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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: CARBOX CLAIMS

ALTERNATE NAMES:

GILA COUNTY MILS NUMBER: 508

LOCATION: TOWNSHIP 10 N RANGE 15 E SECTION 27 QUARTER SE
LATITUDE: N 34DEG 10MIN 27SEC LONGITUDE: W 110DEG 47MIN 58SEC
TOPO MAP NAME: YOUNG - 15 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:
IRON

BIBLIOGRAPHY:

USGS YOUNG QUAD
ADMMR CARBOX CLAIMS FILE
CLAIMS EXTEND INTO SEC 21, 22, 26, 28, 29,
33, 34 & 35

ALSO SEE: FROG POND

also see Frog Pond

06/27/91

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

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DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Haught Iron Discovery

Date June 7, 1961

District Upper Canyon Creek, Ellison Dist., Gila Co.

Engineer Lewis A. Smith

Subject: Interview with Henry Haught.

Location: Near headwater of Canyon Creek, (near in 10 i N - ?) east of the Iron Prince (owned by Van den Hoeck) close to the Fort Apache Reservation line.

Claims: 2 unpatented (so far).

Owner: Henry Haught, Payson, Arizona.

Work: 2 location pits, about 6 x 6 by 8 feet.

Geology: According to Henry Haught, about 40 or more acres are well covered by float consisting essentially of red to black hematite. Local spots indicated that the iron-bearing material was replacing limestone. The float was generally sampled and the assay of this sample showed about 6 per cent iron. Mr. Haught said that he planned to do more work to find out where this float came from, but he feels certain it is of local origin since it appears to be confined to the local area.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Iron Deposit

Date February 8, 1961

District Ellison Dist., Gila Co. (4 miles north of Young))

Engineer Lewis A. Smith

Subject: Interview with Henry Haught of Payson.

Mr. Haught had specimens of hematite and magnetite which he said replaced limestone. The ore is of good quality and 2 representative specimens were brought in to the Museum. Mr. Haught said that no exploration was done, other than location pits. The bed appears to be at least 80 feet wide on the surface, and to have a considerable length of outcrop. He has contacted C. F. & I. recently and they will have a look at a later date. Haught has 6 claims on this and plans to take up others.

The hematite replaces limestone whereas the magnetite's occurrence is not yet known, but appears to be dike like in appearance and separate from the hematite deposits, a few miles separating the two occurrences. Float, indicating other occurrences was found in scattered localities between the two areas.

A visit to these areas will be made in June.

GEOLOGIC RECONNAISSANCE

OF

IRON CLAIMS IN GILA COUNTY, ARIZONA

By CHARLES W. SHANNON

Charles W. Shannon

INDEX

The area investigated embraces about 21 sections in the eastern halves of Townships 9 and 10 North, Range 14 East, Gila County, Arizona. The town of Young is situated about ten miles to the south via the Young-Heber road which passes through the subject area. Ten miles to the north, this road junctions with the hard surfaced State Highway 160 which traverses the Mogollon Rim between Payson and Heber. At this intersection, the two towns are 30 and 20 miles distant, respectively.

In the area examined, the General Land Office survey has been completed, and most section corners consisting of brass capped iron pipe are in place. Claims within the area extend to the western boundary of the Fort Apache Indian Reservation. Except for the Reservation, all ground lies within the Tonto National Forest.

Field work was conducted during the periods August 11-17 and September 10-27, 1965. Elevation and aereal control was maintained by plotting observations on a topographic map compiled by Joe Lyon, Jr. from U. S. Geological Survey quadrangles.

The purpose of the geological examination was to assess the iron ore potential of the Carbox Groups of claims. These claims are shown on the accompanying geologic map. Concurrent with the geological study, an independent magnetometer survey was conducted. This was somewhat an experimental project to see whether or not the presence of iron ore could be detected under cover; and secondly, to trace faults not evident from surface observation. The results of this magnetic survey are presented in a separate report by W. Don Quigley.

HISTORY

Outcrops of iron ore have long been known in the west central portion of the subject area, particularly along the upper reaches of Gentry Creek and Prong Fork. Lesser showing are found along Cherry Creek just south of the North Carbox claims. The earliest and only published writing describing iron ore occurrence in the region is that of Earnest F. Burchard and B. W. Dyer whose U. S. Geological Survey Bulletin 821-C is dated 1931. Their study was confined to the Canyon Creek area on the Fort Apache Indian Reservation where rather extensive outcrops of ore occur.

Although there are a number of exploratory tunnels and open cuts in the various exposed ledges of ore, little or no exploitation has ensued. Of major import is the extensive exploratory and development program carried on by Colorado Fuel and Iron Corporation during the past five or six years. They have a large leased block on the Reservation which is contiguous with the subject area. After a thorough geologic study and considerable drilling, they have reportedly block out substantial economic reserves.

Sixteen holes were drilled on the North Carbox Group of claims, but these were drilled for validation purposes and none penetrated the ore horizon. They do, however, provide useful data for geological analysis, and a copy of the logs of the wells is appended to this report.

GEOGRAPHY

The subject area occupies the middle slopes of the Mogollon Rim escarpment. Cherry Creek and its headwaters drain the northern portion, while Gentry Creek, a branch of Canyon Creek drains the central and southern portions. Both systems are tributary to Salt River which is base level for the drainage complex. The creeks are dry most of the year but during the spring, flow is quite heavy; induced by melting snows. The Mogollon Rim rises to elevations above 7500 feet and the Salt River lies about 2300 feet above sea level. Thus in 70 miles the terrain falls almost 5000 feet. In the Cherry Creek and Gentry Creek area, elevations are about 6400 feet. This relief pressages rapidly coursing waters, and as would be expected, the creeks have incised deep canyons with many narrow gorges, frequent falls, and rapids. Basically, the area of interest consists of a southward plunging salient of the Mogollon scarp dissected on its east and west flanks by the headings of the two major stream systems. Three discreet plateaus exist, and these upland areas comprise the bulk of the pertinent terrain. In the northern portion is Red Lake Ridge; Lost Tank Ridge strikes east-west across the central part; and Gentry Mesa extends north-south in the lower west portion. These features are eminently apparent on the accompanying geologic and topographic map.

