it enough to probe.

The original log went to Salt Lake City with Mallory and he claimed they lost it.

There were ten holes finished on the property to 2100' plus. covering a large area.

All around the claims we went through an average of 650' of conglomerate, then into a bentinatite mud, clay and some ash.

For the record you and Dan have my whole hearted cooperation and please consider this letter your authority to represent me and any deal you can generate, I'll be most happy to consider.

My very best to you and Dan,

Tom Osborne

HOMESTAKE-WYOMING PARTNERS

MAIN OFFICE
650 CALIFORNIA ST.
SAN FRANCISCO, CALIF. 94108
415-981-8150

DISTRICT OFFICE
45 WEST 5TH AVE.
DENVER, COLO. 80204
303-825-6229

December 17, 1970

Mr. Melvin H. Jones
Box 406
Wickenburg, Arizona 85358

Dear Mr. Jones:

Thank you for the report on the Anderson Mine, dated 10/31/70.

I agree with your conclusions and recommendations.

Yours truly,

Robert Morris Steele

PORTER AND COMPANY

1010 NORTH ORCHARD AVENUE

P. O. BOX 667 BOISE, IDAHO

ROBERT P. PORTER

RICHARD B. PORTER

AREA CODE 208

TELEPHONE 375-9770

May 4, 1971

Mr. M. H. Jones
P. O. Box 406
Wickenberg, Arizona 85358

Dear Mel:

As per your phone call of April 27, 1971 regarding the assays on the Anderson Mine; I am enclosing herewith a signed copy of the Vanadium assay by Union Assay and a signed copy of the Uranium assay by Minerological Service.

Sincerely,
PORTER AND COMPANY

R. P. Porter

RPP/rbp
encls.

UNIVERSITY OF ARIZONA
ARIZONA BUREAU OF MINES
TUCSON, ARIZONA

SUPPLEMENTAL REPORT
(12/5/70)

to

PRELIMINARY GEOLOGICAL EVALUATION REPORT OF THE

ANDERSON MINE(uranium)

Yavapai County

Arizona

dated 31 August '70

by

Melvin H.Jones

SUPPLEMENTAL REPORT
(12/5/70)

to

PRELIMINARY GEOLOGICAL EVALUATION REPORT OF THE

ANDERSON MINE(uranium)

Yavapai County

Arizona

dated 31 August '70

by

Melvin H.Jones

MELVIN H. JONES
Mining Geologist
Box 1, Montello, Nevada 89830

SUPPLEMENTAL REPORT TO "Preliminary Geological Evaluation Report; Anderson Mine(uranium), Yavapai County, Arizona, dated August 31, '70.

The following information supplements the economic considerations outlined in subject report and supercedes data and Conclusions previously outlined. These changes are a result of a re-study of the Getty Oil Company drill hole data, and an estimation of uranium ore reserves by statistical methods and a computer.(AEC, Grand Junction, Colo.).

Earlier drill hole data by Interstate Oil and Development Company action during 1957 and 1958 has been mostly disregarded for this current study, as it was found to be somewhat unreliable, surveys were inaccurate, and computations poorly accomplished. This was also found to be true of the few Gaither drill holes in the Cosmo claims area. In my basic report, much of this Interstate data was used. However, these data is useful on a correlation basis for the location of the various ore bodies, and confirms to a degree, the tonnage and uranium value figures outlined below.

The following information pertains to the Moonbeam group of claims, only. (Getty Oil drilled toofew drill holes on the Cosmo and JacSar groups to justify a computerized study).((Note; all groups are part of the Anderson Mine area)).

1. CONSIDERING URANIUM VALUE AT $4.50 PER POUND, the following information has been ascertained. There are three(3) small orebodies on the Moonbeam claims that can be worked profitably, with pertinent data, infra:

Ore body.	Grade of ore(U_3O_8).	Tons of ore.	Cost to Mine.	G.value.	Net value.
1.	.17	9100	$58,000.00	$99,000.00	$15,000.00
2.	.182	24200	$153,000.00	$270,000.00	48,000.00
3.	.159	51900	$329,000.00	$522,000.00	45,000.00
TOTALS	.173(Avg)	85200	$540,000.00	$900,000.00	$108,000.00

(For more detailed mining and milling costs,tonnages,values, and ore body locations, see Exhibits A,B,C, and F, attached).

2. CONSIDERING URANIUM VALUE AT $6.00 PER POUND, the following information has been ascertained. There are two (2) ore bodies on the Moonbeam claims that can be worked profitably:

Ore body.	Grade of Ore(UO).	Tons of ore.	Cost to Mine.	Gr.value.	Net value.
4.	.132	107000	$630,000.00	$1,182,000.00	$114,000.00
5.	.126	73900	435,000.00	780,000.00	175,000.00
TOTALS	.129 (avg)	180900	$1,065,000.00	$1,970,000.00	$289,000.00

(For more detailed information on $6.00 ore,See Exhibits D,E,& F.)

3. CONSIDERING URANIUM VALUE AT $7.50 PER POUND, the following is applicable. There is one(1) orebody on the Moonbeam claims that can be worked profitably:

Ore body	Grade of ore	Tons of ore	Cost to mine	Gross V.	Net value
6.	.10%	74,100	$4,[illegible],000.00	$8,[illegible],000.	$1,1[illegible],000.00

(For detailed information and calculations, see Exhibits H & I.).

The tonnages in the above computations are on the conservative side and the cost factors are on the high side. The cost figures are based on what a contractor would charge, and he would have the objective of making a good profit on the work. This pertains to the stripping and mining, primarily. If I haven't made it clear before, all values are based on open pit mining.

As I have outlined in my basic report, there is an ore body at Flat Top on the Cosmo claims which is not included in the computer reports outlined, supra. This ore body cannot be seriously disputed as outcrops can be seen and some ore has been mined and stockpiled some years ago by Interstate (this stockpile is included in the stockpile datum covered below). By extrapolation of Interstate drilling information and extimates, and the two (2) drill holes made by Getty Oil at a later date (Nos.152 and 154 --3.5 ft.-.15%U_3O_8) and 2 ft.-.19% U_3O_8, respectively), and using the $6.00 per pound value, results in the following estimate of additional ore:

Ore body.	Grade of ore (U_3O_8).	Tons of ore.	Gross value.	Net V.
8.	.165%	40000	$736,000.00	$150,000.00

(See exhibit H of basic geology report, and exhibit I, attached. The Interstate and Gaither drill logs were never made available to me). ((But, I have seen the data in the AEC office, Grand Junction, Colo. pertaining to them)).

In addition to the foregoing ore, there are a minimum of 10,000 tons of ore stockpiled in the main pit area. Some conservative values on this ore, using the $6.00 per pound of U_3O_8 figure, would be:

Ore body.	Grade of ore (U_3O_8).	Tons of ore.	Net value.
Stockpiles	.11%	10000 (plus)	$50,000.00

Now, at this point, I would like to emphasize that there is a minimum of $489,000.00 in $6.00 per pound ore after deducting mining and milling costs, in areas that have been drilled.

This study again points out the need for further drilling in the Anderson Mine area, particularly in the Cosmo and JacSar areas, and also on the SharpKleck claims in the surounding vicinity. It is quite probable that other mineable ore bodies will be found. Earlier studies by the AEC revealed that the ancient lake bed, on which the Anderson Mine occupies a very small part, is five (5) miles wide and forty (40) miles long, and there has been only a paucity of exploration drilling.

The writer attended the AEC sponsered work shop at Grand Junction, Colo. during the period 17-19, November, 1970. Various aspects of uranium mining and processing were gone into in some depth, including marketing of the ore and concentrates. While

uranium has been in a sort of a slump, it is predicted that the demand will expand at a greater rate in the future, with higher prices. The primary use is with the nuclear power industry and fossil fuel plants will become minor due to air pollution and depleted fuel sources. It is very probable that the prices for uranium will spiral in future years.

In my original report I outlined that the ore values are in the mineral carnotite ($K(UO_2)(VO_4)_2 1\text{-}3\ H_2O$) in lacustrine mudstone. I now desire to amend this to say that the carnotite is in vitrified and silicified tuffs. Considering the new uranium leaching and ion exchange recovery procedures, the Anderson Mine ore should be amiable to low cost concentrating at the mine site. This greatly enhances the profit probabilities.

I have no reason to change my basic conclusions and recommendations, other than what is indicated in the concepts outlined above. The Anderson Mine property remains an excellent business and mining investment. The Getty drill logs and the original computer calculations on which information in paragraphs 1 to 3, above is based, are available for study in my office.

I also neglected to mention that should the price of uranium (U_3O_8) go up to $11.25 per pound, there is a great deal of additional ore thatcan be mined at a profit in the presently drilled area. This would have a net value of $2,620,000.00 . (See exhibits H and I, attached).

December 5, 1970.

REGISTERED GEOLOGIST • Melvin H. Jones No. 841 • STATE OF CALIFORNIA

MELVIN H. JONES
Mining Geologist.

I INTRODUCTION

The Anderson Uranium Mine is located about 35 miles west of Congress, Arizona, near the Santa Maria River in Yavapai County (See Exhibit A). It is an open pit operation in an ancient lake bed formation (sedimentary). Although the property is surrounded by numerous mining claims (Kleck-Sharp and Osbourne group of claims), the Anderson Mine proper consists of the Moonbeam, Cosmo, and JacSar groups (See Exhibit B) presently owned by Daniel C. Jacobs, Melvin H. Jones, Lee Hammons, William Sargent and Charles E. Johnson. There are 31 Moonbeam, 13 Cosmo, and 26 JacSar claims, totaling 70.

These claims were located in 1964 by the present owners, with some additions from time to time since then. The Anderson Mine was originally the "Uranium Air" claims located by Anderson and Moore in the 1950s and a little ore was shipped by these individuals in 1955 and by Interstate Oil and Development Company from the open pit operation during 1957 and 1958. However, the claims were abandoned by the original locators and re-located by the present owners as outlined above. It appears that with the discovery of richer uranium deposits in the Grants, N. M. area and the Texas belt, coupled with the necessity of shipping the unrefined ore to distant uranium plants, and the lower uranium prices in those days, caused the original owners and operators to give up the claims.

[illegible] will reveal two areas where carnotite ore is exposed on the surface. These are the main pit area (Moonbeam) and the Flat Top region (Cosmo). There are many stock-piles of ore that have been assayed to run between .11% and .26% U_3O_8. (See Exhibit C-1).

Getting back to the history of the mining property again, it is pointed out that the present owners of the mentioned claims entered into a lease agreement, with option to buy, with Getty Oil Company at the start of 1968. The Getty people (who were then new in the uranium business) spent in excess of $100,000.00 in a drilling program and returned the property to the owners after a year with a remark indicating that ore bodies had been found, but the property was too small for the size of operation that Getty wanted to engage in. It is of course common knowledge that the Getty people moved to some more lucrative uranium fields in Wyoming where their operations are now extensive. The Getty drilling results are covered in detail later on in this report.

The main reason for this report is to consolidate information from a variety of piecemeal sources, as well as to reflect the study and research accomplished by the writer, in a period extending into more than a year. It is hoped the information will be easily comprehensive as a preliminary evaluation report for the owners, and others who may be interested. Acknowledgment is hereby made of assistance by Mr. Lee Hammons and Mr. Carl Homme, geologists, in portions of the report. The summary, conclusions and recommendations are exclusively mine.

II SUMMARY AND CONCLUSIONS (Continued)

Ways and means of up-grading or concentrating the Anderson Mine ores at the mine should be examined into. A reliable firm of consultants in this field should be contacted. This may paye the way for early operation of the property.

A large company should consider the possibilities of uranium ore known to be at Blythe, California, also at Payson, Globe, and Tonto-Roosevelt District, Arizona, as-well-as the Anderson Mine with a view to building a centrally located ore processing plant.

III RECOMMENDATIONS

Unpatented mining claims known as the Moonbeam, Cosmo, and JacSar groups (ANDERSON MINE) are valuable properties and should be retained by the owners. The uranium (and vanadium) markets will show increasing demand for these metallics in the future. The drilling programs reveal that mineable ore bodies are present.

The feasibility of up-grading or concentrating the ore at the mine site should be examined into. The following person and firm are experts in this field, and one or the other should be contacted and retained to make laboratory tests and ascertain the best upgrading method that is amenable to the Anderson Mine carnotite:

Robert Porter
304 First Security Building
Salt Lake City, Utah.

or

Hazen Research
4601 Indiana Street
Golden, Colorado

If an economical mine concentration process is found and suitable facilities are constructed in the mine area, the mine can be operated at a profit at present uranium prices. Should some large Company erect a uranium processing plant in Arizona, it is quite probable thatthe raw ore can be shipped there and show a profit. The future should bring such a plant to the vicinity.

While some ore bodies have been blocked out as a result of past drilling programs, some areas that were "skipped" should be explored by future drilling (See exhibit N).

31 August, 1970.
Box 1,
Montello, Nev.

REGISTERED GEOLOGIST
Melvin H. Jones
No. 841
STATE OF CALIFORNIA

MELVIN H JONES
Mining geologist.

Note: This report consists of 44 pages and includes maps, drilling log data, assay reports, research information and historical information. Persons having a boni-fide reason for examining this report can do so by contacting Daniel C Jacobs, The Arrowhead, Congress, Arizona. The cost of this report is $5,000.00 .

(END OF GEOLOGY REPORT)

E X H I B I T S

A	Map showing location of Anderson Mine property.
B-1	Map showing Cosmo, Moonbeam and JacSar claims (Anderson Mine).
2	Approximate locations of presently known Ore bodies.
3	Map of the former Uranium Aire claims.
C-1	Getty Oil company chemical assays of U_3O_8 and V_2O_5.
2	Atlas Minerals, Ore Lot Assay Certificate -Jan.5, 1967.
3	Atlas Minerals, Ore sample work sheet, Oct.11, 1966.
4	Atlas Minerals, Ore sample work sheet, Sept.30, 1966.
D	Laboratory analysis, Dr. Mont H.Warner, ASU, Jan.31,1967.
D-1	Laboratory Test, ASU, Oct.27, 1966.
E-1	Structural profile, line A-B, Main pit area.
2	Structural profile, Line C-D, Main pit area.
3	Map of drill holes, lines A-B and C-D, Main pit area.
F-1	Estimates of U_3O_8 mineralization in drill holes line A-B.
2	Estimates of U_3O_8 mineralization in drill holes line C-D.
G-1	Tabulated Data showing Calculated U_3O_8 in probed drill holes #1.
2	Tabulated data showing Calculated U_3O_8 in probed drill holes #2.
H	Memorandum for the Record - Jones - Mar.17, 1970.
I	Letter, Getty Oil Company, Feb.24, 1969.
J	Extract, Engineer's report, Bur. of Mineral Resources, Ariz. 9/25/58.
K	Drill Log information, Osbourne claims, July 5, 1967.
L	Geological Survey, Moonbeam claims, Lee Hammons, Geologist, Aug.25, '66
M	Letter, A E C, Grand Junction, Colo., April 7, 1970.
N	Letter, A E C, Grand Junction, Colo., June 26, 1970.
O	Map - Getty Oil Company drilling program - Drill holes.

