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PRINTED: 07/19/2001

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: GOLD DUKE

ALTERNATE NAMES:

MOHAVE COUNTY MILS NUMBER: 626A

LOCATION: TOWNSHIP 24 N RANGE 15 W SECTION 13 QUARTER NW
LATITUDE: N 35DEG 28MIN 06SEC LONGITUDE: W 113DEG 49MIN 38SEC
TOPO MAP NAME: ANTARES - 7.5 MIN

CURRENT STATUS: UNKNOWN

COMMODITY:
GOLD

BIBLIOGRAPHY:
ADMMR GOLD DUKE FILE

NUMBER	FILE	CONT	CONT1	PRINAME					
626A	**F**	**0**	**N**	**GOLD DUKE**					
ALTNAME1				ALTNAME2					
ALTNAME3				ALTNAME4					
ALTNAME5				ALTNAME6					
CURSTAT		MNAME				NLATDEG	NLATMIN		
UNKNOWN		**ANTARES - 7.5 MIN**				**35**	**28**		
NLATSEC	WLONGDEG	WLONGMIN	WLONGSEC	TOWN	RANGE	SECTION	QUARTER	COM1	
06	**113**	**49**	**38**	**24_N**	**15_W**	**13**	**NW**	**AU**	
MODI1	COM2	MODI2	COM3	MODI3		COM4	MODI4		
COM5	MODI5	COM6	MODI6	COM7	MODI7				
BIB1									
ADMMR GOLD DUKE FILE									
BIB2									
BIB3									
BIB4									

GOLD DUKE MOHAVE COUNTY

NJN WR 3/15/85: Ed Huskinson (c) reported he has some reports on the Gold Duke, T24N R15W Sec 13. (Included in file)

NJN WR 10/24/86: Ed Huskinson (c) reported that Hector Resources (c) has done geologic mapping and completed a geochem survey at the Gold Duke (file) Mohave County and has identified a low angle vein target. They are hoping to commence a drill project there in the next few weeks.

RIH

Hector Resources Inc. of Vancouver has acquired the American Flag Mine, the Eye of the Tiger claims and the Gold Duke property near Kingman in Mohave County, Arizona, and the company reports that exploration programs have started on each of the three properties.

Gold values of up to 0.104 oz/t and silver assays of up to 78.75 oz/t have been reported on previous work on the American Flag Mine. The property includes 7 unpatented lode claims and is about 15 miles southeast of Kingman. At one time, the mine was reported to be the most productive silver-gold producer in the district. A mapping and sampling program is currently being carried out on the property and has confirmed previously reported values.

The Eye of the Tiger claims include 12 claims 25 miles southwest of Kingman. The property has previous mineral production and is considered as having potential for an open pit operation. Recent grab samples taken on the property have shown up to 0.552 ounces of gold and 0.22 ounces of silver per ton.

Underground chip samples from the Gold Duke property have shown up to 0.856 oz/t gold and 0.104 oz/t silver. The Gold Duke property is 2.3 miles northwest of Kingman and had production of silica-gold-lead ore in the 1930's. The property includes eight unpatented claims.

From: APSMDA Newsletter, Sept. 1985

ARIZONA DEPT. OF MINES & MINERAL RESOURCES
STATE OFFICE BUILDING
416 W. CONGRESS, ROOM 161
TUCSON, ARIZONA 85701

... **EYE OF THE TIGER GOLD PROPERTY** ... comprises 12 mineral claims located 25 miles southwest of Kingman, Arizona. The Property has had previous production and is considered as a potential open-pit gold mining operation. Several recent grab samples taken from existing pits by Company representatives and assayed at Chemex Labs Ltd. in Vancouver were as follows:

Sample Description	Oz/Gold/Ton	Oz/Silver/Ton
E/T #1	0.338	0.22
E/T #2	0.526	0.17
E/T #3	0.552	0.15

... **GOLD DUKE PROPERTY** ... consists of eight contiguous unpatented mineral claims located 23 miles northwest of Kingman, Arizona. Previous production recorded during the 1930's contained ore with high silica, gold and lead values. In a Report prepared by Clive R.G. Bailey, AIPG, (American Insitute of Professional Geology) it is noted that the Property contains substantial indicated ore reserves and several samples were reported as follows:

Sample Description	Oz/Gold/Ton	Oz/Silver/Ton
#1) 3.5' horz. chip (underground)	0.670	0.018
#2) 3.0' horz. chip (underground)	0.856	0.104
#3) Grab sample (Mine Dump)	0.339	-

Management is currently negotiating a drilling contract which will include drilling on all three (3) of the foregoing Properties, the results of which will be released to shareholders when the same are received.

ON BEHALF OF THE BOARD OF DIRECTORS

Charles S. Underhill

CHARLES S. UNDERHILL - President

Capitalization:

Authorized - 10,000,000 Common Shares

Issued - 1,760,001 Common Shares

Listed:

Vancouver Stock Exchange

Symbol / HEC

GEOLOGY AND
EXPLORATION PROGRAM,
GOLD DUKE PROPERTY
MOHAVE COUNTY, ARIZONA

Prepared for Hector Resources Texas, Inc.
March, 1985

Ed Huskinson, Jr.
845 Ridgecrest
Kingman, Arizona 86401

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GOLD DUKE Property

Sec. 13, T24N, R15W,

Mohave County, Arizona

INTRODUCTION

The ten Gold Duke claims, which lie about 24 miles northeast of Kingman, Mohave County, Arizona, were staked on BLM open ground for Hector Resources, Texas, Inc., in January of 1985. The claims cover 160 acres containing Precambrian migmatites which are cut by a low angle auriferous quartz vein which has had a few short adits and prospect pits developed on it. The area has been mapped and sampled, and a program of detailed mapping and geochemical sampling, followed by airhammer drilling, is recommended.