The country is generally rough, heavily wooded, and in places jack-pine undergrowth is literally impenetrable. However, most ridges have fire trails maintained along them, and old logging roads can quite easily be renovated for access; even into the less precipitous canyons.

GEOLOGY

Stratigraphy

Rocks exposed in the subject area consist of the upper portion of the Apache Group of Cambrian (?) age, and Devonian and Carboniferous strata which overlie the Apache Group unconformably. A generalized geologic section of the exposed rocks is as follows:

Redwall limestone; brownish-gray to gray, very fine crystalline, parts fossiliferous, massive to thin bedded	0 - 200 feet
Martin limestone; white to gray to variegated purple, pink and gray, mostly very fine crystalline, occasional thin shale and sandstone beds, lower 100 feet dominantly medium to coarse grained sandstones, thin to thick bedded, heavily iron stained in places, some thin chert beds highly ferruginous	0 - 300 feet
Troy quartzite; light gray to light brown, commonly purple mottled especially on weathering, generally well cemented sandstone in lower portion, medium to massive bedded	200 - 300 feet
Chediski member; white, fine to medium grained, poorly sorted sandstone, white sericitic cement	50 - 200 feet
Mescal limestone; banded and stratified chert, ferruginous in portions, merges into iron ore	10 - 60 feet
Dripping Springs quartzite; light buff to reddish to gray quartzite, frequently fine banded with reddish striae, thin to medium bedded, rarely massive	plus 300 feet
Diabase; laccoliths and sills, intruded into Dripping Springs and Mescal formations.	

The thicknesses listed above are only estimates based on observations of partial exposures throughout the area. Both the Martin and Redwall limestones are known to be as much as 400 feet thick in other places, and the Troy quartzite is reported to obtain a thickness of 700 feet to the west and south. However, it is estimated that the combined Troy and Chediski beds probably do not exceed 600 feet in the area investigated.

Much of the North Carbox Group of claims is covered by Martin and Redwall limestones; the former unconformably overlying the Troy quartzite. At least 200 feet of Martin may be present as determined from core holes drilled on the claims. Holes 3, 4 and 5 bottomed at 100 feet in Martin while hole 6 has 98 feet to the basal sand section. Holes 9 and 12 show 100 feet of basal Martin. Thus, a total of 200 feet can be estimated. Holes 1 and 2A show 100 and 56 feet of Redwall, respectively, and Redwall was found in the center of Section 22, T. 10 N. However, it can be no more than 80 feet thick there since Martin crops out in Cherry Creek one contour (80 feet) lower. These two formations thicken to the north as evidenced by some 500 feet observed in Naegelin Canyon 3 miles northwest of the claims. On the North Carbox claims, it is safe to assume that the combined thickness of the two formations will not exceed 350 feet, and for most of that area will be less than 200 feet.

Since the Troy quartzite was subject to erosion prior to Martin deposition, it is difficult to assess its thickness in the subject area. On Gentry Mesa and LostTank Ridge a maximum of 300 feet can be observed, and over most of these two areas considerably less than that remains. In Section 29, T. 10 N., 240 feet is found in the canyon of the middle fork of Parallel Creek. In well 16 drilled along Cherry Creek in the northeast quarter of Section 33, about 260 feet of Troy was logged. This would indicate a slight thickening to the south and east. This being the case, it is anticipated that up to 300 feet of Troy may be present under the Martin-Redwall cover in the eastern portion of the North Carbox claims.

The Chediski sandstone member of the Troy formation was nowhere observed to be more than 180 feet thick. In many places it was found to be considerably less. However, it may be that where not well exposed, it was mistaken for lower Troy. In contrast to outcrops on the Reservation, few typical exposures of Chediski were noted in the subject area.

Very excellent exposures of Mescal are found in the Frog Pond and Carroll Spring areas where the relatively steep walled canyons cut through the entire section. The whole section can also be seen in Cherry Creek in the southwest quarter of Section 33. Elsewhere, only partial exposures are found. Most of the Mescal is composed of chert; the upper beds of which are massive to thin bedded and of a cryptocrystalline variety. This passes into a crenulated algal form which generally carries the iron ore. Some shales are present in the upper portion which develop a somewhat granular texture and can be confused with basal Chediski in a restricted outcrop. In the northern part of the area, only partial exposures of Mescal can be found. Although continuous crops are shown along Parallel Creek in Section 29, this is largely a projection as the formation is covered by talus except in a few places. This is true also of the portion shown above Cherry Creek in Sections 32 and 33. In Gentry Creek, from Shell Mountain on downstream, Mescal crops out along the stream bottom.

There is some evidence that the Mescal varies considerably in thickness over the area. Along the upper reaches of Gentry Creek, from the center of Section 21 northward, it appears that Chediski rests directly on Dripping Springs. In some of the exposures along Cherry Creek and in Parallel Creek, only about 30 feet of Mescal is found. In both of these areas, faulting occurs and this may obscure the true conditions. The widespread occurrences of Mescal throughout the subject area, however, lead to the conclusion that it is perhaps ubiquitously present.

Frequent exposures of Dripping Springs quartzite were observed throughout the area. However, except as a delimiting factor, little study was made of this formation. The greatest thickness of the quartzite occurs on Shell Mountain in Section 28, T. 9 S. In the north, about 250 feet of Dripping Springs is exposed in Section 32.

Rather large areas of diabase are found in the region. Except for one small outcrop in the southwest corner of Section 14, T. 10 N., all the diabase exposures lie in T. 10 S. Gentry Mountain, a dominant topographic feature centered in Section 20 probably represents a laccolith center. The diabase is thought to have been intruded in lacolithic form and probably as sills into Dripping Springs beds. No evidence was found of its intruding beds younger than Mescal. In Naegelin Canyon, a conglomerate was found which contained fragments of all formations from Dripping

Springs through Martin. The matrix appeared to be weathered or altered diabase and the fragments varied in size from grains to blocks ten feet long. Large boulders of diabase were also included. Both here and in Section 14, the diabase is overlain by Martin/Redwall. This would indicate that either the diabase was raised by faulting or it intruded later than is generally thought.

Very little metamorphism seems to have resulted from the intrusion of the diabase. Near the junction of the Frog Pond fork and Gentry Creek, both diabase and Dripping Springs quartzite have a baked appearance. Both have a brick red color, and the diabase feldspars are slightly sericitized. Aside from this one observation, no contact effects were noted.