II SUMMARY AND CONCLUSIONS (continued)

Ways and means of up-grading or concentrating the Anderson Mine ores at the mine should be examined into. A reliable firm of consultants in this field should be contacted. This may paye the way for early operation of the property.

A large company should consider the possibilities of uranium ore known to be at Blythe, California, also at Payson, Globe, and Tonto-Roosevelt District, Arizona, as-well-as the Anderson Mine with a view to building a centrally located ore processing plant.

III RECOMMENDATIONS

Unpatented mining claims known as the Moonbeam, Cosmo, and JacSar groups (ANDERSON MINE) are valuable properties and should be retained by the owners. The uranium (and vanadium) markets will show increasing demand for these metallics in the future. The drilling programs reveal that mineable ore bodies are present.

The feasibility of up-grading or concentrating the ore at the mine site should be examined into. The following person and firm are experts in this field, and one or the other should be contacted and retained to make laboratory tests and ascertain the best upgrading method that is amenable to the Anderson Mine carnotite:

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If an economical mine concentration process is found and suitable facilities are constructed in the mine area, the mine can be operated at a profit at present uranium prices. Should some large Company erect a uranium processing plant in Arizona, it is quite probable thatthe raw ore can be shipped there and show a profit. The future should bring such a plant to the vicinity.

While some ore bodies have been blocked out as a result of past drilling programs, some areas that were "skipped" should be explored by future drilling (See exhibit N).

31 August, 1970.
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REGISTERED GEOLOGIST · Melvin H. Jones No. 841 · STATE OF CALIFORNIA

MELVIN H JONES
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Note: This report consists of 44 pages and includes maps, drilling log data, assay reports, research information and historical information. Persons having a boni-fide reason for examining this report can do so by contacting Daniel C Jacobs, The Arrowhead, Congress, Arizona. The cost of this report is $5,000.00 .

(EXTRACT FROM GEOLOGY REPORT)

RESUME'

Anderson Mine(uranium),35
Miles West of Congress,Arizona.

15 March 1970

The Anderson Uranium Mine is located about 35 miles West of Congress, Arizona near the Santa Maria river in Yavapai County,Arizona. At present, it consists of the Moonbeam,Cosmo, and JacSar groups of claims owned by Daniel C. Jacobs, Melvin H Jones, Lee Hammons, William Sargent and Charles E. Johnson. The latter two individuals have the JacSar group. It is the intention of the claim owners to sell all groups as one "package", as all are on the same uranium bearing mudstone formations. All required assessment work has been accomplished. There are 31 Moonbeam, 13 Cosmo, and 26 JacSafclaims, totaling 70 claims. There is a railroad siding at Congress(for shipping), and water adjoining the Cosmo group in the Santa Maria river.

These claims were located in 1964 by the present owners, with additions, from time to time, since then. The claims were originally "Uranium Aire" claims located by Anderson and Moore in the 1950's,and some ore was shipped from an open pit operation during 1957 and 1958. See exhibit "B". However, the claims were abandoned by the original locaters, and re-located by the present owners as outlined above. It appears that with the discovery of rich uranium deposits in the Grants, N.M. area and the Uravan belt, and the necessity of shipping the unmilled ore to distant uranium plants, and the lower uranium prices in those days, caused the original owners to give up the claims. Now, some mines in the areas mentioned are "worked out".

A visit to the Anderson mine will reveal two areas where excellent Carnotite ore is exposed on the surface. These are the main pit (Moonbeam) area and the Flat Top region(Cosmo). There are probably in excess of 10,000 tons of ore stockpiled that will run about .1% U_3O_8. One walks across unmined carnotite in several vicinities, that is visible to the eye.

Getting back to the history of the mining property again, it is to be pointed out that the present owners of the mentioned claims entered into a lease agreement, with option to buy, with Getty Oil Company, in early 1968. Getty was to pay $550,000.00 for the claims. Well, to make a long story short, Getty people spent about $200,000.00 drilling the Anderson mine property, including some drill holes on the Kleck-Sharp claims(totaling 350,plus,claims) which surround the described Anderson mine property to the East,South,and West. In 1969, the Getty people returned the claims to us, with comments indicating that the orebody found was too small for the size of operation that Getty wanted to engage in. It is of course, general information, that Getty now has an extensive operation in Wyoming.

We received copies of the Getty(Gamma ray) drill logs, but we received none of their interpretive information. The young geologist who turned the logs over to us said substantially as follows;"there is good ore in the vicinity of the main pit and at Flat Top, but then it thins out. We only got "smells" on the Kleck-Sharp claims". These remarks are self explanitory.

Examination of the logs confirm, to a degree, the preceding remarks. However examination of the logs, in detail, and the accompanying maps, show a very poor drilling program, in the opinion of the writer(and others who are experienced geologists). Some areas were not drilled that should have been - for example, there are only 5 or 6 holes on the JacSar claims. A grid pattern was not generally followed so that reserve ore tonnages can be reasonably computed. We have some logs whose locations are not shown on the maps, coordinates are not entered on most logs, and other deficiencies. We found drill holes on the property that were not mapped. So it appears to bad that so much money was spent on drilling with poor informational results.

Without getting into detailed geological descriptions, suffice it to say that in the main pit area(and at Flat Top) there are several beds of Carnotite ore at varying depths. Lets take drill hole #165 for example: there is ore at the surface that does not show on the log; then at 43 to 45 feet there is a 2 foot vein of .12% ore; then at 121 to 122.5 feet there is 1.5 foot of .20% ore;then from 124 to 125 there is .04% ore; then from 128 to 129 there is .05% ore; then from 135 to 136.5 there is .13% ore; then again from 206 to 208 feet there is .10% U_3O_8 ore. This total up to 9 feet of ore averaging .11% ore. The best drill hole (203) shows about 2 feet of .91% U_3O_8 at one level.

Now, lets give a little consideration on what the total ore body in the Anderson Mine might encompass to the extreme minimumal degree. One claim(20 acres), if it has an ore body 3 feet in depth will produce about 120,680 tons of ore. If it is .1% ore, it will produce 2 pounds of ore to the ton. At a rate of $8.00 per pound, this will amount to $1,930,880.00 of gross money. If the ore is .2% U_3O_8, then the amount will be just under 4 million dollars. The writer, is of the opinion that there is at least 200,000 tons of good ore in the known areas, and that there is probably 500,000 tons or more that can be obtained. I am not going to get into mining and milling costs, but they are not major.

The Anderson mine owners, at this date, and after floundering around with several potential buyers of the property,(none of whom had a competant geologist make a serioum examination of the orebody), have decided to send the drill logs and maps to the AEC at Grand Junction, Colorado, who will compute apparent reserves of ore. This will settle the question of ore reserves, and this is the key to a monetary value of the mine. Perhaps our present asking price is too low.

Other interesting information on the Anderson Mine is in: BME 2057 - Tertiary Uranium deposits in SW Yavapai County, Arizona.

MELVIN H JONES
Co-owner.

Exhibts.
A - Map of the claims
B - Information from the Bureau of Mineral Resources, Arizona.

MELVIN M. JONES
Mining Geologist
Box 1, Montello, Nevada 89830

SUPPLEMENTAL REPORT TO "Preliminary Geological Evaluation Report; Anderson Mine(uranium), Yavapai County, Arizona, dated August 27, 1970.

The following information supplements the economic considerations outlined in subject report and supercedes data and conclusions previously outlined. These changes are a result of a re-study of the Getty Oil Company drill hole data, and an estimation of uranium ore reserves by statistical methods and a computer.(AMC, Grand Junction, Colo.).

Earlier drill hole data by Interstate Oil and Development Company action during 1957 and 1958 has been mostly disregarded for this current study, as it was found to be somewhat unreliable, surveys were inaccurate, and computations poorly accomplished. This was also found to be true of the few Gaither drill holes in the Cosmo claims area. In my basic report, much of this Interstate data was used. However, these data is useful on a correlation basis for the location of the various ore bodies, and confirms to a degree, the tonnage and uranium value figures outlined below.

The following information pertains to the Moonbeam group of claims, only. (Getty Oil drilled toofew drill holes on the Cosmo and JacSam groups to justify a computerized study).((Note; all groups are part of the Anderson Mine area)).

1. CONSIDERING URANIUM VALUE AT $4.50 PER POUND, the following information has been ascertained. There are three(3) small orebodies on the Moonbeam claims that can be worked profitably, with pertinent data, infra:

Ore body.	Grade of ore(U_3O_8).	Tons of ore.	Cost to Mine.	Gr. value.	Net value.
1.	.17	9100	$56,000.00	$99,000.00	$43,000.00
2.	.182	24200	$153,000.00	$270,000.00	48,000.00
3.	.159	51900	$329,000.00	$522,000.00	[illegible]
TOTALS	.175(Avg)	85200	$540,000.00	$900,000.00	$108,000.00

(For more detailed mining and milling costs, tonnages, values, and ore body locations, see Exhibits A, B, C, and F, attached).

2. CONSIDERING URANIUM VALUE AT $6.00 PER POUND, the following information has been ascertained. There are two (2) ore bodies on the Moonbeam claims that can be worked profitably:

Ore body.	Grade of Ore(UO).	Tons of ore.	Cost to Mine.	Gr. value.	Net value.
4.	.132	107000	$650,000.00	$1,182,000.00	$311,000.00
5.	.126	73900	$435,000.00	$788,000.00	179,000.00
TOTALS	.129 (avg)	180900	$1,085,000.00	$1,970,000.00	[illegible]

(For more detailed information on $6.00 ore, See Exhibits D, E, & F.)

3. CONSIDERING URANIUM VALUE AT $7.50 PER POUND, the following is applicable. There is one(1) orebody on the Moonbeam claims that can be worked profitably:

Ore body.	Grade of ore.	Tons of ore.	Cost to mine:	Gross V.	Net V.
S.	.10%	750100	$4,415,000.00	$8,010,000.00	$3,177,000.00

(For detailed information and calculations, see Exhibits H & I.).

The tonnages in the above computations are on the conservative side and the cost factors are on the high side. The cost figures are based on what a contractor would charge, and he, would have the objective of making a good profit on the work. This pertains to the stripping and mining, primarily. If I haven't made it clear before, all values are based on open pit mining.

As I have outlined in my basic report, there is an ore body at Flat Top on the Cosmo claims which is not included in the computer reports outlined, supra. This ore body cannot be seriously disputed as outcrops can be seen and some ore has been mined and stockpiled some years ago by Interstate (this stockpile is included in the stockpile datum covered below). By extrapolation of Interstate drilling information and estimates, and the two (2) drill holes made by Getty Oil at a later date (Nos.152 and 154 --3.5 ft.-.15% U_3O_8 and 2 ft.-.19% U_3O_8, respectively), and using the $6.00 per pound value, results in the following estimate of additional ore:

Ore body.	Grade of ore (U_3O_8).	Tons of ore.	Gross value.	Net V.
S.	.16%	40000	$960,000.00	$150,000.00

(See exhibit H of basic geology report, and exhibit I, attached. The Interstate and Gaither drill logs were never made available to me). (That, I have seen the data in the AEC office, Grand Junction, Colo. pertaining to them)).

In addition to the foregoing ore, there are a minimum of 10,000 tons of ore stockpiled in the main pit area. Some conservative values on this ore, using the $6.00 per pound of U_3O_8 figure, would be:

Ore body.	Grade of ore (U_3O_8).	Tons of ore.	Net value.
Stockpiles	.11%	10000 (plus)	$330,000.00

Now, at this point, I would like to emphasize that there is a minimum of $489,000.00 in $6.00 per pound ore after deducting mining and milling costs, in areas that have been drilled.

This study again points out the need for further drilling in the Anderson Mine area, particularly in the Cosmo and JacSar areas, and also on the SharpKleck claims in the surrounding vicinity. It is quite probable that other mineable ore bodies will be found. Earlier studies by the AEC revealed that the ancient lake bed, on which the Anderson Mine occupies a very small part, is five (5) miles wide and forty (40) miles long, and there has been only a paucity of exploration drilling.

The writer attended the AEC sponsored work shop at Grand Junction, Colo. during the period 17-19, November, 1970. Various aspects of uranium mining and processing were gone into in some detail, including marketing of the ore and concentrates. While

uranium has been in a sort of a slump, it is predicted that the demand will expand at a greater rate in the future, with higher prices. The primary use is with the nuclear power industry and fossil fuel plants will become minor due to air pollution and depleted fuel sources. It is very probable that the prices for uranium will spiral in future years.

In my original report I outlined that the ore values are in the mineral carnotite ($K(UO_2)(VO_4)\cdot 1\text{-}3\ H_2O$) in lacustrine mudstone. I now desire to amend this to say that the carnotite is in vitrified and silicified tuffs. Considering the new uranium leaching and ion exchange recovery procedures, the Anderson Mine ore should be amiable to low cost concentrating at the mine site. This greatly enhances the profit probabilities.

I have no reason to change my basic conclusions and recommendations, other than what is indicated in the concepts outlined above. The Anderson Mine property remains an excellent business and mining investment. The Getty drill logs and the original computer calculations on which information in paragraphs 1 to 5, above is based, are available for study in my office.

I also neglected to mention that should the price of uranium (U_3O_8) go up to $11.25 per pound, there is a great deal of additional ore that can be mined at a profit in the presently drilled area. This would have a net value of $2,620,000.00 . (See exhibits H and I, attached).

December 5, 1970.