LOCATION

The Gold Duke claims lie about 24 miles northeast of Kingman, Mohave County, Arizona (Figure A, page 2). Consisting of ten claims, they encompass 160 acres of ground open for mineral location administered by the Bureau of Land Management (Figure B, page 3). This ground is in Section 13, Township 24 North, Range 15 West (Figure C' page 5), and the area can be reached by driving northeast

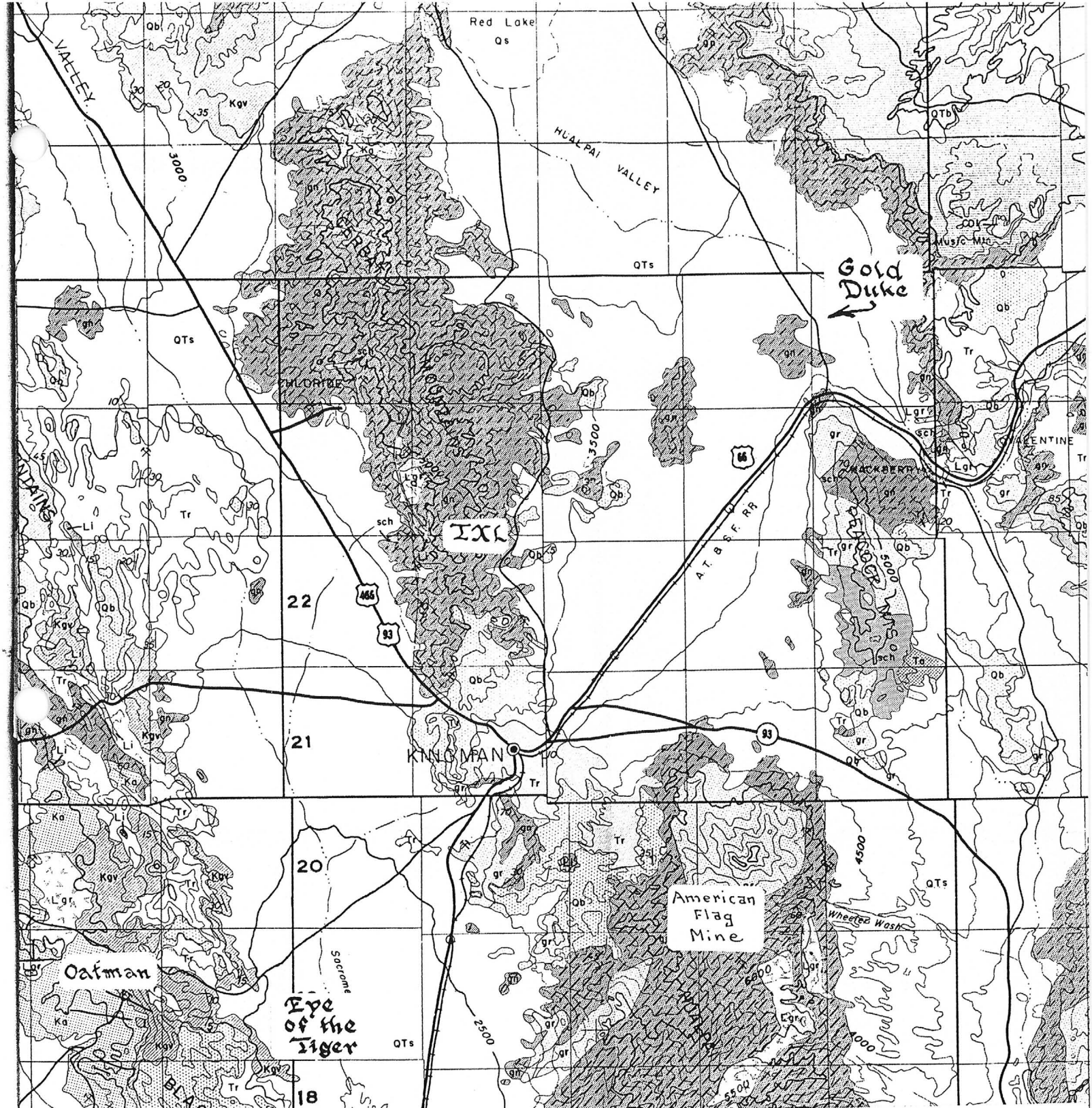


Figure A. Index map of the Kingman area, showing the location of the Gold Duke and other areas of interest.