Structure

A cursory inspection of the geologic map indicates a regional dip to the southeast. In Gentry Creek, at the south end of Gentry mesa, the Chediski top is approximately 5840 feet in elevation. On the ridge north of Parallel Canyon Creek in Section 29, it is at an elevation of approximately 6520 feet. Actually, this is not a true measure of dip because, as will be noted, a number of faults intervene. The 840 feet of structural relief, however, occurs in about 7 miles giving a southeast dip component of a little over one degree. Dips measured throughout the area exceeded this considerably; ranging from 4 to 16 degrees in general, and getting as high as 39 degrees.

A number of faults were located, but most could not be traced for more than short distances. Those shown as solid line are felt to be reliably located; those shown with broken line are more hypothetical. It will be seen that faults strike in two major directions; approximately northeast and southeast. There are undoubtably more faults than are shown. This is particularly true in the North Carbox area where outcrops are of limited extent. Also, much of the area here is unconformably overlain by post-fault Martin and Redwall limestones. It is thought that the significant faulting is pre-Devonian.

The largest displacement observed occurs on the Gentry Creek fault opposite Shell Mountain where the Mescal is raised some 500 feet on the southern upthrown side. In Cherry Creek, the short fault shown in Section 33 has a throw of about 150 feet as it juxtaposes the top and bottom of the Chediski sandstone on either side. A possible major fault not shown extends from the trifurcation of Bear Spring Creek, on the Reservation, to between drill holes 2 and 2A in Section 34, T. 10 N. It is possible that this fault may be an extension of the northeast trending fault parallel to Cherry Creek. It was not put on the map because it was not examined anywhere in the field. The inferential evidence for it lies in the fact that it is noted in Bear Spring Creek by Burchard, and his trace projects between the aforementioned drill holes which show a displacement of at least 100 feet.

The fault crossing Parallel Creek near the center of Section 28 is of significance because upthrown to the northeast, it places the ore zone at least 100 feet shallower than it would otherwise be.

Intrusive diabase is perhaps more directly responsible for local structural effects that any other factor. A southeast trending anticlinal flexure is present on Gentry Mesa as evidenced by dips at the north and south ends. That this flexure is caused by intrusive diabase may be deducted by noting the higher than normal elevation of diabase at the point where the jeep trail starts down to Gentry Creek in the east central portion of Section 21. Troy quartzite on Lost Tank Ridge has an anomalously high position as does the diabase contiguous to it. This is construed as resulting from uplift caused by doming of the igneous intrusive. The two faults in Parallel Canyon in Section 29 suggest the presence of an underlying diabase sill also. In the extreme northeast corner of the subject area, diabase is exposed at its highest stratigraphic position. Since it is here overlain by Martin, it is obvious that sufficient uplift ensued that the pre-Martin strata were completely eroded.

Surficially it would appear that much of the faulting is related to intrusion of the diabase. However, since faulting is post-Troy it is much younger than the time of igneous intrusion. Furthermore, it can be seen that diabase itself is faulted so it must be concluded that most of the faults observed are not genetically related to the tectonics of the diabase intrusion.

ORE CHARACTERISTICS AND GENESIS

As mentioned previously, the iron ore is associated with the chert of the Mescal formation. It most frequently occurs in the algal type chert, although it is not uncommon to find it in the overlying thin bedded variety. The ore grades into chert in all directions, but is particularly restricted in its occurrence above the algal section.

Distribution of the ore-bearing Mescal formation is widespread as can be seen by inspection of the map. Analogously, the ore is also widespread, but not ubiquitously. Although some ore was noted in each of the outcrops mapped, its thickness, quality, and extent is highly variable. The best ore seen occurs in the Frog Pond area. Here it is of good grade for as much as 20 feet vertically. In Cherry Creek in the west half of the southwest quarter of Section 33, a 10 foot bed of ore is of commercial grade. About 30 feet of soft ore was noted in the canyon of the middle fork of Parallel Creek, but as the zone was largely covered with detritus, the quality of the ore was not ascertained. Along the fault crossing Gentry Creek at the center of the west line of Section 15 about ten feet of soft ore is exposed. Because of the fault (?) only twenty feet or so of the bed crops out. In the northeast corner of Section 27, 5 feet of low grade ore occurs. Across Gentry Creek, on Shell Mountain, a farther downstream good exposures have been noted.

Ore exposures on the Reservation are indicated by hachures, and the holes drilled by CF&I are also shown. According to Jim Brooks, their geologist, 51 of the 52 holes drilled, penetrated ore. This distribution of outcrops and drill holes certainly implies a widespread occurrence of mineralization within the Mescal formation. It is logically deduced that where the Mescal is present in the subject area, ore will also be found.

The iron ore is hematite with occasionally some minor amounts of magnetite. It ranges from soft, pulverulent bright red to hard and dense blue oxide. Considerable amounts of specularite are often associated with the hard ore.

The ore ranges in thickness from less than a foot to at least 30 feet. An estimate of average thickness is not of significance at this point because for exploitation the grade factor is equally important. The best ore runs from 50 to 65 percent in metallic iron with silica ranging from 4 to 26 percent. Phosphorous varies between 0.12 and 0.40 percent. From this quality, the ore diminishes in grade to non-commercial. Although it is not within the scope of this examination to assess reserves, it is felt that nominal reserves could be developed wherein the ore would average better than 40% in grade. No ore samples were taken for assay during the current examination, but the assays appended to this report are typical for the area.

In considering the potential ore development within the subject area, its genesis becomes important. It is not presumed that this facet could be adequately pursued in a reconnaissance examination, but some discussion of the probable genesis is warranted. It has been suggested by Burchard and others that the ore is a replacement of siliceous beds of the Mescal formation. Cursorily observed, the ore appears to be an original ferruginous sedimentary deposit. However, no oolitic or granular material is present. Moreover, much of the ore retains vestiges of the algal structure of non-mineralized chert. Assuming that the ore constitutes a replacement deposit, the question arises as to the source of the iron. Certainly the diabase must be considered as a very probable source. Typically rich in ferromagnesian minerals and frequently containing magnetite, this rock could readily impregnate solutions with iron.