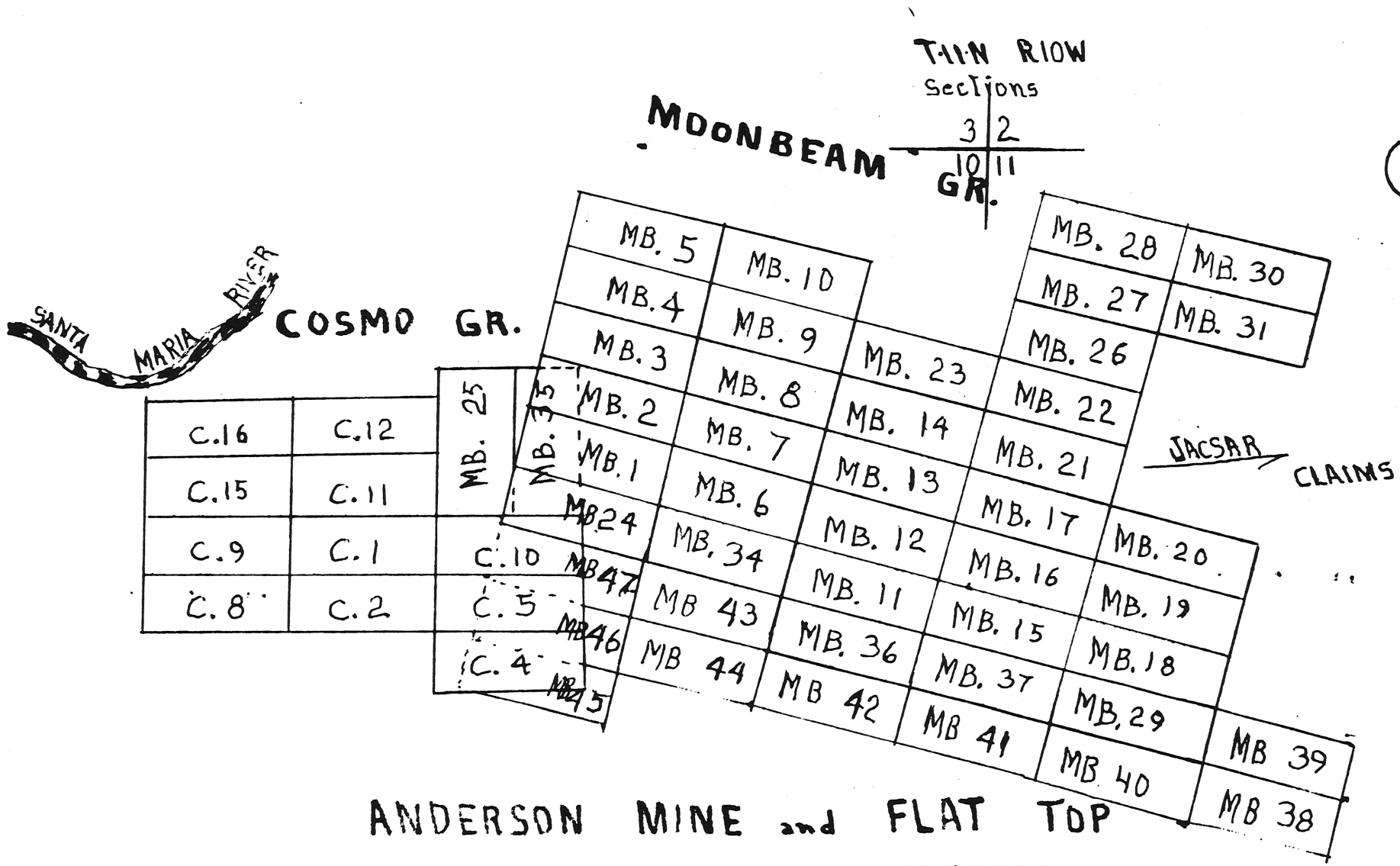
REGISTERED GEOLOGIST Melvin H. Jones No. 841 STATE OF CALIFORNIA

MELVIN H. JONES
Mining Geologist.

Hole Dep	c.f.s. (≈)	Bed Thickness and depth	Calc. Yo (Gross value) (≈)	Hole No	Hole Depth	C. (≈)	Bed Thickness and depth	Calc. Yo (gross value) (≈)
1 296	265	27.7-28.8	.07	76	240'	125	125-128'	.03
	190	107-108'	.05	78	139'	<55	0-134'	<.015
	.036	108-110'	.036	79	261'	100	69-97'	.027
3 285'	160	99-100'	.04	82	220'	75	35.5-37'	.021
	100	125-127.5'	.03	84	241'	125	0'-4'	.034
5 273	130	19-20'	.03			70	66'-74'	.02
	120	74'-78'	.03			215	87'-80'	.058
	230	100-103'	.06	88	255'	125	5-9.5'	.034
7. 300'	600	42-49'	.16			410	97.5-99'	.127
	105	117-128'	.03			450	100.5-102'	.129
9 310'	250	53.5-55.5'	.07			350	109.5-111'	.095
	100	106.5-107.5'	.03			400	113-114'	.108
	230	111-112'	.06	93	255'	225	21.5-23.5'	.061
	275	134-136'	.07			390	92.5-93.5'	.097
10. 270'	95	13-21'	.026			310	111.5-112.5'	.084
	90	95-100'	.024	95	220'	90	3'-8'	.024
11. 320'	300	53-56'	.08			225	95.5'-97'	.061
	115	130-133'	.03	97	240'	<55	0-240'	<.015
13. 289'	110	29-32'	.03	98	200'	180	123-125'	.049
	440	128-131'	.112	99	238'	250	161-162.5'	.069
	135	141-147'	.036	101	220'	250	48-50'	.069
	155	42-46'	.042			850	56'-61.5'	.231
	930	250'-251'	.25	103	284'	460	34.5-36'	.126
14. 278'	175	111-112.5'	.047			140	94'-98'	.038
	360	125.5-128	.097			110	120-121'	.03
	290	132-136'	.078			130	173-174'	.035
	170	143-151'	.046	105	254'	290	10-11'	.078
15 280'	185	108-112'	.039			360	71-72.5'	.10
	240	127-133'	.065			150	105'-112'	.04
	1100	135'-137'	.30			390	147-150.5'	.10
	220	217.5'-218.5'	.06			215	196-197'	.058
16. 250'	1500	36-38'	.140	107	257'	250	50-51'	.069
	345	123-127.5'	.10			560	55-58'	.151
	75	130.5-132'	.02			840	134-140.5'	.203
	135	135.5-137'	.036			200	143.5-144.5'	.054
	215	141-143'	.058			350	146-147.5'	.095
17. 241'	360	49-54'	.08			350	151.5-152.5	.095
	180	111-115'	.049			550	151'-158'	.15
	190	125-130'	.037	108	220'	840	119-123.5'	.23
	235	139-143'	.064			480	128-136'	.069
18. 275'	?	0-1'	?.03	123	170'	1500	30-33'	.40
	165	76-78'	.045			400	120-126'	.108
	500	81'-88'	.135			275	133-140'	.074
	370	100-103'	.054	124	190'	600	30.5'-54.1'	.16
	700	185'-101.5'	.19			350	108-109.5'	.095
	165	154-155'	.045			250	133.5-136'	.069
23. 265'	<40	0'-14'	<.01			470	138.5-140.5'	.127
24 280'	110	58-59'	.03			150	143-144'	.04
	105	71.5-73'	.028			350	147.5-180'	.095
59 281'	750	90.5-93'	.20			350	153.5-164.5'	.095
	780	113-114'	.21	125	85' ~~130~~	<30	0-85'	<.01
62. 93'	500	75'-76.5'	.135	126	130' ~~260~~	<35	0-130'	<.01
63. 86'	500	72'-75'	.135	127	264'	200	130-135'	.054
64. 129'	<30	0-129'	<.01			110	210-214'	.03
66. 225'	720	10.5-13.5'	.195	128	160'	>110	0'-2'	>.03
	105	82-85'	.03			1100	61.5-62.5	.30
	475	95-96.5'	.128			340	96'-97.5'	.092
	195	105-106'	.053			500	109.5-112'	.135
	410	112-114'	.11			125	116.5-118'	.034
	150	159.5-161'	.04	129	200'	300	88.5-90'	.081
	195	185-189'	.053	130	192'	<32	0-192'	<.01
	100	200-202	.027	134	325'	600	94-95'	.16
67. 260'	250	120-122'	.069			125	152-154'	.034
68 260'	460	198-200'	.124	137	85'	<20	0-85'	<.01
	640	133'-134'	.173	137		<20	0-85'	<.01
	250	140.5-150'	.069	138	145'	<40	0-145'	<.011

(over)

depth	≈	i depth	(Ymss value)						
320'	< 50	0 - 320'	< .01	180	320'	50	89.5 - 90		
400'	150	0 - 400'	.04			410	157 - 160	.12	
390'	275	233 - 264'	.074	181	340'	410	37.5 - 239	.11	
327'	700	65 - 66'	.19			215	309 - 311'	.058	
	150	123 - 128'	.04	182	220'	360	40 - 43.5'	.081	
	125	144.5 - 146'	.038			550	103 - 105'	.149	
	250	150 - 151'	.069			400	132 - 134'	.11	
	125	163.5 - 164.5'	.034			270	136 - 138'	.073	
152'	< 60	0 - 152'	< .016			350	139 - 141.5'	.094	
113'	< 40	0 - 113'	< .011			200	146 - 147'	.054	
300'	500	187 - 189'	.135	183	270'	310	49 - 52'	.084	
220'	< 60	0 - 220'	< .016			590	137 - 138'	.016	
176'	< 35	0 - 176'	< .01			330	151 - 152'	.89	
295	< 40	0 - 295'	< .01	184	260'	1000	124 - 126.5'	.7	
400'	175	302 - 303'	.047			650	132 - 134.5'	.4	
240	< 40	0 - 240'	< .011			630	138.5 - 143'	.0	
332'	300	240.5 - 242'	.081			120	260.5 - 253'	.03	
	550	302.5 - 305'	.15	185	280	120	99 - 102'	.03	
208	980	186 - 188'	.12			380	118 - 121'	.10	
260	700	191.5 - 193'	.19			250	126 - 129'	.069	
	200	231 - 233'	.054			310	135.5 - 138'	.084	
295'	300	245 - 246'	.081			140	142 - 143'	.038	
	230	279 - 284'	.062			195	252.5 - 255'	.053	
320'	< 30	0 - 320'	< .01	186	183'	980	81 - 82'	0.24	
	175	259.5 - 261.5	.047			200	81 - 84'	.054	
	700	264 - 265'	.19			1450	88 - 89.5	.39	
	1900	267.5 - 268.5'	.38	187	200'	195	0 - 2.5'	.053	
	175	319 - 322'	.047			100	35 - 36	.027	
340'	1000	339 - 340.5	.27			115	38 - 39'	.031	
	250	244 - 246.5'	.064			260	47.5 - 49'	.07	
	380	253 - 256'	.10			460	78 - 79.5'	.124	
	140	336.5 - 338'	.035			760	84 - 85.5	.21	
290'	125'	215 - 224'	.054			430	88 - 89'	.036	
330'	600	221 - 229'	.16			800	164 - 165'	.22	
	160	227.5 - 229.5'	.043	188	290'	220	48 - 53'	.059	
	220	235 - 238'	.06			190	59 - 63'	.052	
	700	301 - 304'	.19			300	66.5 - 68.5'	.081	
	260	308 - 309'	.07			170	72 - 73'	.046	
260	425	43 - 45'	.115			200	88 - 90'	.054	
	750	121 - 122.5'	.27			550	95 - 97'	.15	
	150	124 - 126'	.04	189	192'	300	62 - 64'	.081	
		132 - 134'	.03			500	72 - 74.5'	.135	
		135 - 136'	.131			160	101 - 102'	.043	
		140 - 141'	.03			230	110 - 112.5'	.062	
		144 - 145'	.108	190	240	7100	0 - 1.5'	7.03	
	800	147 - 148'	.22			210	58 - 73'	.057	
	200	151 - 152'	.054			320	95.5 - 97'	.086	
290'	470	130 - 131.5'	.127			150	101 - 102.5'	.04	
	750	134 - 136'	.07			120	110 - 113'	.032	
	15	142 - 143'	.034	191	220'	7100	0 - 3'	7.03	
	150	147 - 152	.077			310	58 - 5'	.087	
		172 - 173				200	34.5 - 57'	.054	
						170	65.5 - 69.5	.046	
						225	92.5 - 97'	.061	
						120	98.5 - 100'	.032	
						195	104 - 107'	.053	
						1050	97 - 98.5'	.28	
260'						260	146 - 153'	.07	
						195	102 - 104'	.053	
						100	181.5 - 186'	.027	
						120	189.5 - 191'	.032	
	350			193		110	0 - 2'	.03	
	200					140	58 - 61'	.038	
	220			194		200	65 - 73'	.054	
	130			195	140	195	47.5 - 49.5'	.053	
	40					460	53 - 55'	.12	
	145		.034	196	140'	320	55 - 57'	.043	
	600	136 - 137.5	.16			380	21 - 26'	.086	
	250	139 - 140	.064	197	66'	295	96 - 97'	.095	
	460		.124	198	65'	125	99 - 102'	.080	
	145	215 - 217.5	.039	199	65'	400	103 - 105'	.034	
	265	124.5 - 125.5	.072	200	200'	145	22 - 24'	.11	
		142.5 - 144	.28	201	250'	175	67 - 69.5'	.039	
						950	86 - 87'	.097	
						600	20 - 21.5'	.126	
						435	22.5 - 25.5'	.16	
						430	28.5 - 26.5'	.112	
						150	127 - 128.5'	.17	
						125	106 - 112'	.04	
						130	131 - 133'	.034	
						105	191 - 193.5'	.035	
						125	210.5 - 212'	.028	
						235	104.5 - 107'	.014	
						125	129 -	.014	
							218.5		
							221		



ANDERSON MINE and FLAT TOP MINING CLAIMS.

35 MILES W. CONGRESS, YAVAPAI COUNTY, ARIZONA

AMENDED '74 —— Jones '73

ARIZONA CORPORATION COMMISSION
STATE CAPITOL ANNEX
PHOENIX
December 7, 1966

Dear Mr. Jones

RE Interstate Oil & Development co.

Information requested of above Corporation

NAME Interstate Oil & Development Co.