0 5 6 10 miles

Scale: 1" = 6 miles

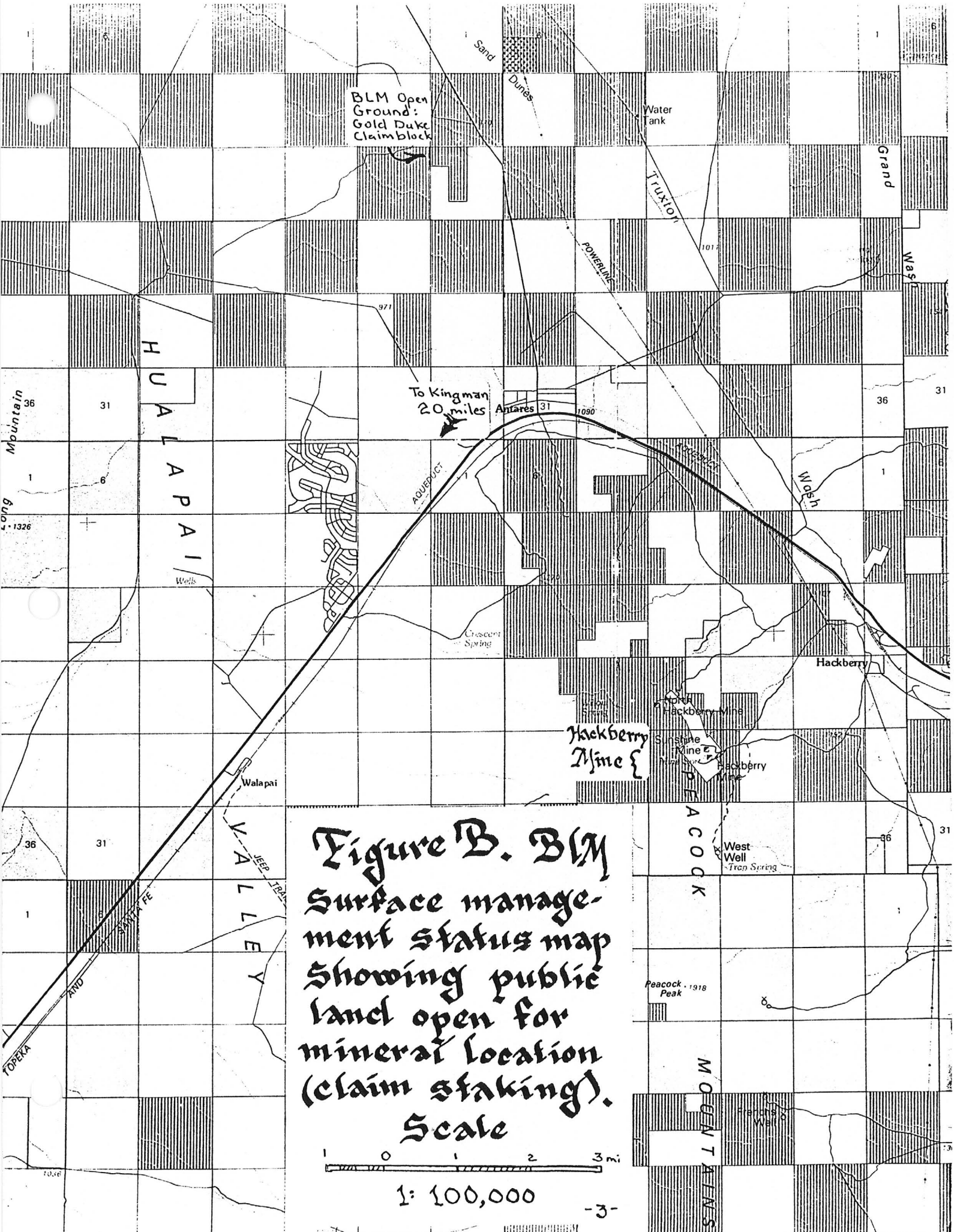


Figure B. BLM Surface management status map showing public land open for mineral location (claim staking).