The proximity of ore to faults strongly suggests a genetic relationship. The faults would, of course, provide the necessary channels for ingress of iron pregnant solutions. It is logical to assume that the richer ore should be near faults, although there is evidence that replacement extends for considerable distances within the Mescal formation.

Postulating that the iron mineralization derives from replacement, it follows that ore bodies will be spotty and irregular. This has been cursorily noted in the examination. On the other hand, the geometry of the holes and outcroppings on the CF&I property indicates good continuity of ore.

SUMMARY AND CONCLUSIONS

The results of the geological examination show that the ore-bearing Mescal formation is widespread throughout the areas of interest. Ore showings on the North and South

Carbox claims are of limited extent primarily because of the extant level of erosion. These showings are of significance, however, in that they imply a widespread occurrence of potential ore deposits.

On the North Carbox claims there are two factors which enhance their ore potential. One is the copious amount of rich iron float to be found in the creeks below the Mescal horizon. Another is the degree to which even the overlying Martin limestone is mineralized. Although no ore per se occurs in the Martin, the basal sands are frequently heavily iron-stained; sometimes so highly ferruginous as to constitute low grade ore. It is not uncommon to find high grade float associated with this formation. With so much evidence of strong mineralization, commercial ore bodies must unquestionably be present.

The South Carbox claims are contiguous to ore exposures both on the west and south, and there is no reason why the Mescal underlying Gentry Mesa should not have been similarily mineralized.

The question may be raised as to whether or not the Mescal might be missing in parts of the subject area. On the North Carbox claims, the eastern half of Section 27 might possibly be so affected since diabase crops out a mile to the north. On the South Carbox claims there is good evidence that diabase is present. Only the west central portion of Section 22 and the northern half of Section 15 are expected to be adversely affected, however. Thus, neither of these two areas is seriously impaired as to its ore potential.

Depth of burial of the ore horizon is an important consideration in evaluating the subject property. On the south, only the Troy and Chediski overly the ore zone. With as much as half the Troy removed by erosion, depths to ore should not exceed 500 feet, and in much of the area should be closer to 350 feet.

Objective depths are somewhat greater on the North Carbox claims. In the eastern part where the Martin and Redwall limestones are present, the Mescal may be as much as 600 to 700 feet deep. Where Troy is at the surface, the average depth to ore is more likely 300 to 400 feet. In Cherry Creek and Parallel Canyon, Mescal is exposed and adits could conceivably be driven on ore.

Nowhere is depth amenable to large-scale open pit development, but, on the other hand, average depths are optimum for underground extraction.

RECOMMENDATIONS

It must be concluded from the present study that excellent potential for commercial ore is manifest. The remaining questions to be resolved concern grade and tonnage. To ascertain these parameters it will be necessary to drill.

Ten million tons of ore should be developed for economic feasibility. With the type of deposit found here, a hole should represent an average evaluation of ground within a 500 foot radius. A further requisite is that an 8 foot thickness must be mineable. These parameters educe an evaluation per hole of 698,000 tons.

Holes drilled on 2000 foot centers will adequately delineate ore reserves. In the North Carbox Group of 132 claims this will necessitate 37 holes.

Estimating that holes can be drilled for $10.00 per foot and that the average hole will be 500 feet deep, the total cost will amount to $185,000.

Prior to embarking on a drilling program of the scope outlined above, it would be well to do some selective drilling based on the geologic concepts developed thus far. Four locations have been selected which should propitiously test the predicated ore potential. These proposed locations are shown on the map by 2000 foot diameter circles. It will be noted that each is centered on an existing drill hole. Since these holes are open, it is advised that the 100 feet or so of depth already drilled be utilized. In order of preference, the drilling should commence with Hole 7, thence successively to Hole 16, Hole 13A, and finally Hole 3. Hole 14 is suggested as an alternate to Hole 13A if the latter proves unusable because of ravelling. Listed below are the expected depths and cost of each hole.

No. 7	150 feet	$1,500
No. 16	200 feet	2,000
No. 13A	500 feet	5,000
No. 6	550 feet	5,500
Totals	1,400 feet	$14,000

Recognizing that the properties examined in this investigation constitute only a prospect, it is none-the-less implicitly manifest that they do possess excellent potential for economic iron ore reserves. That this prospect can be evaluated for a relatively modest cost, that it is within ready access of western smelters, and that there is a general paucity of iron prospects in the West are basic arguments favoring a further look at this promising iron ore environment.

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GEOLOGY OF CORES

DRILLED ON NORTH CARBOX GROUP

CBX DDH #1

0-10	Surface wash, no core.
10-12	Redwall Ls., brownish-gray, very fine crystalline, fractured and broken with red mud seams.
12-18	Ls., as above.
18-28	Ls., as above.
28-31	Ls., as above.
31-35½	Ls., gray to brownish gray, very fine crystalline, fractured and broken with red clay filling some of the fractures.
35½-38½	Ls., as above.
38½-44	Ls., as above.
44-51½	Ls., gray, very fine crystalline, fractured and broken with red sandy clay forming seams and fracture fillings.
55½-55	Ls., as above.
55-61	Ls., brownish gray, very fine crystalline, becoming more massive, fossiliferous, some fracturing.
61-63	Ls., gray to brownish gray, very fine crystalline, fractured and broken with red sandy clay seams and fracture fillings.
63-71	Ls., as above.
71-80	Ls., gray to gray-brown, very fine crystalline, very fractured and broken with red sandy clay forming seams and fracture fillings.
80-82	Ls., as above.
82-94	Ls., gray, very fine crystalline, fossiliferous, thin bedded, slightly fractured.
94-101½	Ls., gray to gray-brown, very fine crystalline, fractured and broken with red clay seams and fracture fillings.

CBX DDH #2

0-20	Surface wash, no core.
20-30	Martin Fm., limestone, dark gray, very fine crystalline with occasional red shale seam, slightly fractured and broken.
30-40	Ls., gray, very fine crystalline, thin bedded and shale, brown, broken and fractured.
40-45	Ls., as above.

CBX DDH #2-A

0-10	Surface wash, no core.
10-17	Redwall Ls., brownish gray, very fine crystalline, fractured and broken with red clay seams.
17-22	Ls., as above.
22-23	Ls., as above, very broken.
23-28	Ls., as above.
28-30	Ls., as above.
30-35	Ls., as above, very broken.
35-39	Ls., gray to brownish gray, very fine crystalline, massive, slightly fractured with an occasional red clay seam.
39-43½	Ls., as above.
43½-51	Ls., as above.
51-56	Ls., as above.