YEAR INCORPORATED 10-5-56

PRINCIPAL PLACE OF BUSINESS Wickenburg, Arizona

STATUTORY AGENT Hale C.Tognoni
411 North Central Avenue

PRESIDENT Phoenix,Arizona

ANNUAL REPORTS FILED 1956 thru 1960

HOW TERMINATED Charter revoked 5-7-64

PRESENT STATUS No longer in existance in the State of Arizona.

REMARKS This corporation is a foreign corporation licensed to business in the State of Arizona from Nevada.

Very truly yours,

ARIZONA CORPORATION COMMISSION

Incorporating Division

lp

Atlas Mining Co.

FORM M-177

ORE SAMPLE WORK SHEET Moab, Utah

Date Sample Received 11 Oct 66.

SAMPLE IDENTIFICATION:
Moonbeam (Ariz.)

Submitted by:
Jack Day

Date Desired

Assay For:
V_3O_8 Fl
V_2O_5
$CaCO_3$

AMENABILITY

Acid	Head	Residue	Extraction
Carbonate	Head	Residue	Extraction

OTHER TEST WORK REQUIRED:

Save Rejects

RESULTS TO BE SUBMITTED TO:

Newman

	V_3O_8	$CaCO_3$	V_2O_5
7437 Sample #1 4' thickness	.032	1.8	.068
38 ✓ #2 Small Stockpile	.11	7.4	.092
39 ✓ #3 Large ✓	.091	2.0	.092

Note: Requested rerun on sample #1 – it gave .07 % V_3O_8.

VICTOR OPPENHEIM & ASSOCIATES
CONSULTING GEOLOGISTS AND ENGINEERS
REPUBLIC NATIONAL BANK BUILDING
DALLAS, TEXAS 75201
(214) RI 8-3898

EXPLORATION
ENGINEERING
EVALUATION

DEVELOPMENT
DOMESTIC
INTERNATIONAL

January 12, 1971

Mr. Melvin H. Jones
Box 406
Wickenburg, Arizona

Dear Melvin:

Thank you for your December 23, 1970 letter with full report on your Anderson Uranium Mine. It is a good report and I can see where you have put in much time and money in compiling all pertinent geological and engineering data.

The Anderson Mine, as is obvious, is known to all substantial American mining companies. Thus, I cannot promise you any prompt action in the matter. However, one of our clients is looking for uranium deposits, and advised us that they will send their specialized geologist sometime early in February. This may be a lead. I will advise you as soon as I know more, and of the geologist's arrival. He may want to visit you in Wickenburg.

I would appreciate, and as a matter of guidance, if you could specify the terms acceptable to you and your group and the participation that my office could expect if we are successful in bringing about a transaction.

Sincerely,

Victor Oppenheim

VO/ss

Examination of the logs confirm, to a degree, the preceding remarks. However examination of the logs, in detail, and the accompanying maps, show a very poor drilling program, in the opinion of the writer(and others who are experienced geologists). Some areas were not drilled that should have been - for example, there are only 5 or 6 holes on the JacSar claims. A grid pattern was not generally followed so that reserve ore tonnages can be reasonably computed. We have some logs whose locations are not shown on the maps, coordinates are not entered on most logs, and other deficiencies. We found drill holes on the property that were not mapped. So it appears to bad that so much money was spent on drilling with poor informational results.

Without getting into detailed geological descriptions, suffice it to say that in the main pit area(and at Flat Top) there are several beds of Carnotite ore at varying depths. Lets take drill hole #165 for example; there is ore at the surface that does not show on the log; then at 43 to 45 feet there is a 2 foot vein of .12% ore; then at 121 to 122.5 feet there is 1.5 foot of .20% ore;then from 124 to 125 there is .04% ore; then from 128 to 129 there is .05% ore; then from 135 to 136.5 there is .13% ore; then again from 206 to 208 feet there is .10% U_3O_8 ore. This totals up to 9 feet of ore averaging .11% ore. The best drill hole (203) shows about 2 feet of .91% U_3O_8 at one level.

Now, lets give a little consideration on what the total ore body in the Anderson Mine might encompass to the extreme minimumal degree. One claim(20 acres), if it has an ore body 3 feet in depth will produce about 120,680 tons of ore. If it is .1% ore, it will produce 2 pounds of ore to the ton. At a rate of $8.00 per pound, this will amount to $1,930,880.00 of gross money. If the ore is .2% U_3O_8, then the amount will be just under 4 million dollars. The writer, is of the opinion that there is at least 200,000 tons of good ore in the known areas, and that there is probably 500,000 tons or more that can be obtained. I am not going to get into mining and milling costs, but they are not major.

The Anderson mine owners, at this date, and after floundering around with several potential buyers of the property,(none of whom had a competant geologist make a serious examination of the orebody), have decided to send the drill logs and maps to the AEC at Grand Junction, Colorado, who will compute apparent reserves of ore. This will settle the question of ore reserves, and this is the key to a monetary value of the mine. Perhaps our present asking price is too low.

Other interesting information on the Anderson Mine is in: RME 2057 - Tertiary Uranium deposits in SW Yavapai County, Arizona.

Melvin H. Jones

MELVIN H JONES
Co-owner.

Exhibts.
A - Map of the claims
B - Information from the Bureau of Mineral Resources, Arizona.

10 February 1970

Received from M. H. Jones the following:

102 each drill hole probe logs "AndersonMine (Getty Oil Co.)

1 each Map - Center Sheet - drill holes

1 each Map - West Sheet - drill holes

1 each Map - East Sheet 1 Drill holes.

F. C. Homme

Tonnage factor . cuft per dry ton

Stockpiles 20 cuft per dry ton

Weighted sample

Shipped Feb 1958

4,308 .21%

3,145 To AEC Cutter, Arg

1 163

Grants

Blan

Final factors
18 cu ft per ton natural dry
2
2

Pit 2 overburden

1 MD with some Carlile Canyon 3.1'

2 Interbedded grey to green MD + claystone 4.5

3 MD Tuffaceous micaceous mud 13.

4 LS W to grey tuffaceous hard replaced by very colourful chert 11.3'

30.9'

AEC feels not minable until $15.00 per ton

Coyote exhumed

	Thickness	Overburden
		42'
Pit 1	4.65	
Pit 2	3.75	
Pit 2W	3.50	32'
Flat top	3.50	
Clam 7W	2.0	
Stockpiles	2.2	32'
	3.75	70'
	4.	10'

DRILL HOLE (PROBE) LOGS

2-6-70

Logs initially received from Getty:

Nos.	(Holes found on map) Check mark.
7	
9	
10	
11	
13	
14	
15	
16	
17	
18	
23	
24	
57a	
62	
63	
64	
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99	
101	
103	
105	
107	
108	
123	
124	
125	
126	
127	
128	
129	
130	
134	
(2) 137	
138	
139	
140	
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150	
151	
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153	
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191	
192	
193	
194	
195	
196	
197	
198	
199	
200	
201	
202c	

(97) Total logs received. 97

Additional logs sent by Getty:

Nos.	(Holes found on map) (check mark)
1	
3	
5	
142	
203	

(5) Grand total logs received 102

Holes on map, but no logs for same 17

Logs on hand, not shown on maps 41

Logs on hand shown on map 57

— Center Sheet Getty map.
— West Sheet Getty map.
— East Sheet Getty map.

DRILL HOLE LOGS

6 Feb 1970.

Drill Holes found by ground survey*(not on maps). Have probe logs.

Nos.
67
76
84
179
180
183
186
191
196
198
Total 10

Drill holes shown on maps, but for which no logs were given property owners by Getty Oil company.

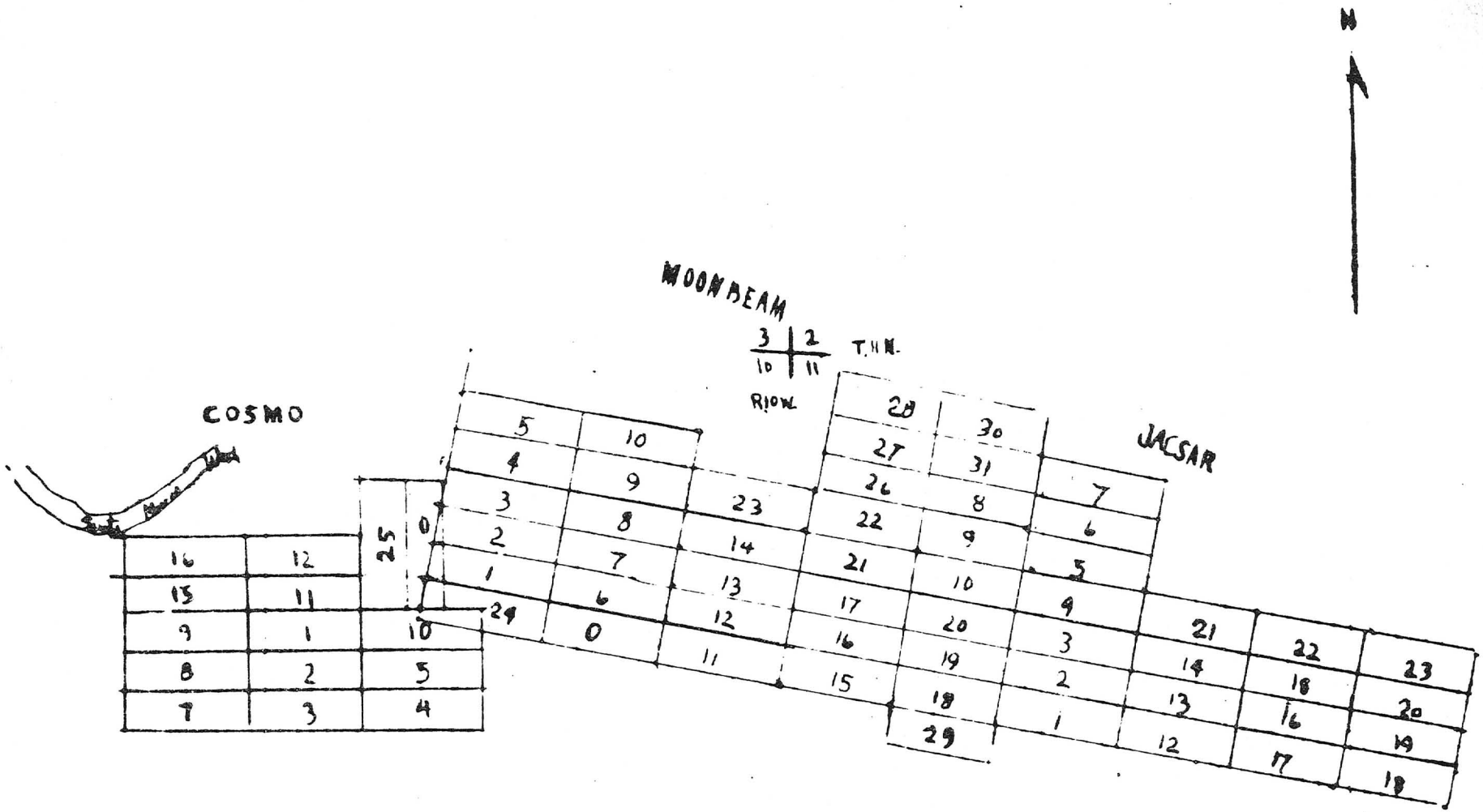
Nos.
8
12
21
91
131
132
133
164
169
170
171
~~172~~
173
174
175
156
157
166
Total 17
(13 more drill holes are on maps with no numbers).

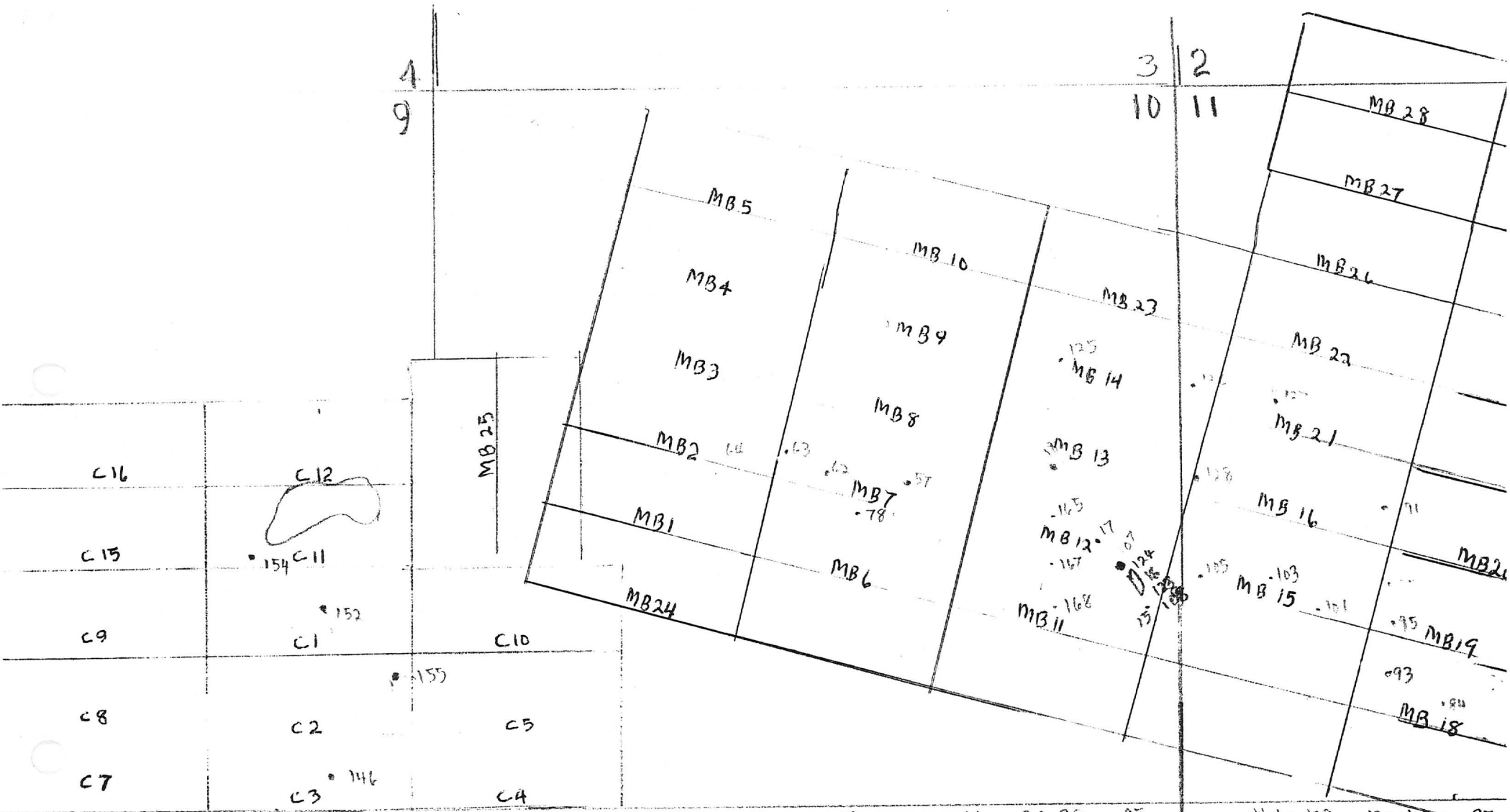
Additional drill holes found and identified, but there are no logs for same, nor are they on maps:

Nos.
46
56
96
172
204
205
207
Total 7

Old Tomas discrepancies:
2 drill holes #153 on map
2 drill holes #153 on maps
1 on West - 1 on center
2 drill holes #141 on maps
1 on East - 1 on center
44

* Holes located by finding prepared drill sites and carefully examing laths or stakes near the drill holes. Due to the time involved, most markings have been obliterated or erased by time and weathering.