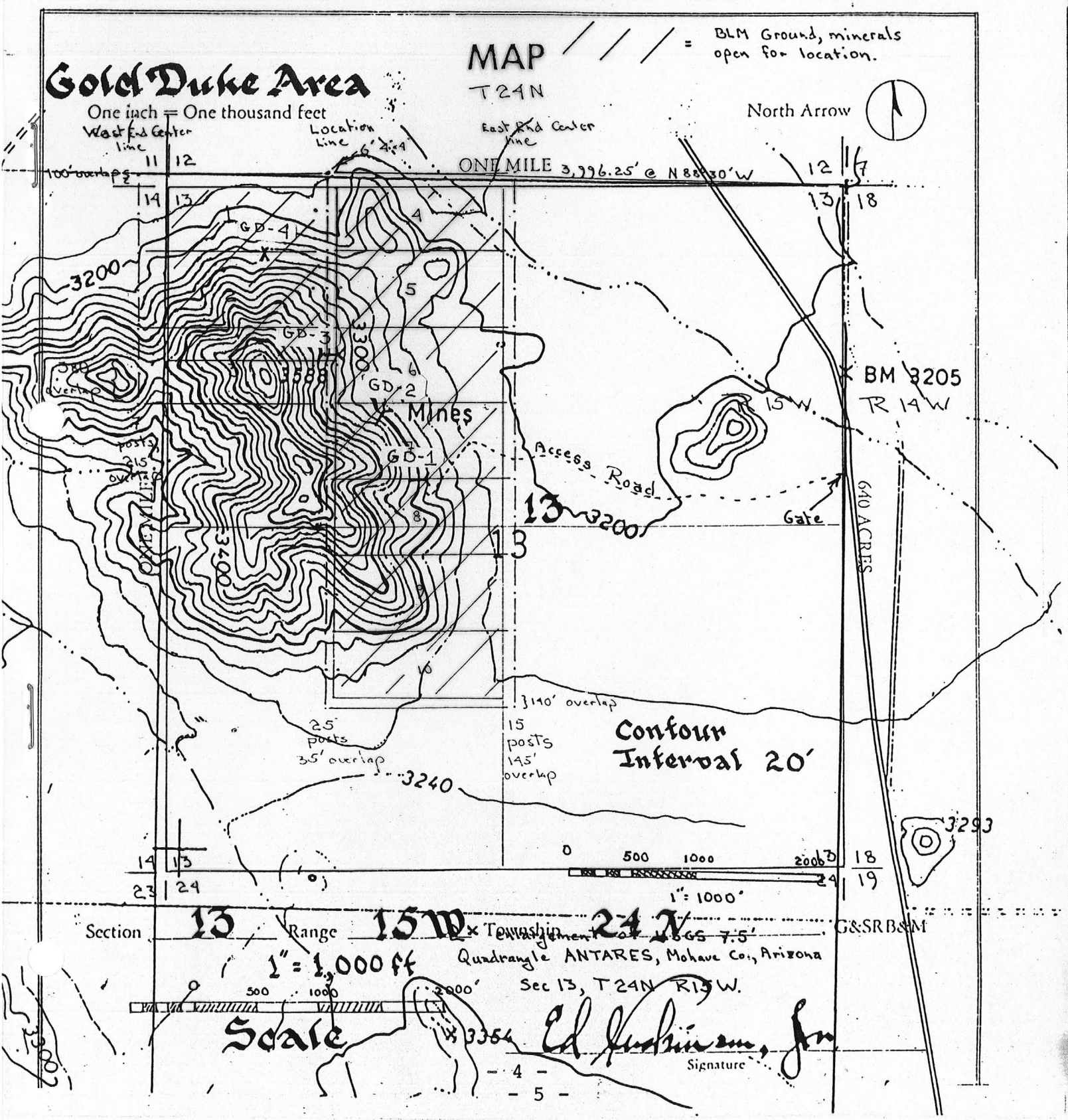
Scale

-1 0 1 2 3 mi

1: 100,000

Figure C. Topography of the area.

Figure C. Overlay showing the location of the Gold Duke Claims 1-10 and their relationship to BLM open ground.



from Kingman on Andy Devine Avenue (US 66) to Antares (approximately 19 miles), there turning north on Pierce Ferry Road and driving about three miles to an unlocked gate in the fenceline which runs along the range line between R15W and R14W, in Township 24. The three previous workings (Gold Duke #1, #2 and #3) can be seen about one-half mile to the west on the hillside from the Pierce Ferry Road as one approaches the gate (Plate I, page 7).

PHYSIOGRAPHY AND CLIMATE

The area occupies one of the broad intermontane basins of the Basin and Range physiographic province. The Gold Duke Hills are either erosional remnants of a small horst block, or erosional remnants of an extensional block that slid in on a low angle normal fault. Temperatures vary from below 0°C (32°F) in the winter to 40°+C (104°F) in the summer. The hills are mantled with sagebrush, creosote, ocotillo and the occasional barrel cactus. A few trees grow in the deepest arroyos. There is no source of water in the area, except for the Butte Tank stockpond about one-half mile north of the northwest corner of Section 13.

PURPOSE AND METHOD OF INVESTIGATION

After staking the BLM open ground for Hector Resources

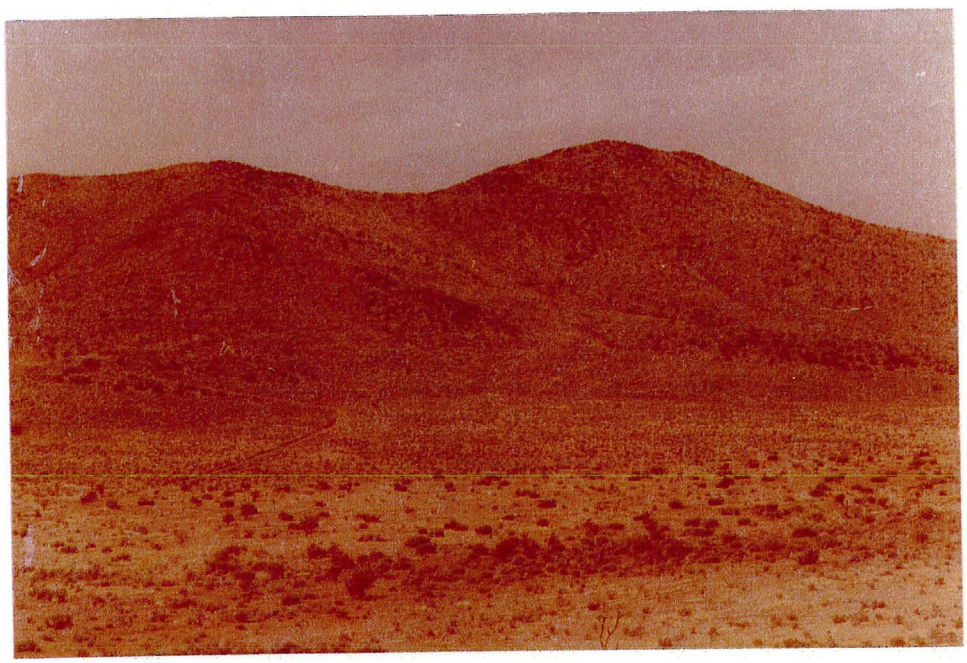


Plate I: Gold Duke property, view looking west. The road in the left foreground leads to the Gold Duke No. 1 portal. The Gold Duke No. 2 is in the center, and the Gold Duke No. 3 workings are about halfway up the hill on the right.