CBX DDH #3

0-5	Surface wash, no core.
5-10	Martin Fm., Sandstone, gray, fine grained, slightly fractured and broken, occasional green, micaceous parting.
10-20	Ls., gray, very fine crystalline, thin bedded, sandy with occasional 6" clay seam.
20-30	Ls., gray to purple, variegated, thin bedded, with green micaceous parting.
30-40	Ls., as above.
40-50	Ls., as above, with occasional vug filled with calcite crystals.
50-58	Ls., gray to red-purple, very fine crystalline, interbedded with green and red clay.
58-62	Ls., as above.
62-65	Ls., gray to red-purple, very fine crystalline, massive, slightly fractured and broken.
65-75	Ls., as above.
75-85	Ls., as above, becoming vuggy and sandy.
85-90	Ls., as above, sandy.
90-94	Ls., gray to purple, medium crystalline, massive with occasional 6" brown clay seam.
94-101	Ls., gray to purple, fine to medium crystalline, occasional brown clay parting, sandy, slightly fractured and broken.

CBX DDH #4

0-4	Surface wash, no core.
4-11	Martin Fm., sandstone, white to red, medium grained, fracture and broken, occasional clay parting.
11-20	Ls., white to gray, very fine crystalline, massive, slightly vuggy, sandy.
20-30	Ls., white to red to purple, mottled, very fine crystalline, thin bedded, sandy.
30-40	Ls., reddish brown to gray, very fine crystalline, very sandy, vuggy, thin bedded.
40-50	Ls., gray, very fine crystalline, slightly fractured and occasional sandy seam, slightly quartzitic.
50-60	Ss., gray to reddish-brown, fine to medium grained, slightly cross-bedded, limey.
60-66	Ls., gray to brown, very fine crystalline with coarse grained sandy seams and occasional micaceous parting.
66-72	Ss., gray to red brown, fine to medium to coarse grained, slightly limey.
72-80	Ls., gray to reddish brown, very fine crystalline, thin bedded, shaley and sandy, vuggy with occasional green micaceous parting.
80-90	Ls., as above.
90-94	Ls., as above.
94-101	Ss., gray to reddish brown, fine to medium grained, slightly cross bedded, slightly quartzitic.

CBX DDH #5

0-10	Surface wash, no core.
10-20	Martin Fm., Ss., white to reddish brown, medium grained, slightly limey with an occasional limey seam and green micaceous parting.
20-25	Ls., gray, very fine crystalline, massive bedded, slightly fractured.
25-28	Ss., gray to purple, medium grained, massive, slightly quartzitic.
28-35	Ls., white to gray to purple, mottled, very fine crystalline, sandy, slightly fractured with brown sandy clay fracture fillings.
35-45	Ls., gray, very fine crystalline, thin bedded, slightly fractured.
45-49	Ls., gray, very fine crystalline, slightly fractured and broken, occasional reddish brown clay fracture fillings.
49-56	Ls., gray, very fine crystalline, massive, occasional green micaceous parting.
56-59	Ls., white to gray, very fine crystalline, massive, slightly fractured with reddish brown clay fracture fillings.
59-64	Ls., gray, very fine crystalline, massive, slightly fractured and broken with occasional gray greenish micaceous parting.
64-70	Ls., reddish brown, very fine crystalline, thin bedded, sandy, with occasional medium grained sand seams.
70-80	Ls., gray to reddish brown (very fine crystalline), mottled, thin bedded, slightly sandy.
80-89	Ls., as above.
89-99	Ls., gray to red to brown, mottled, very fine crystalline, thin bedded with occasional sand seam and gray-green micaceous parting.
99-101	Ls., as above, becoming sandier.

CBX DDH #6

0-10	Surface wash, no core.
10-20	Martin Fm., Ls., gray to pink to purple, mottled, very fine crystalline, broken and fractured with some red-brown clay seams.
20-30	Ls., red-brown to gray, very fine crystalline, sandy and occasional quartzitic seam, and occasional brown clay seam.
30-32	Ss., reddish brown-gray, very limey and some gray limestone.
32-35	Ls., reddish brown to gray, fine to medium crystalline, sandy, occasional green micaceous parting, slightly broken.
35-40	Ls., gray to reddish brown, very fine crystalline, medium bedded, occasional green micaceous parting and reddish brown clay seam.
40-45	Ls., gray to pink to purple, mottled, occasional thin red clay parting.
45-52	Ls., reddish brown to gray, very fine crystalline, occasional green clay parting, slightly mottled.
52-60	Ls., as above.
60-65	Ls., gray to reddish brown, very fine crystalline, occasional green micaceous parting, massive.
65-70	Ls., gray, very fine crystalline, occasional green micaceous parting, massive.
70-72	Ls., as above.
72-76	Ls., gray to white, fine to medium crystalline, massive, slightly fossiliferous, occasional green micaceous parting.
76-86	Ls., as above.
86-90	Ls., as above.
90-97	Ls., as above.
97-98	Ls., white to gray, medium crystalline, sandy and conglomeratic.
98-101	(Basal Martin Fm.) Conglomerate, fine to medium to coarse grained, purple to red to brown, mottled, occasional green micaceous parting.

CBX DDH #7

0-2	Surface wash, no core.
2-18	Troy Fm., Quartzite, white to pink, fine grained, slightly fractured and broken.
18-19	Quartzite, as above.
19-20	Quartzite, as above, becoming more broken.
20-23	Quartzite, as above.
23-27	Quartzite, white to pink to purple, mottled, medium grained, thin to medium bedding, slightly fractured.
27-30	Quartzite, as above. Chedeski Ss. at 30.
30-37	Ss., white to pink to purple, mottled, fine to medium grained, swirled bedded (cross-bedding ?), slightly quartzitic.
37-39	Ss., as above, broken.
39-44	Ss., white, fine to medium grained, thick bedded, broken, quartzitic.
44-45	Ss., as above, very broken.
45-48	Ss., white to pink, fine to medium grained, cross-bedded, quartzitic.
48-55	Ss., as above.
55-56	Ss., as above.
56-57	Ss., as above.
57-65	Ss., gray, fine to medium to coarse grained, cross-bedded, quartzitic, fractured and broken.
65-72	Ss., white to gray, fine to medium grained, cross-bedded, quartzitic, fractured and broken.
72-79	Ss., white to gray, fine to medium to coarse grained, cross-bedded, quartzitic, slightly fractured and broken.
79-86	Ss., as above.
86-95	Ss., white, medium grained, slightly fractured and broken with some micaceous partings, quartzitic.
95-101	Ss., as above.