N
MOONBEAM
3 2
10 11
T. 11 N.
R 10 W.
COSMO
JACSAR
25
0
24
5 10
4 9 23
3 8 14
2 7 13
1 6 12
0 11
16 12
15 11
9 1 10
8 2 5
7 3 4
28 30
27 31
26 8 7
22 9 6
21 10 5
17 20 4
16 19 3
15 18 2
29 1
21 22 23
14 18 20
13 16 19
12 17 18



151 · 149

16

148 No log
149 N.I
151 - N.I

148 Hole

Hole

146
147
152
153
154
155
"

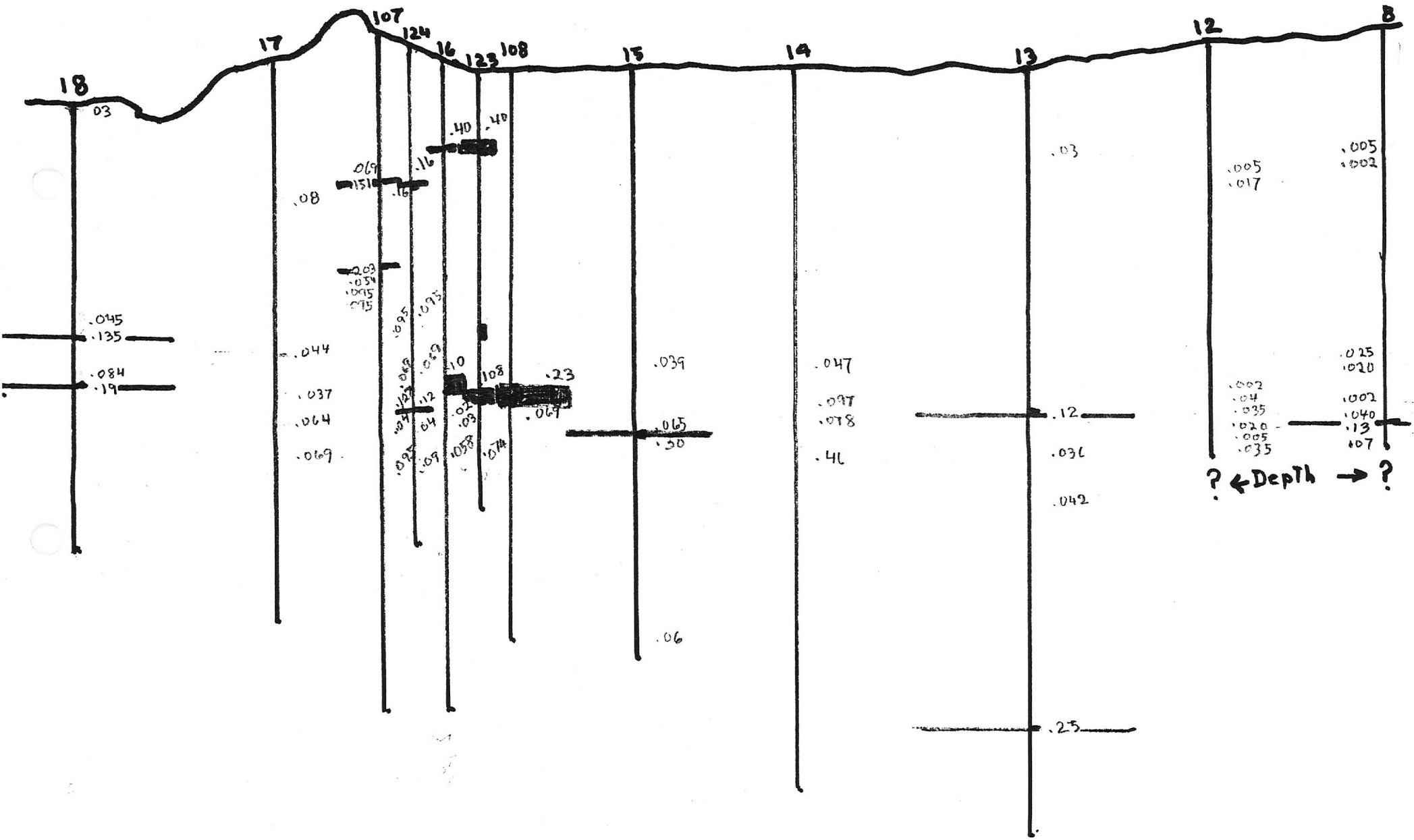
187-189 .14
55-56 ?
305-310 .08
185-190 .05
190-192 .17
215-216 .15
279-284 .13

Hole 123 130-131 .19
" 138-139 .11
124 50-55 .28
125 Nil
126 N.I
127 130-135 ?
" 210-212 ?
128 62-64 .22
" 60-62 .08
130 Nil
165 43-45 .12
" 121-122 .20
" 135-136 .13
" 206-208 .10
167 103-105 .08
" 125-129 .22
" 207-212 .05

Hole 16 36-38 .45
" 122 148 .021
17 49-54 .08
" 111-139 .04
18 55-90 .08
57 85-95 ?
62 84-86 .002
63 74-76 .05
64 Nil
91
93 90-100 ?
95 95-97 .04
94 90-92 ?
107
108 118-119 .07
" 129-131 .13

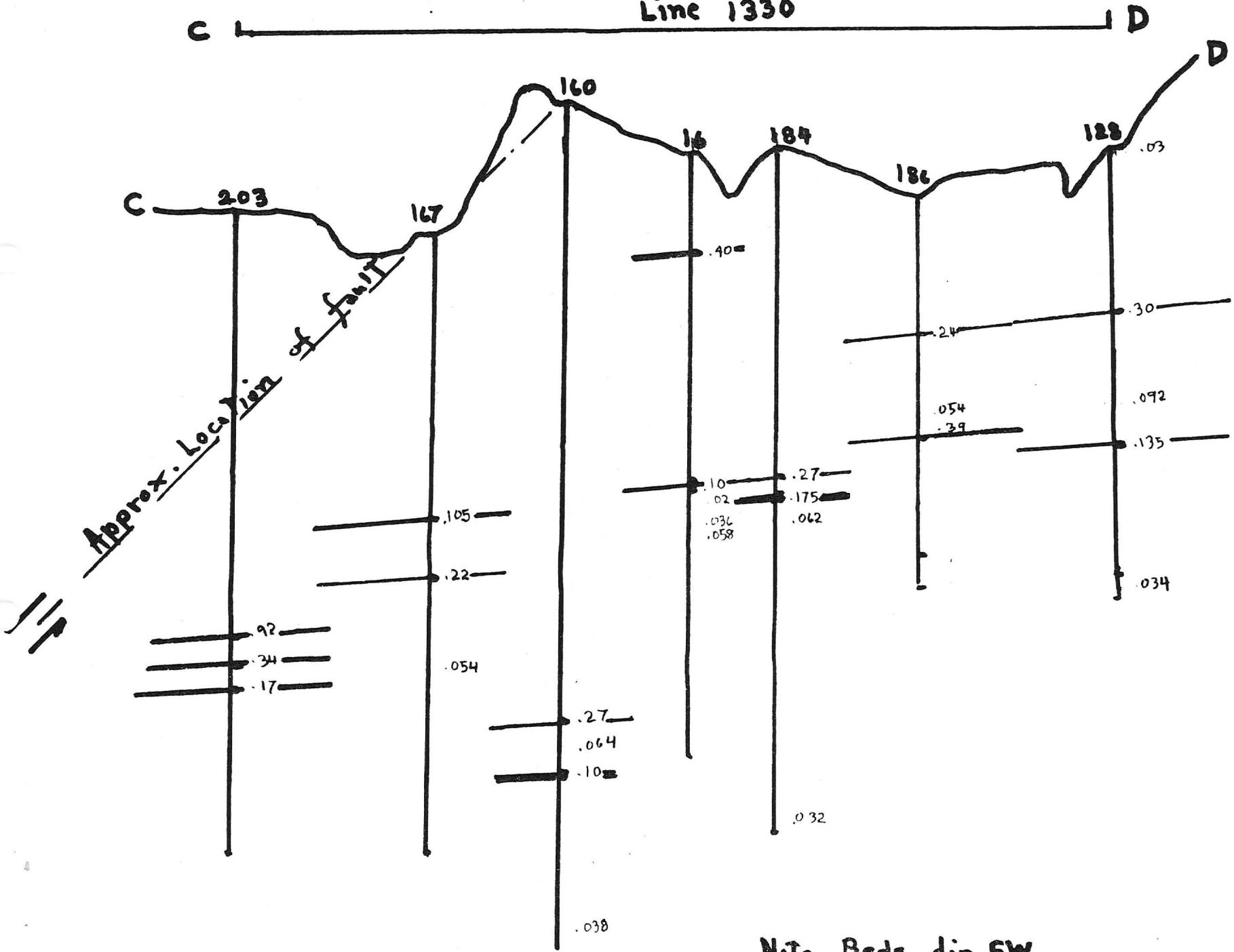
19

Hole 108 120-121 .31
" 121-122 .12
" 122-123 .69
" 123-124 .16
" 128-129 .16
101 65-70 .01
103 34-36 .17
105 10-11 .08
" 67-76 .04
" 105-112 .08
" 121-127 .07
" 147-151 .11
" 196-197 .05
107 48-55 ?
135-144 ?


18
17
107
124
16
123
108
15
14
13
12
8
? ← Depth → ?

MINERALIZATION PROFILE (Aprox. only)

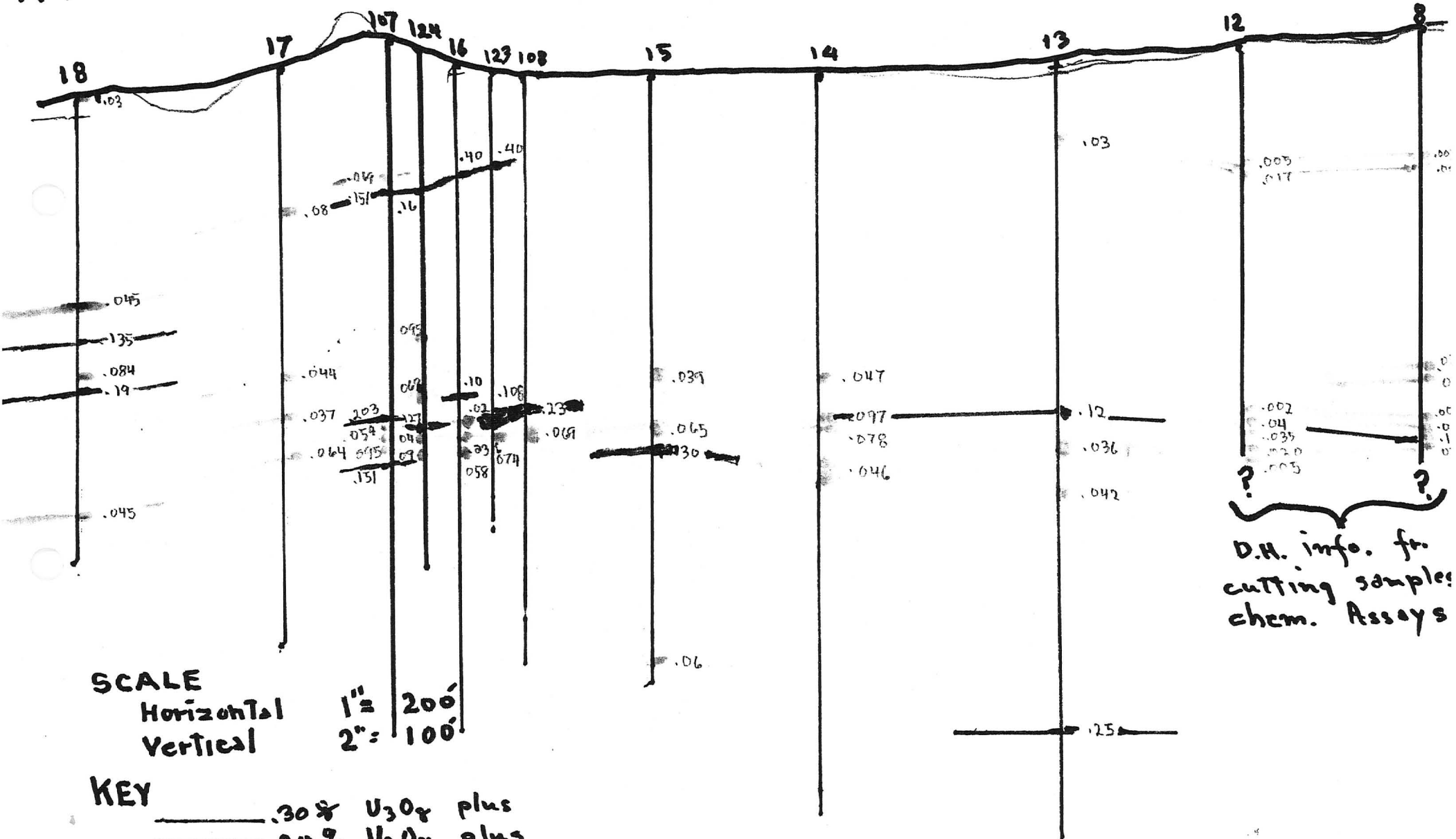
Line 1330'