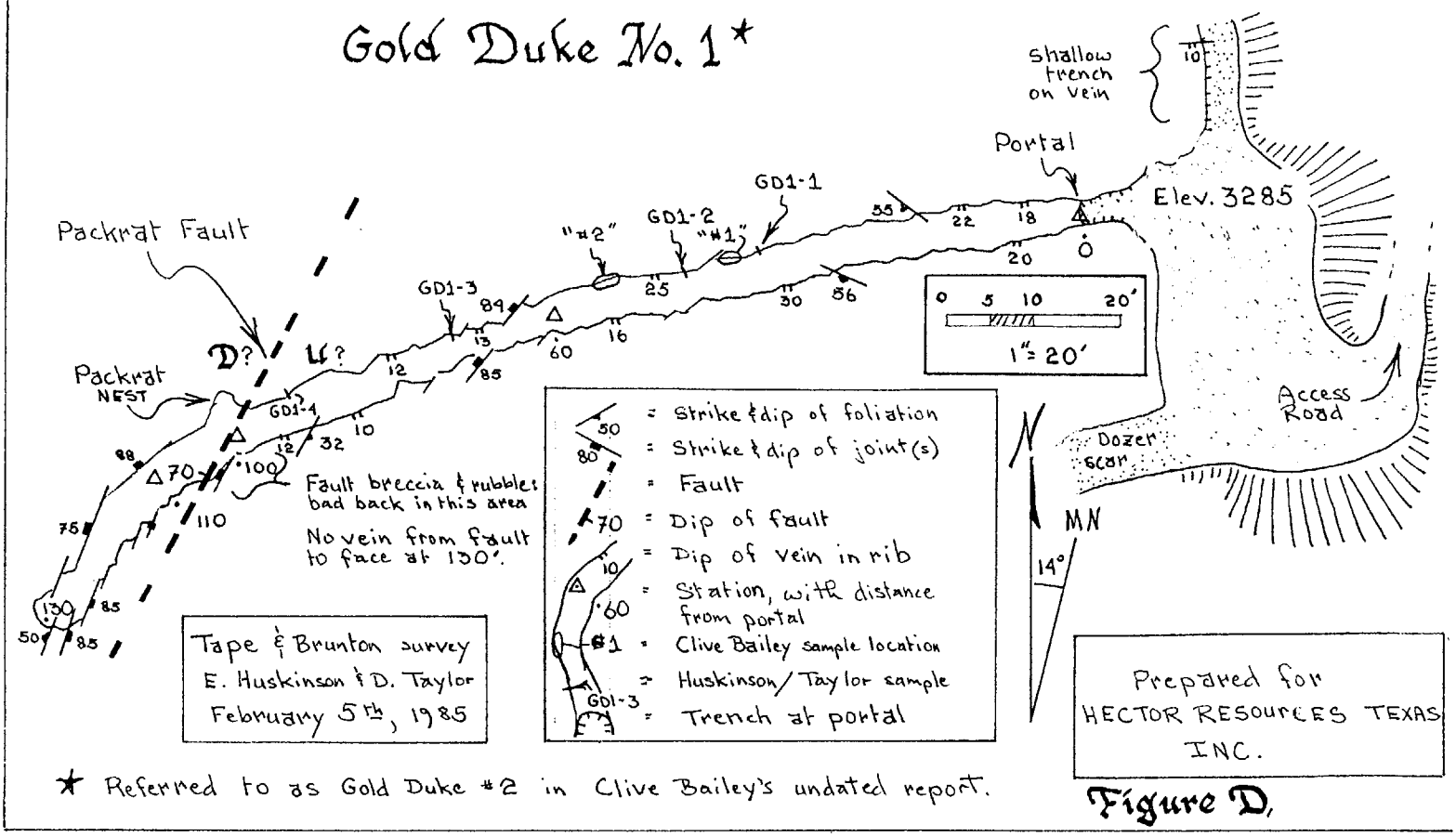
Texas, Inc. (a Vancouver based exploration company), I have mapped the area (Figure F) at 1:2400 (1"=200') using the claim grid with Topofil hip chain and Brunton compass (14½° west declination) control. The workings have been mapped and sampled with the help of Dave Taylor (Figure D and E, page 9). Wherever possible, the trace of the Gold Duke vein has been delineated by flagging the upper limit of vein float (Figure F - ULVF) with pink flagging. Samples of all workings, pits and prospect trenches on the Gold Duke vein have been mapped and sampled (Figures D, E and F, Table II).

PREVIOUS WORK

There are two short adits, an open cut, and several prospect pits developed on low angle veins of brecciated auriferous quartz on the property. Clive Bailey's (undated) report mentions "... Exhibits D and E.", which probably correspond to Figures D and E (page 9). From his "Gold Duke Sample Results" and his "General Information" (Bailey, page 1) wherein he states "... and then west one half mile to the Gold Duke #2 portal.", I surmise this portal to be the Gold Duke #1 Adit (Figure D). Taylor and I named the workings Gold Duke #1, #2, #3 and #4 (from south to north, in that order), and they are discussed accordingly.

1) Gold Duke No. 1. The partly caved portal (Plate II,

Gold Duke No. 1*



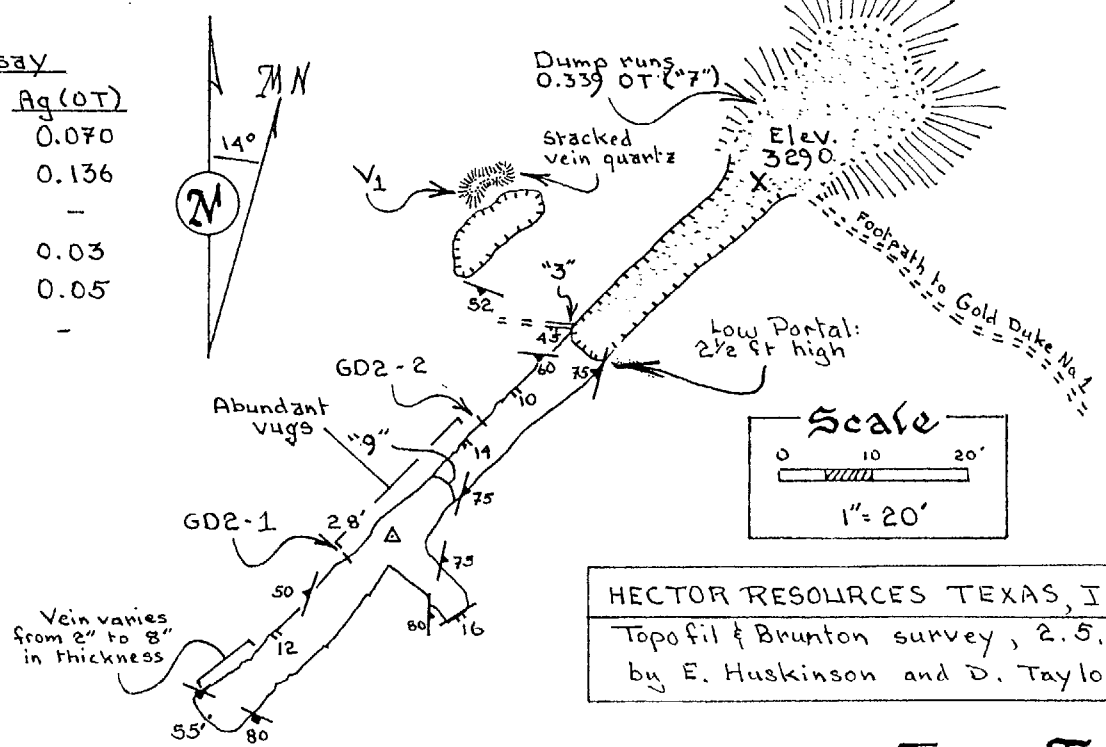
★ Referred to as Gold Duke #2 in Clive Bailey's undated report.