CBX DDH #8

0-	Surface wash, no core.

CBX DDH #9

0-10	Surface wash, no core.
10-15	Basal Martin Fm., Quartzite, pinkish gray, fine to medium grained, fractured and broken.
15-18	Quartzite, as above with an occasional red-brown clay seam.
18-23	Ss., gray, medium to coarse grained, fractured and broken.
23-27	Ss., as above.
27-34	Ss., gray to red-brown, fine grained, occasional micaceous parting.
34-40	Ss., as above.
40-50	Ss., gray to red-brown, medium to coarse grained, fractured and broken.
50-60	Ss., as above.
60-70	Ss., as above.
70-80	Ss., gray to red-brown, fine to medium to coarse grained, cross-bedded, occasional micaceous parting.
80-86	Ss,, gray and red-brown, medium to coarse grained, massive, slightly cross-bedded.
86-91	Ss., as above.
91-101	Ss., as above.

CBX DDH #10

0-5	Surface wash, no core.
5-11	Troy Fm., Quartzite, gray to white, fine to medium grained, massive, fractured and broken.
11-16	Quartzite, gray, fine to medium grained, massive.
16-26	Quartzite, as above.
26-35	Quartzite, gray to purple, mottled, fine to medium grained, massive, slightly fractured and broken.
35-45	Quartzite, as above.
45-55	Quartzite, as above.
55-64	Quartzite, white to gray, fine to medium grained, fractured and broken.
64-74	Quartzite, as above.
74-83	Quartzite, white to red-purple, mottled, fine to medium to coarse grained, slightly cross-bedded, fractured and broken.
83-93	Quartzite, white to gray, fine to medium grained, fractured and broken.
93-101	Quartzite, as above.

CBX DDH #11

0-	Surface wash, no core.

CBX DDH #12

0-10	Surface wash, no core.
10-20	Basal Martin Fm., Ss., gray, fine to medium grained, massive, quartzitic.
20-28	Ss., as above.
28-31	Ss., as above, fractured and broken.
31-40	Ss., as above, fractured and broken.
40-50	Ss., white to gray, fine to medium to coarse grained, fractured and broken, occasional micaceous parting.
50-60	Ss., as above.
60-70	Ss., as above.
70-80	Ss., as above, fractured and broken.
80-90	Ss., white to gray to red-brown, mottled, fine to medium grained, thin bedded, fractured and broken.
90-101	Ss., as above.

CBX DDH #13

0-32	Surface wash, no core.

CBX DDH #13-A

0-57	Surface wash, no core.

CBX DDH #14

0-10	Surface wash, no core.
10-16	Martin Fm., Ls., gray to white, very fine crystalline, fractured and broken and quartzite, gray, thin bedded.
16-24	Ls., brecciated, fragments of limestone and quartzite cemented by calcite.
24-27	Ls., as above.
27-29	Ls., as above.
29-37	Quartzite, gray, fine grained interbedded with limestone breccia.
37-45	Quartzite, as above.
45-55	Ls., pink to gray, fine crystalline, thin bedded, vuggy, sandy, slightly fractured and broken.
55-57½	Ls., as above.
57½-63	Ls., as above.
63-66	Ls., gray to pink, very fine crystalline, thin bedded, occasional micaceous parting.
66-76	Ls., as above.
76-84	Ls., as above.
84-90	Ls., white to gray, very fine crystalline, massive, slightly fossiliferous, fractured.
90-101	Ls., as above, becoming vuggy.

CBX DDH #15

0-10	Surface wash, no core.
10-12	Martin Fm., Quartzite, gray, fine grained with brown clay seams.
12-15	Clay (shale) brown, soft, micaceous, broken.
15-25	Ls., gray to reddish brown, very fine crystalline, thin undulating bedding, vuggy, sandy, occasional brown clay seam.
25-27	Clay, brown, soft, slightly micaceous.
27-35	Ls., gray to purple to red-brown, thin bedded, sandy with occasional micaceous parting.
35-43	Ls., gray to purple, very fine crystalline, fractured and broken with occasional sandy clay seam.
43-52	Ls., gray, very fine crystalline, thin bedded, sandy with occasional clay seam and green micaceous parting.
52-54	Ls., as above.
54-61	Ls., gray to red-brown, fine to medium crystalline, vuggy, sandy, thin bedded.

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 1
PHONE MAin 3-3331 1516 EAST 20th ST. P. O. BOX 2508 TUCSON
Chemists . . . Engineers

For: Archean Exploration & Development Co.
Post Office Box 156
Young, Arizona

Date: May 21, 1963

Lab. No.: 156285,86 and 87

Sample: Ore

Marked: See Below

Received: 5-20-63

Submitted by: Mr. Townsend

Report of Laboratory Tests

Samples Marked	Iron (Fe)	Sulfur (S)	Phosphorus (P)	Magnetite
#1 LB6	61.80 %	Nil	0.38 %	0.60 %
#2 LB1	60.80 %	0.40 %	0.27 %	2.20 %
#3 LB12	62.20 %	Nil	0.31 %	3.45 %

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean Jr.

Claude E. McLean, Jr.

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001
Chemist . Engineers

For Archean Exploration Corp. Date August 3, 1964

Sample of Ore Received: 7-31-64

Submitted by: Mr. D. H. Jardine

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce Silver figured at $ 1.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	IRON (Fe)	
157822	#1 Lady Bug Claims, 15' sample from Southeast Ridge in Canyon					57.90 %	

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

REGISTERED ASSAYER CERTIFICATE EXPIRES CLAUDE E. McLEAN ... 1964 ARIZONA, U.S.A.