Note. Beds dip SW

MINERALIZATION PROFILE

Line (2000')



D.H. info. fr. cutting samples chem. Assays

SCALE

Horizontal 1" = 200'

Vertical 2" = 100'

KEY

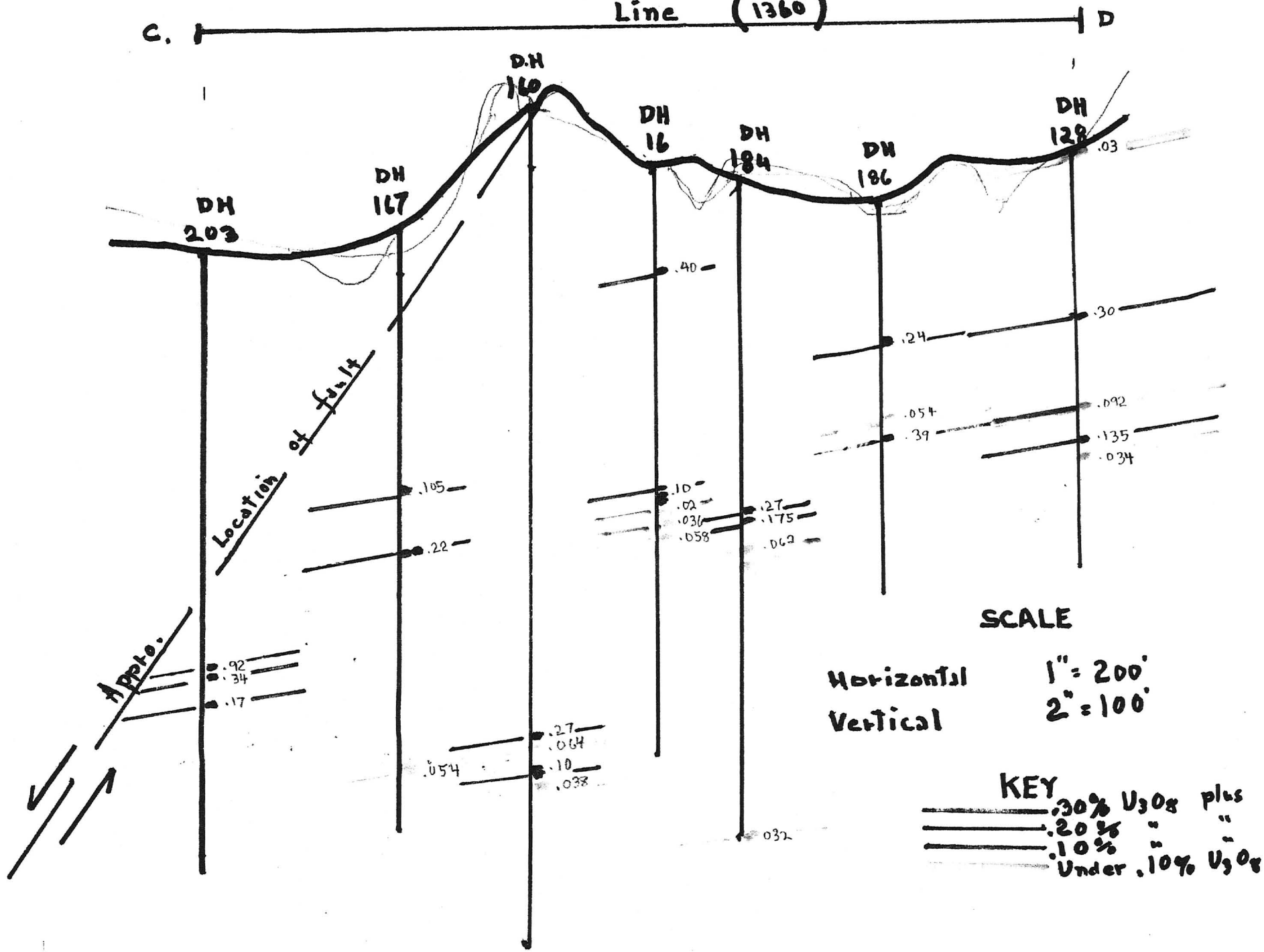
——— .30% U_3O_8 plus

——— .20% U_3O_8 plus

——— .10% U_3O_8 plus

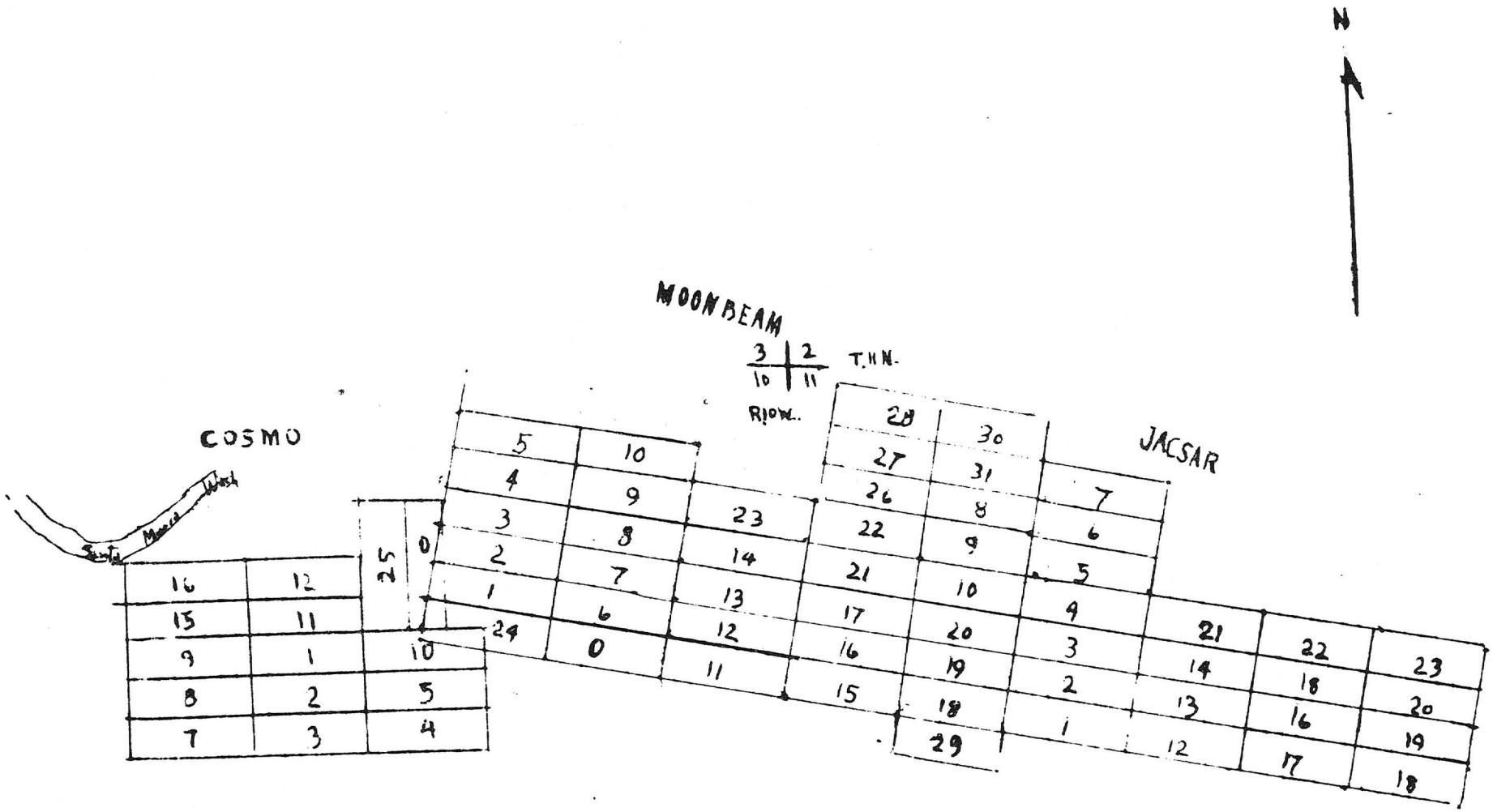
Under .10% U_3O_8

MINERALIZATION PROFILE



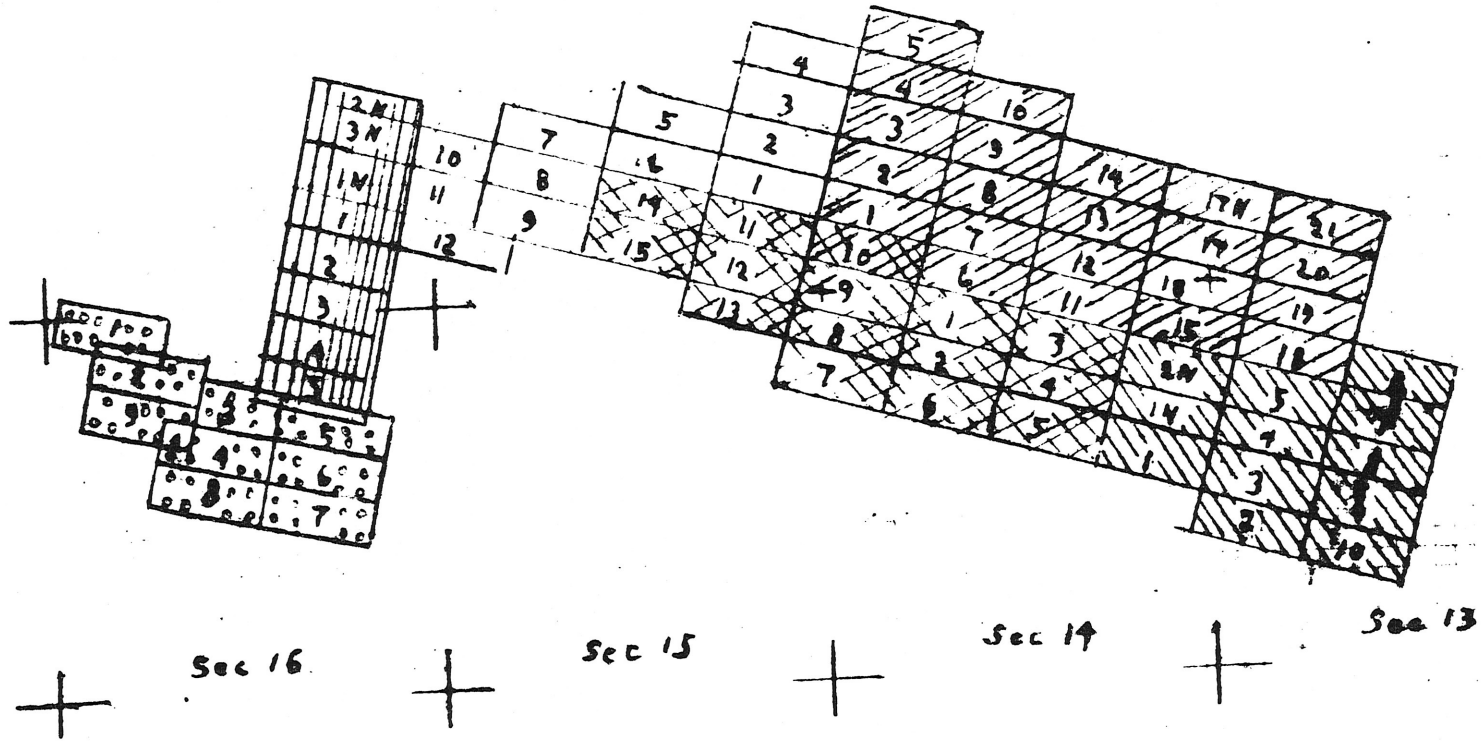
Note: Beds dip SW.

Jones



Present Ownership of Anderson Mine.