Figure D.

Figures D & E. Plan view maps of previous workings.

Gold Duke No. 2 ★

Sample Number	Assay Au (OT)	Assay Ag (OT)
"3"	0.142	0.070
"9"	0.042	0.136
"7"	0.339	–
GD2-1	0.001	0.03
GD2-2	0.130	0.05
V_1	0.10	–



★ Referred to as Gold Duke #1 in Clive Bailey's undated report

Figure E.

page 11) of this short adit lies at the end of the access road - to visit the other workings necessitates a short hike. As can be seen from Figure D, the adit trends roughly S80°W (260°) and features a bad (10%+) grade toward the face. Driven on a west-trending quartz vein that dips to the SSW at 10° to 15°, the adit is 130' long. The miners passed through a high angle fault (the Packrat Fault, named for a large packrat nest in the north rib) at 100', and drove in barren rock to the face at 130'. The vein appears to be steeper in the north rib, perhaps reflecting a flexure in the vein itself (Plate III, page 12). This flexure may have acted as a locus for the gold mineralization. The vein in the #1 adit varies from 6" to 12" thick, and is composed of brecciated milky quartz, with fresh specularite (shiny metallic crystalline flakes of hematite (Fe_2O_3) and dull, brownish black manganese oxide minerals (wad) with locally abundant casts of hematite (Fe_2O_3) and/or limonite ($FeOx \cdot nH_2O$) after pyrite (FeS_2). A few unreplaced blebs of pyrite have been found in the vein(s) on the Gold Duke. In the #1 adit, the footwall (lower contact) of the vein is locally very hematitic and red-stained, as noted by Barnes (undated, page 2). The samples taken in the Gold Duke #1

Plate II: Partly covered portal to the Gold Duke No. 1 adit.

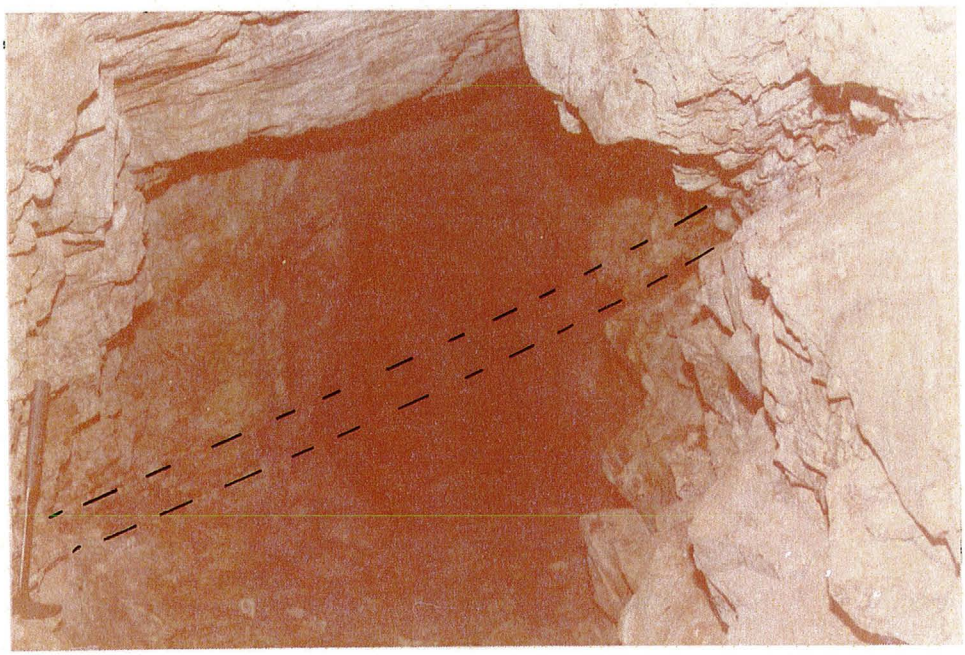


Plate III: The Gold Duke Vein approximately 60 feet in from the portal, view to the west. Note the apparent steepening of the vein in the right-hand (north) rib.

with Dave Taylor are summarized in Table 1, along with a reiteration of Bailey's earlier samples.

2) Gold Duke No. 2. Located about 600 feet NNW of the Gold Duke No. 1 portal (Figures E and F), this short adit has been driven at a heading of S45°W (225°) for a distance of 55 feet. There is a short crosscut to the southeast at 28 feet from the portal. The adit is in vein from portal to face, and because the vein is so narrow (averaging 6", with swells to one foot or so), the back has been kept low - one is forced to "duckwalk" almost the entire length. This mining method was employed to curtail expense and contamination. The workings undoubtedly exploit the gold Duke vein, and must have begun in bright red iron-stained vein material, as illustrated by Plate IV (page 15).