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001
Chemists . . . Engineers

For Archean Exploration Corp. Date August 3, 1964

Sample of Ore Received: 7-31-64

Submitted by: Mr. D. H. Jardine

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce Silver figured at $ 1.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	IRON (Fe)	
157823	#2 18' sample from Southwest Ridge in open cut.					55.80 %	

REGISTERED ASSAYER
CERTIFICATE EXPIRES
CLAUDE E. McLEAN
DEC. 31, 1964
ARIZONA, U.S.A.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001
Chemist . . . Engineers

For Archean Exploration Corp. Date August 3, 1964

Sample of Ore Received: 7-31-64

Submitted by: Mr. D. H. Jardine

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce Silver figured at $ 1.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	IRON (Fe)	
157824	#3 12' sample from outcrop in Frog Pond Creek					56.10 %	

REGISTERED ASSAYER CERTIFICATE EXPIRES CLAUDE E. McLEAN DEC. 31, 1964 ARIZONA, U.S.A.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.

PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001

Chemist . . . Engineers

For Archean Exploration Corp. Date August 3, 1964

Sample of Ore Received: 7-31-64

Submitted by: Mr. D. H. Jardine

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce Silver figured at $ 1.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	IRON (Fe)	
157825	#4 22' sample taken 40' North of 260' drift in Frog Pond Canyon					46.70 %	

REGISTERED ASSAYER
CERTIFICATE EXPIRES
CLAUDE E. McLEAN
DEC. 31, 1964
ARIZONA, U.S.A.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

Claude E. McLean

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001
Chemist . . . Engineers

For Archean Exploration Corp. Date August 3, 1964

Sample of Ore Received: 7-31-64

Submitted by: Mr. D. H. Jardine

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce Silver figured at $ 1.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	IRON (Fe)	
157826	#5 Core Drill Lady Bug Claim, Hole #1 141.5' to 152.5'					50.30 %	

REGISTERED ASSAYER CERTIFICATE EXPIRES CLAUDE E. McLEAN DEC. 31, 1964 ARIZONA, U.S.A.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
PHONE 254-6181 817 WEST MADISON ST. P. O. BOX 1888 PHOENIX 85001

Chemist . . . Engineers

For Archean Exploration Company
Mr. Allison

Date September 24, 1964

Sample of Ore

Received: ----

Submitted by: Mr. Allison

ASSAY CERTIFICATE

Gold figured at $ 35.00 per ounce

Silver figured at $ 1.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	IRON (Fe)	
158099	#3, 210'-215'					22.70	
158100	#3, 215'-231'					51.20	
158101	#4, 26' -29.5'					46.30	
158102	#4, 29.5' -32'					26.90	
158103	#4, 32' -37'					44.20	

Respectfully submitted,

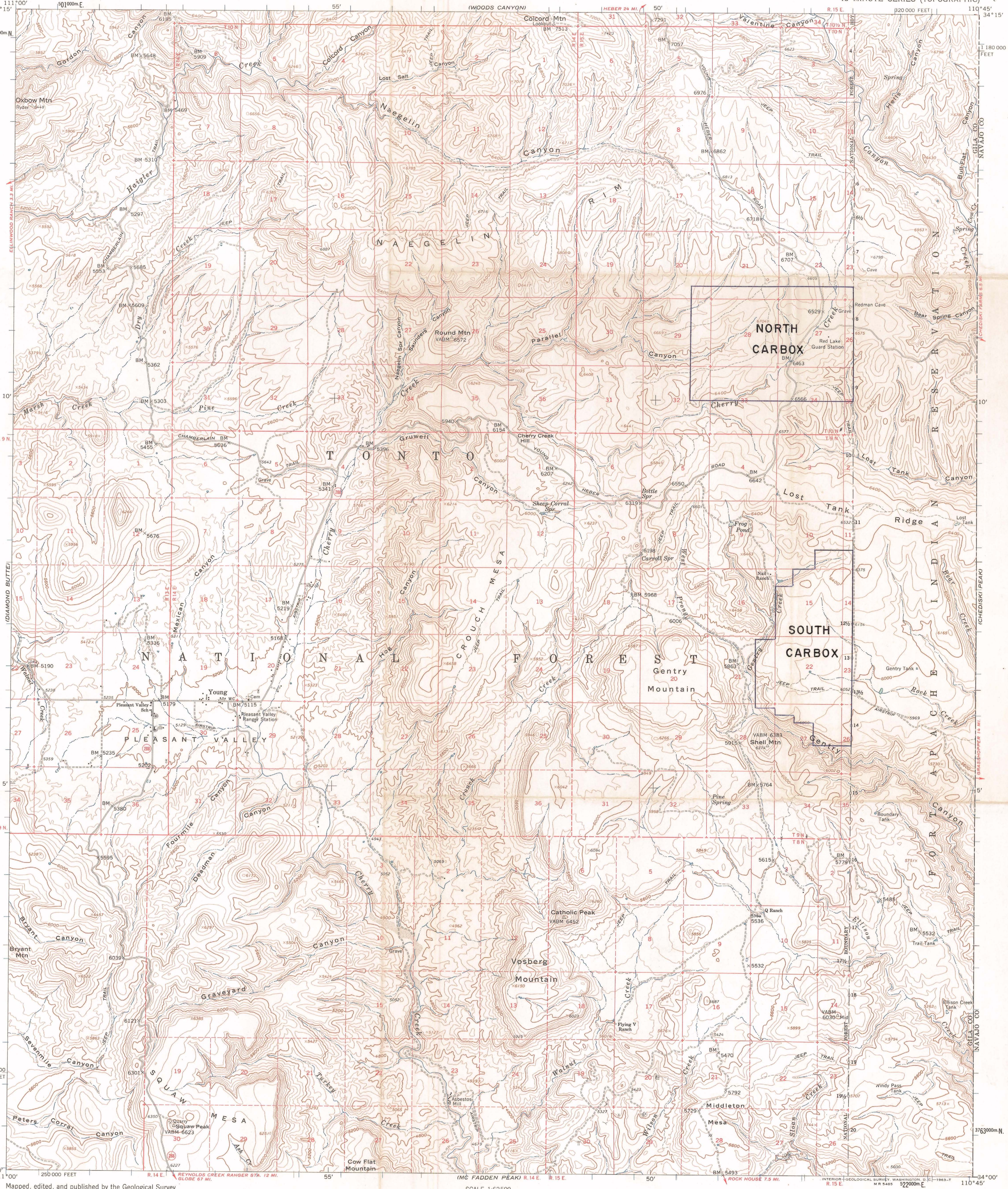
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Claude E. McLean, Jr.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

YOUNG QUADRANGLE
ARIZONA
15 MINUTE SERIES (TOPOGRAPHIC)



(ROOSEVELT) 1:125 000

(BLUE HOUSE MTN.)