Exh. #1



URANIUM AIRE 1-21 ITN CLAIMS

URANIUM AIRE 1-10 1N, 2N, CLAIMS

URANIUM AIRE 1-15 South CLAIMS

URANIUM AIRE 1-12 West CLAIMS

URANIUM AIRE FLAT TOP 1-5, 1-3 N CLAIMS

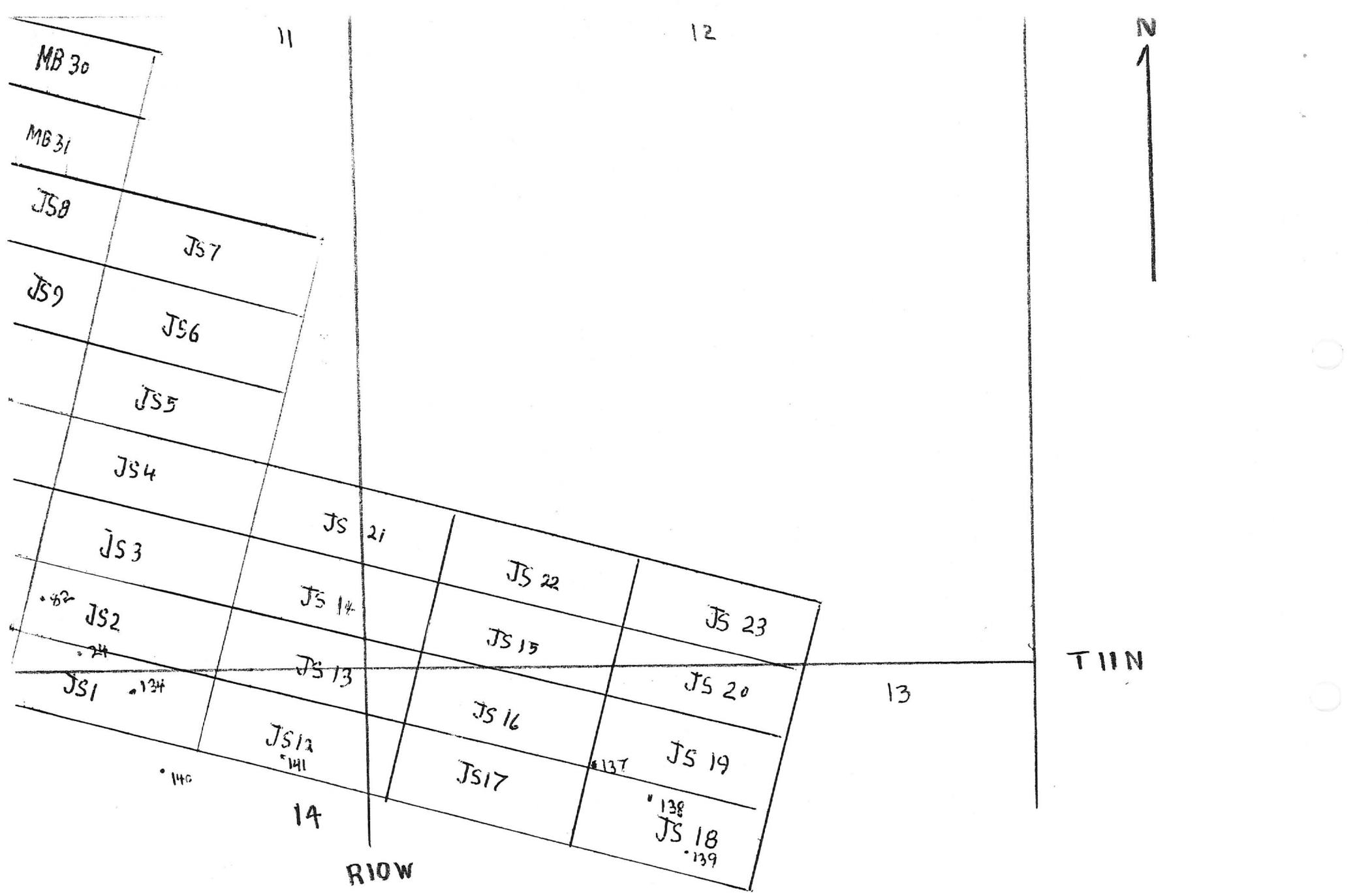
URANIUM AIRE FLAT TOP GP2 1-9 CLAIMS

URANIUM AIRE GROUP

YAVAPAI COUNTY

ARIZONA

Scale: 2" = 1 MILE


11
12
N
MB 30
MB 31
JS8
JS7
JS9
JS6
JS5
JS4
JS3
JS2
JS1
JS 21
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JS 14
JS 15
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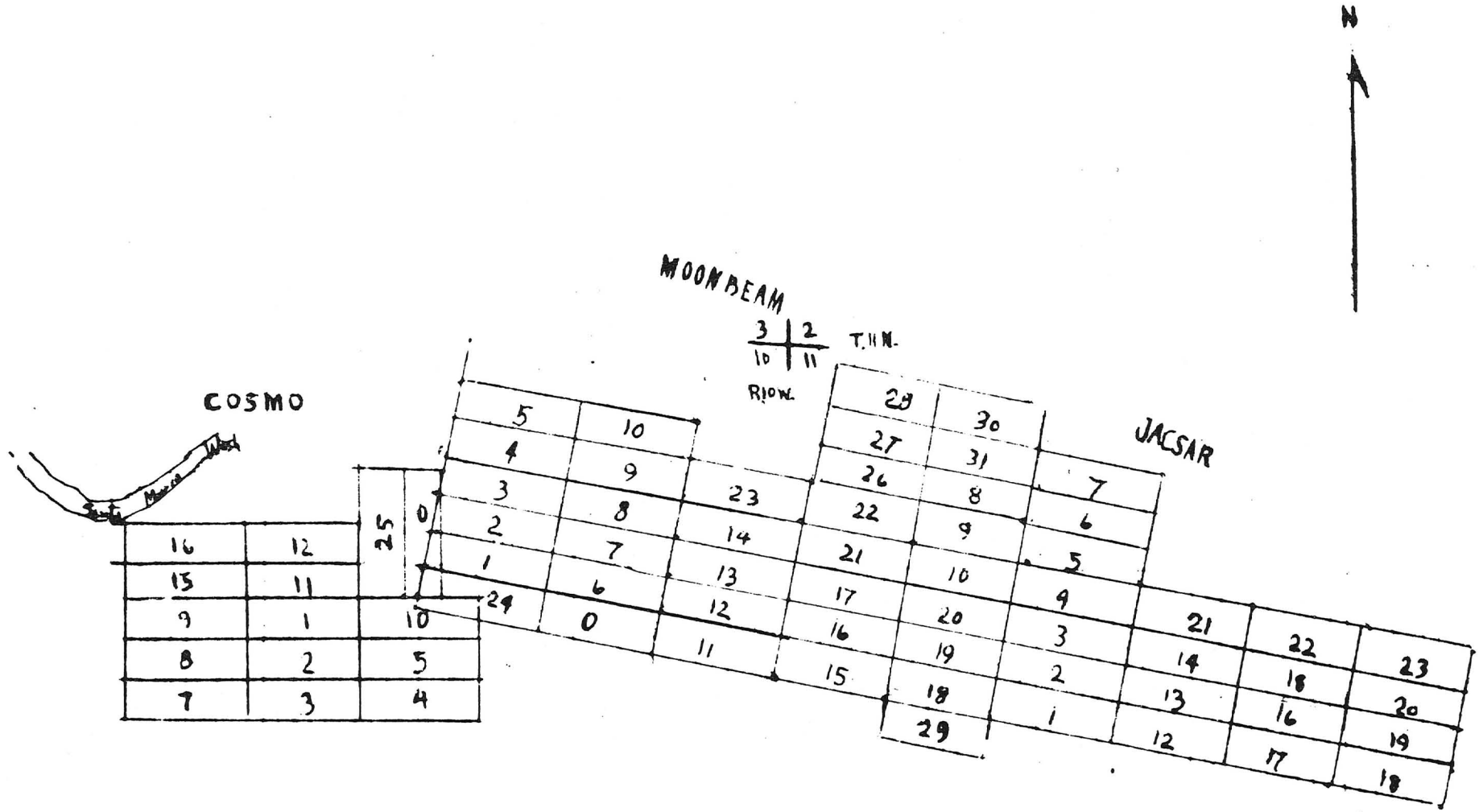
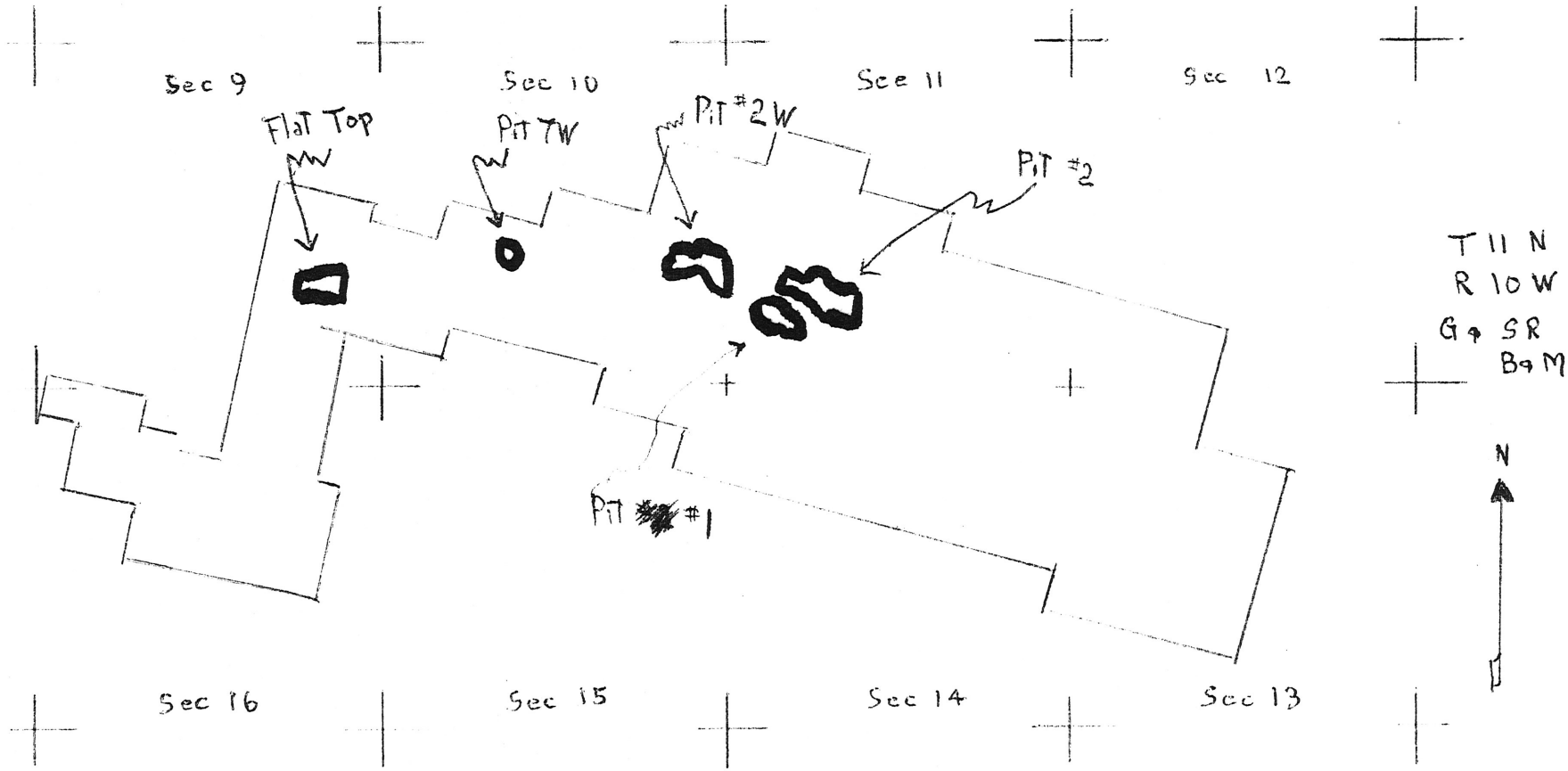
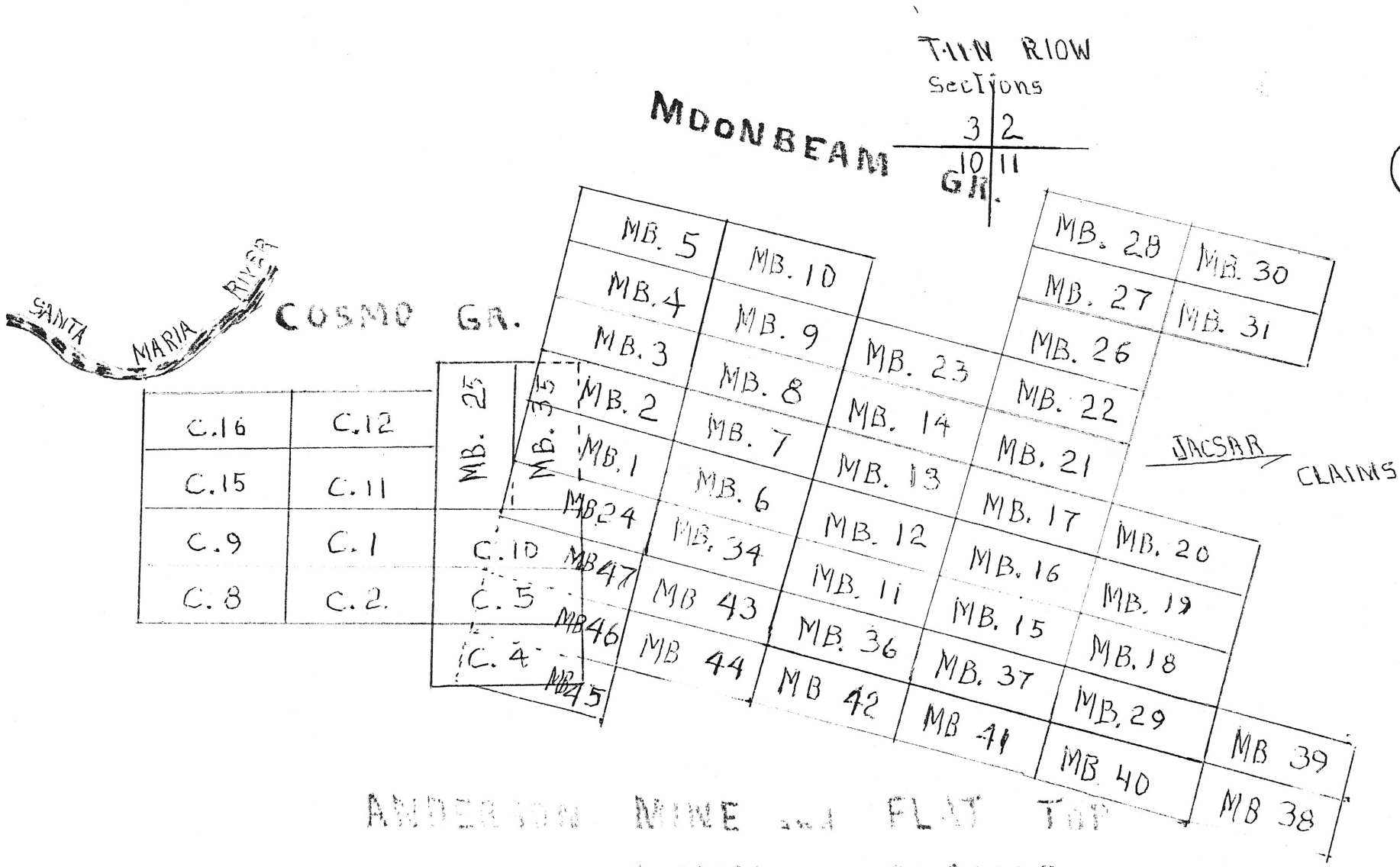
JS 19
JS12
JS17
JS 18
14
13
T11N
R10W


A
N
MOONBEAM
3 2
10 11
T.11N.
R10W.
COSMO
JACSAR
25
0
24
16 12
15 11
9 1 10
8 2 5
7 3 4
5 10
4 9
3 8 23
2 7 14
1 6 13
0 12
11
28 30
27 31
26 8 7
22 9 6
21 10 5
17 20 9
16 19 3 21 22 23
15 18 2 14 18 20
29 1 13 16 19
12 17 18

Encl. #2



URANIUM AIRE GR.



ANDERSON MINE and FLAT TOP MINING CLAIMS.