3) Gold Duke No. 3. This prospect pit/trench lies about 500 feet northwest of the Gold Duke No. 2, at an elevation of approximatley 3,360 feet (elevations taken from USGS 7.5 minute ANTARES quadrangle 1968, photorevised 1980). The working consists of a 5' trench about 50 feet long and 10 feet deep, trending N55°W (305°), dipping

TABLE I

Gold Duke Assay Data

Sample	Location	Description	Au(OT)	Ag(OT)
GD1-1	35' from portal	1"x8" vertical chip across vein	0.182	0.04
GD1-2	45' from portal	1"x8" vertical chip across vein	0.783	0.15
GD1-3	73' from portal	1"x6" vertical chip across vein	0.103	0.01
GD1-4	92' from portal	1"x8" vertical chip across vein	0.001	0.01
GD2-1	38' from portal	1"x8" vertical chip across vein	0.001	0.03
GD2-2	22' from portal	1"x8" vertical chip across vein	0.130	0.05
GD3-1	E. face of pit	2"x18" cut across face under winch	0.001	0.01
GD4-2	Dump sample	Representative grab of dump	Tr.	-
V_1*	30' N. of GD No. 2	FeOx-stained migmatite (grab)	0.10	-
V_2	60' NW of V_1	FeOx-stained vein float (grab)	Tr.	-
V_3	400' NW of GD No. 2	8" chip: Gold Duke Vein in pit	0.13	-
V_4	50' NW of V_3	8" chip: Vein/episyenite (?)	0.135	-
V_5	45' SE of V_4	8" chip: Vein, mostly quartz	0.05	-
V_6	425' S of GD No. 1	Grab, pit on Gold Duke Vein	0.20	-
V_7	30' SW of V_6	Grab, pit on Gold Duke Vein	0.09	-
V_8	100' SW of V_7	8" chip: Gold Duke Vein	0.02	
V_{10}	50' NE of V_6	8" chip: Gold Duke Vein	0.02	-

*("V" samples were fired twice and averaged; they were run at the Mindy Mill Lab.)

Samples labelled GD-1 through -4 were cut on 2.5.85 by D. Taylor and E. Huskinson. The GD1 and GD2 series were cut in the north rib of the adits (see Figures D, E and F for sample locations).

Clive R. G. Bailey Samples*

			Au(oz/ton)	Ag(oz/ton)
#1	"Gold Duke #2-36' from portal	3.5' horiz chip" (n. rib)	0.670	0.018
#2	"Gold Duke #2-55' from portal	3.0' horiz chip" (n. rib)	0.856	0.104
#3	"Gold Duke #1-cut at portal	3.0' horiz chip"	0.142	0.070
#7	"Gold Dike #1 mine dump	grab sample"	0.339	-

*Note: Bailey's numbering system of the No. 1 and No. 2 workings was not used in this report; so "#2" is GD No. 1 and vice versa.

Plate IV: Portal of the Gold Duke No. 2 adit, view looking southwest. The rock hammer lies on the vein in an area of abundant iron oxide staining where the vein appears to steepen appreciably. This flexure may represent a locus for gold emplacement and/or enrichment. The map board is 26" (66 cm) high.

to the SW at about 75°. The remains of a hand windlass and cross-ties that supported rails indicate this was to be a fairly substantial operation (Plate V, page 17). However, the Gold Duke vein does not crop out in the trench. It appears that they were following a NW-trending shear that has minor K-feldspar alteration associated with it. A sample cut in the trench across the rock at the base of the windlass (GD3-1) ran 0.001 Au and 0.01 Ag (OT). The trench appears to have been dug along a lithologic contact between migmatite (south wall) and (younger intrusive?) fresh granite (north wall). A more detailed mapping/sampling program to determine exactly what the trench followed and why is called for.

4) Gold Duke No. 4. This prospect, which consists of two short trenches, is the northernmost of the previous workings (Figure C' and F). It lies at an elevation of 3,270 feet, on the northern end of the hills encompassed by the Gold Duke claims. The trenches were dug on a west-trending low angle (40° dip to the south) vein that is less than 12 inches thick and appears to have a very short strike length. The prospect is surrounded by colluvial cover, so it is possible

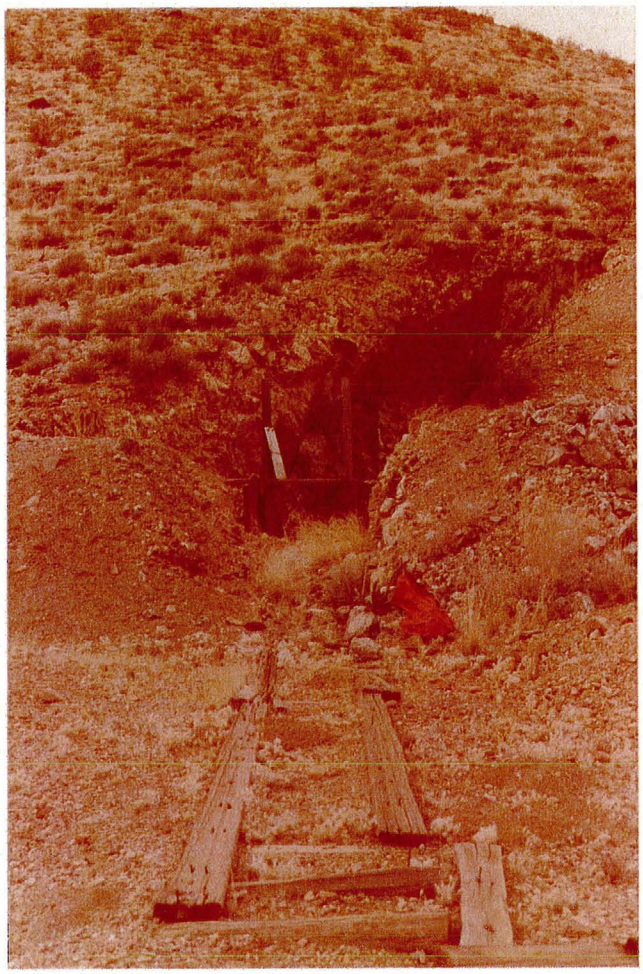


Plate V: Gold Duke No. 3 workings, view looking west. The hand winch frame sits over a 6' deep trench that has been driven along the contact between migmatite (left side) and homogeneous pink granite.