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and State of Arizona

Topography by photogrammetric methods from aerial photographs taken 1958. Field checked 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

Where omitted, land lines have not been established

14°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1961

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 80 FEET
DATUM IS MEAN SEA LEVEL

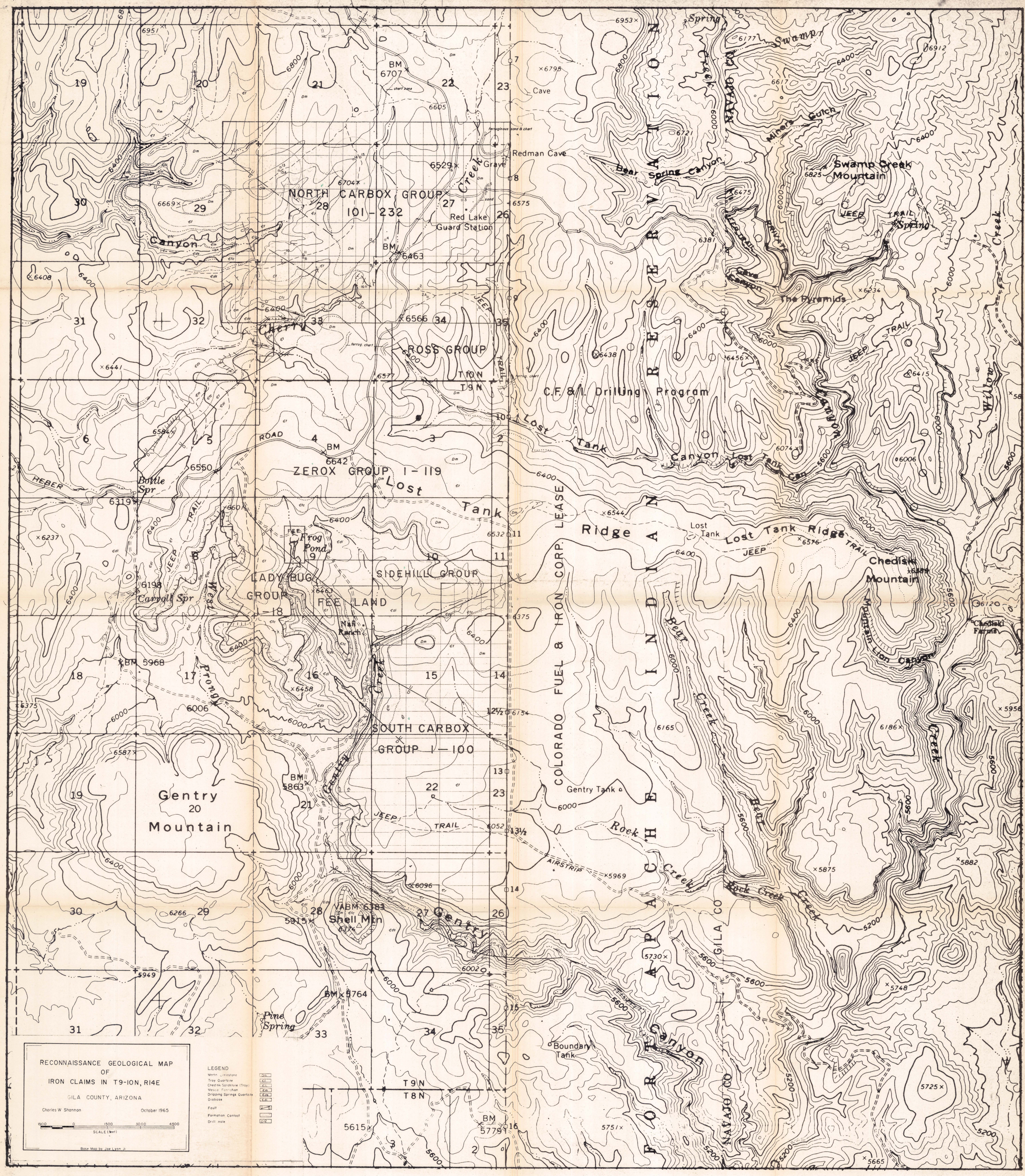
ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Light-duty Unimproved dirt
State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

YOUNG, ARIZ.
N3400—W11045/15

1961


RECONNAISSANCE GEOLOGICAL MAP
OF
IRON CLAIMS IN T9-10N, R14E
GILA COUNTY, ARIZONA
Charles W Shannon
October 1965
1500 0 1500 3000 4500
SCALE (feet)
Base Map by Joe Lyon Jr
LEGEND
Martin Limestone Dm
Troy Quartzite €t
Chediski Sandstone (Troy) €tc
Mescal Formation €m
Dripping Springs Quartzite €ds
Diabase €di
Fault
Formation Contact
Drill Hole
NORTH CARBOX GROUP 101-232
ROSS GROUP
ZEROX GROUP 1-119
SIDEHILL GROUP
LADY BUG GROUP 1-18
FEE LAND
SOUTH CARBOX GROUP 1-100
C.F.&I. Drilling Program
COLORADO FUEL & IRON CORP. LEASE
FORT APACHE INDIAN RESERVATION
NAVAJO CO
GILA CO
Gentry Mountain
Shell Mtn
Swamp Creek Mountain
Chediski Mountain
Lost Tank Ridge
Lost Tank Canyon
Bear Spring Canyon
Cherry Canyon
Gentry Canyon
Rock Creek
Bear Creek
Willow Creek
Red Lake Guard Station
Redman Cave
Cave
Grave
The Pyramids
Miners Gulch
Mountain Lion Canyon
Chediski Farms
Gentry Tank
Lost Tank
Boundary Tank
Frog Pond
Bottle Spr
Carroll Spr
Pine Spring
Nail Ranch
AIRSTRIP
JEEP TRAIL
HEBER ROAD
T10N
T9N
T8N