35 MILES W. CONGRESS, YAVAPAI COUNTY, ARIZONA

AMENDED '74 - Jones '73

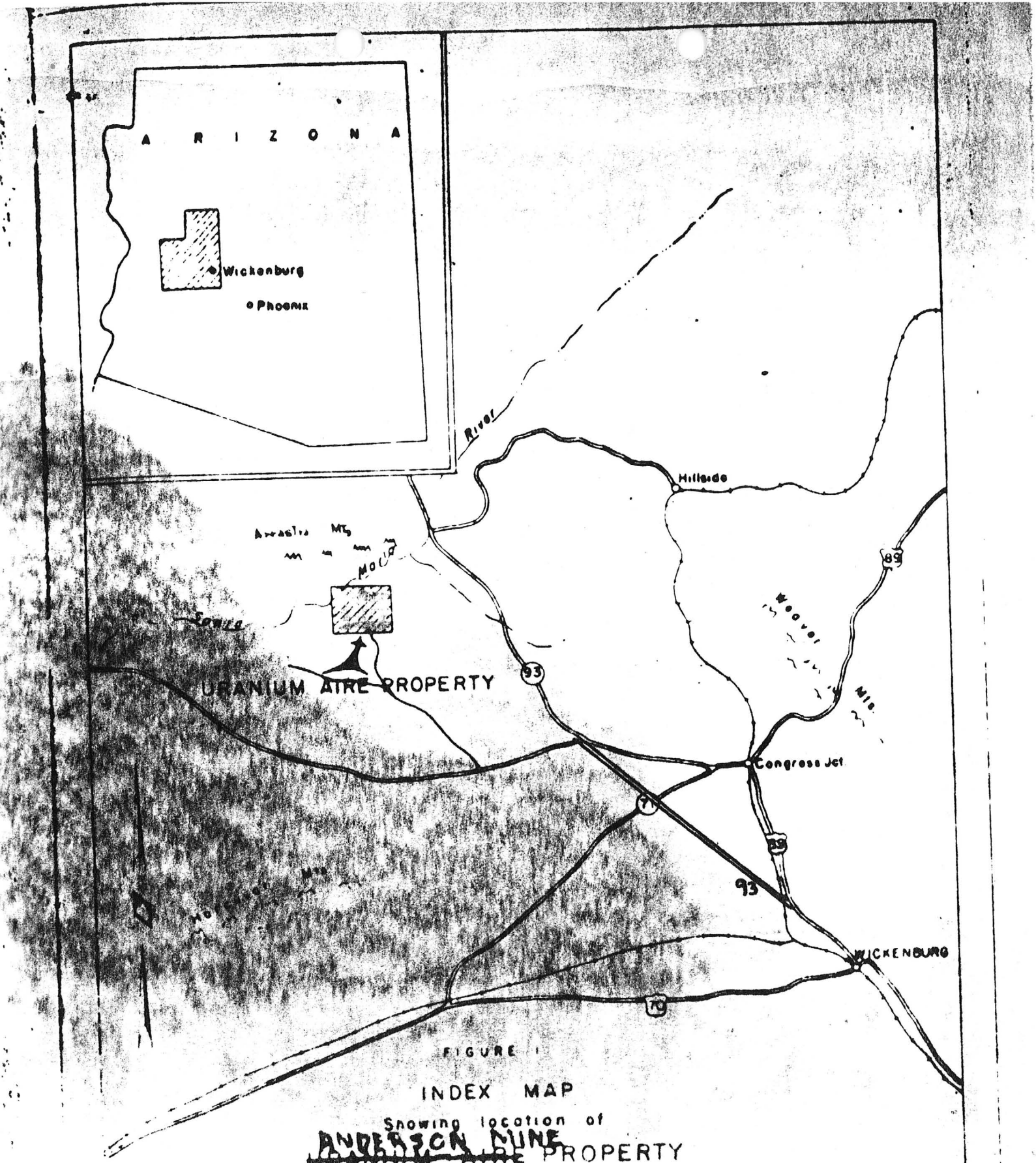


FIGURE 1

INDEX MAP

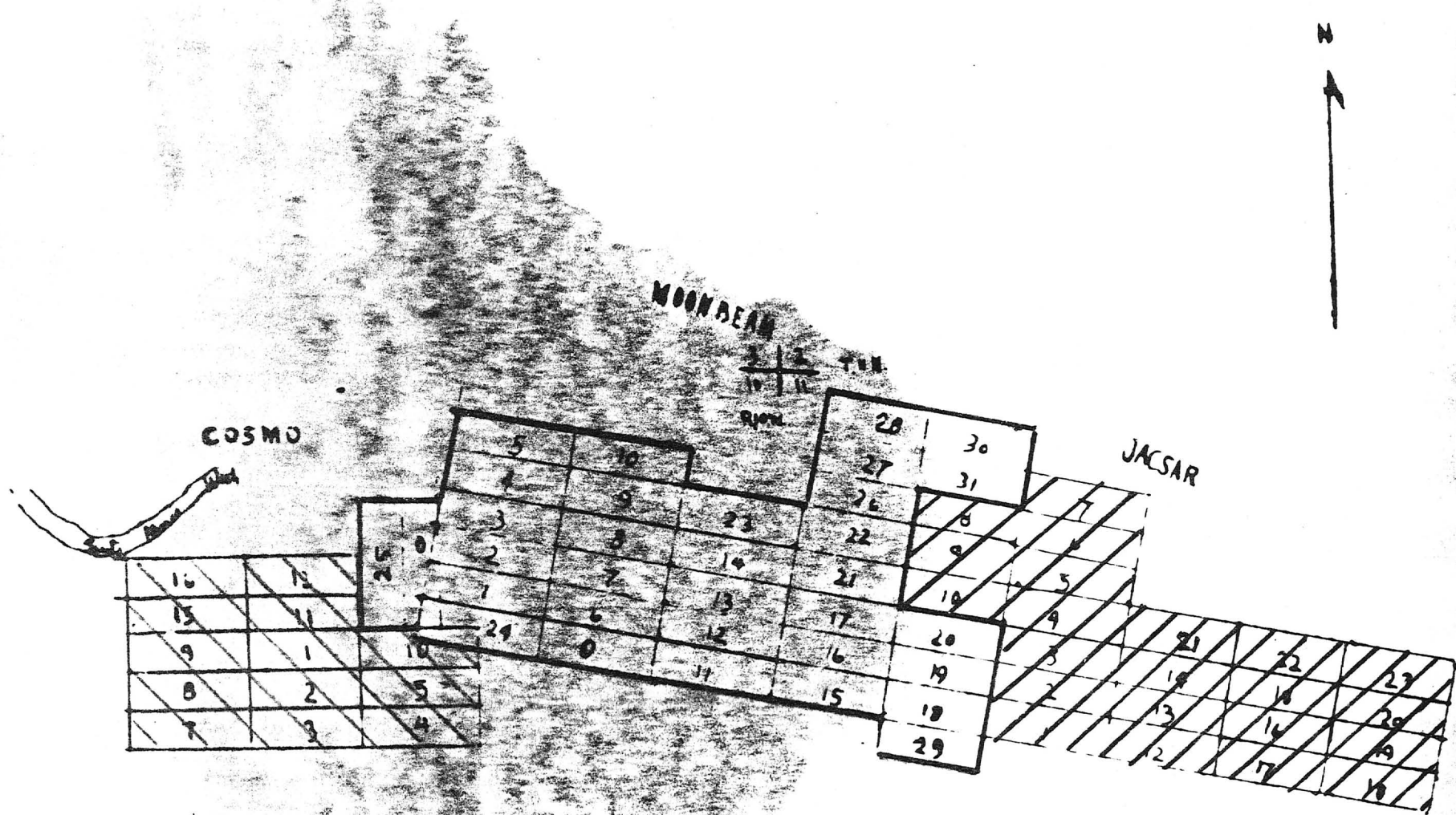
Showing location of

ANDERSON MINE PROPERTY

YAVAPAI COUNTY, ARIZONA

0 10 20

Scale feet miles



Present Ownership of Anderson Minc.

Melvin Jones
GL 450g Sedimentology.
January 7, 1967

PIPETTE METHOD IN MECHANICAL ANALYSIS OF SEDIMENTS.

The procedure is in accordance with instructions in brochure prepared and issued by Dr. Warner of the Geology department.

Sample to be tested is from the Anderson Uranium Mine, 24 miles West of Congress, Arizona. Sample is identified as the Beck sample, taken from apparent mudstone facies 9 feet above pit floor. Mr. Hatchure of the Geology class was assigned to be my associate in testing the sample. For this Field sample, the initial steps will be to:

1. Break up sample (use about 25 grams for testing).
2. Soak in water.
3. Sieve out sand.

Initial weighing results:

Weight of paper container - 2.27 grams
Weight of combined sample and paper 34.11 grams
Weight of sample (minus paper) 31.84 grams

After dissolving sample, the resulting solution was filtered (thru filter paper) and allowed to dry:

Dry residue Wt.w/filter paper - 33.63 grams
Filter paper Wt. - 2.42 grams
Dry residue Wt. - 31.21 grams

Following boiling off $CaCO_3$, made solution $Na_2C_2O_4$:

$\frac{13.4}{1000 \text{ ml}} = \frac{1.34}{100 \text{ ml}}$ - for N/5 sol'n w/ distilled H_2O .

50 ml beaker Wt.= 27.22 grams
Total weight = 58.38 grams
Sample Wt. = 31.16 grams

I almost omitted the sieving (from the report) which is as follows:

+ 1/16 mm sand weight =	3.71 grams	
1/8-1/16 mm " " =	2.87 grams	
1/4-1/8 mm " " =	0.05 grams	
1/2-1/4 mm " " =	0.07 grams	(Mus.Bio.Qtz.Fds.fossils)
1 -1/2 mm " " =	0.01 grams	(Qtz.Mica.Feldspars)
	6.71 grams	

Agitation and sampling with pipette:

Time 1st agitation - 5.45 ; 10 PM 11-15-66
Time and sampling - 5.47 : 06 PM
Time ofSettling -0.01 : 56 (Pipette at 20cm and 20 cc taken)
Time 2nd agitation - 5.52 : 30 PM 11-15-66
Time and sampling - 7.56 : 30 PM
Time of settling -2.03 : 00 (Pipette at 10 cm and 20 cc taken)
Time 3rd agitation - 8.15 :00 PM 11-18-66
Time and sampling - 1.70 : 00 PM 11-21-66
Time of settling - 65 hours 25 Min.(Pipette at 5cm depth)

Weighing of periodic samples: (Analytical balance used).

Amt. of time.	Sample No.		Weights
1.56	#1	Wt. of beaker plus residue	= 27.910
		Less Wt. of beaker	= 27.461
		Wt. of residue	= 0.462
		Less Wt. $Na_2C_2O_4$ Weight	= 0.013
			= 0.449
2.63	#2	Wt. of dish plus residue	= 35.953
		Less Wt. of dish	= 35.928
		Wt. of residue	= 0.025
		Less Wt. $Na_2C_2O_4$ (20 cc) Weight	= 0.013
			= 0.012
65 hrs.25 Min.	#3	Wt. of beaker plus residue	= 89.929
		Less Wt of beaker	= 89.920
		Wt. of residue	= 0.009
		Less Wt. of $Na_2C_2O_4$ in sample	= 0.013
		Weight-minus(deficiency)	= 0.004

Calculated amount in test samples:
Sample #1 - 0.449 x 50 = 22.450 grams (< 1/32 mm)
Sample #2 - 0.012 x 50 = 0.600 grams (< 1/256 mm)
Sample #3 - -0- = -0- grams (< 1/2048 mm)

Recapitulation:
Weight of original test sample = 31.84 grams. = 11.65
Dry test residue(after boiling) = 31.21 grams. =
Weight of volatiles in test sample($CaCO_3$) = 0.63 grams.

Sand:

Wt. of + 1/16 mm sand	= 3.71 grams	=	11.65 %.
Wt. of 1-1/2 mm sand	= 0.01 grams	=	0.03 %.
Wt. of 1/2-1/4 mm sand	= 0.07 grams	=	0.22 %.
Wt. of 1/4-1/8 mm sand	= 0.05 grams	=	0.16 %.
Wt. of 1/8-1/16 mm sand	= 2.87 grams	=	9.01 %.
Sieving losses	= 0.71 grams	=	2.23 %.
Total sand	= 3.71 grams	=	11.65 %.

Silt and Clay:

Wt. of 1/16-1/32mm silt	= 5.05 grams		
Wt. of < 1/32 mm silt & clay	= 22.450 grams	=	70.5 %.
Wt. of < 1/256 mm clay	= 0.600 grams	=	1.88 %.
Wt. of 1/32-1/256 mm silt	= 21.850 grams	=	68.62 %.
Wt. of 1/2048 mm clay	= 0.000 grams	=	0.00 %.

Component calculation:

Original test sample weight	=	31.84 grams.
Sand weight (+ 1/16 mm)	=	3.71 grams.
		28.13 grams.
Weight of volatiles (loss)	=	0.63 grams.
Remaining weight, which is silt and clay	=	27.50 grams.
(Wt. of 1/32 mm clay & silt	=	22.450 grams.)
(Wt. of 1/16 to 1/32 mm silt	=	5.050 grams.)
		(27.50 grams)

Clay weight = 0.600 grams = 1.88% of sample.
Sand weight = 3.71 grams = 11.65% of sample.
Silt weight = 26.900 grams = 84.49% of sample.
Volatiles weight=0.63 grams = 1.98% of sample.
Total weight of all components=31.84 grams= 100.00% of sample.
Sample is not a Mudstone-Limestone as it has been called by some. ($CaCO_3$(or CaO) is estimated to be under 2%).

Sample is a Siltstone. (p.341-Pettyjohn - under"siltstones")
However, this formation is heterogeneous. Other samples will no doubt, grade into mudstones (and clays).

Telephone 363-3302

Hand Sample Serial 10418-14019

ASSAY REPORT

UNION ASSAY OFFICE, Inc.

W. C. WANLASS, President
L. G. HALL, Vice President
G. P. WILLIAMS, Treasurer
GERALDINE A. WANLASS, Secretary
P. O. Box 1528
Salt Lake City, Utah 84110

Mine Porter & Co.
1010 N. Orchard Avenue Box 667
Boise, Idaho 83701

RESULTS PER TON OF 2000 POUNDS April 26, 1971

NUMBER	GOLD Ozs. per Ton	SILVER Ozs. per Ton	LEAD Wet on Ore	COPPER Per Cent	INSOL. Per Cent	ZINC Per Cent	SULPHUR Per Cent	IRON Per Cent	LIME Per Cent	Per Cent	Per (
										V_2O_5	
1										0.15	
2										0.13	

Remarks

Charges $ 14.00

Glen P. Williams