that this vein may be more extensive than is readily apparent. This may be the northern extension of the Gold Duke vein; however, the following inconsistencies are noteworthy:

A) Although specular hematite (Fe_2O_3) is present in this vein, the basal hematitic zone noted at the other workings is not.

B) The quartz is grey, rather than milky. Most hydrothermal quartz is milky because it contains numerous bubbles trapped suddenly in the cooling melt.

C) There appears to be an epidote (Calcium Aluminum Iron Silicate) halo on the hanging wall (upper side) of the vein. Epidote is a contact metamorphic mineral formed primarily by the heat generated at the edges of intrusive bodies. Epidote has not been noted in the hanging wall of the Gold Duke vein, although it is present locally at GD No. 3.

D) The trenches are small - whoever dug them either found only a small quantity of vein material or received poor assay results from his sampling.

Accordingly, I doubt that this is the Gold Duke vein per se; rather, it appears to be a similar low-angle vein that seems to underlie the Gold Duke Vein.

Besides the four occurrences plotted by the USGS (Figure C', page 5) there are several other previous workings on the

property. These have been mapped (Figure F) and (most of them) sampled, and are summarized in Table II (page 20).

GEOLOGY

LITHOLOGY

Figure F is a 1"= 200' geological map of the Gold Duke Claims. The oldest rocks are Precambrian migmatites with a westerly foliation direction in the north; a northwesterly direction in the northeast; and a very diverse orientation in the southwest part of the area. There is a lobe of gneissic granite in the southern and southeastern portion of the property. These rocks are cut by the low angle (10° to 20°) Gold Duke vein that is locally gold bearing. In addition, there appears to be another low angle set underlying this one (GD-4; V_9) and there may be other (en echelon?) veins at depth.

The Gold Duke vein has the following characteristics:

1) It is low angle (10° to 20° from horizontal).
2) It (generally) has a brecciated upper contact (Hanging wall).
3) It is composed of milky white vein quartz (most hydrothermal (vein) quartz is milky white due to numerous included gas bubbles (Folk, 1974, page 71).
4) It displays a basal hematitic footwall locally (Gold Duke Nos. 1 and 2), and the best gold values appear to be associated with this zone.

TABLE II

Small prospects and vein occurrences in Gold Duke Area.

Occurrence	Location	Description
Pit 1	S. center, GD-4	Shallow pit on epidotized migmatite; no vein quartz, not sampled.
Pit 2	N. center, GD-5	Shallow prospect pit on epidotized, K-feldspar-flooded ("Subepisyenite"?) zone; no vein quartz, not sampled.
Pit 3	GD5-GD6 Boundary, East End	Pit on ferruginous quartz (boudin?) in migmatite. Bright red stain, no epidote, no specularite, not sampled.
V_1	30' N. of Gold Duke No. 2	FeOx-stained float from pit in migmatite. No vein exposed in pit.
V_2	60' NW of V_1	FeOx-stained vein float, 60' NW of V_1 pit.
V_3	400' NW of GD-2 portal	6" to 8" vein of milky quartz that crops out below pod of biotite schist. Vein is brecciated milky quartz with minor bright blue copper stain in places.
V_4	50' NW of V_3	"Subepisyenite"? Brecciated subhorizontal 6" to 8" milky quartz vein containing abundant FeOx after FeS_2 (hematite "casts" after pyrite). Breccia cemented with hematite and ferrocarbonate (to 1") material; abundant specularite (metallic hematite (Fe_2O_3)) and K-feldspar alteration (hence, "subepisyenite"), minor epidote (?!)
V_5	45' SE of V_4	6" to 8" brecciated vein of milky quartz, cemented with specularite and MnOx (manganese oxides). Strike N65°W, dip to SSW at 18°±2°.
V_6	425' south of GD-1 portal in Gold Duke Claim #8	Southern extension of Gold Duke Vein: low angle (less than 15° dip), abundant specularite, brecciated milky quartz, much MnOx and FeOx, casts of hematite replacing pyrite, etc. Minor ferrocarbonate material. Possible visible Au.
V_7	30' SW of V_6	Gold Duke Vein - all characteristics present except abundant MnOx and specularite. Also, open vugs with wulfenite ($PbMoO_4$) and possibly mimetite (Lead chloroarsenate) (?). Very bright red hematite stain.
V_8	100' SW of V_7	Gold Duke Vein - southernmost extension: brecciated milky quartz vein cemented with abundant dark chocolate brown ferrocarbonate, FeOx stain, etc.
V_9	Center, Gold Duke 2 Claim, 250' SW of GD No. 4	2" to 3" vein of brecciated milky quartz exposed in arroyo about 250 feet SSW of GD #4. Well-formed crystals of specularite, some MnOx cements the breccia, minor epidote noted.
V_{10}	50' NE of V_6 (GD-8)	Gold Duke Vein. 6" to 8" thick, brecciated milky quartz, abundant FeOx stain, etc.
V_{11}	120' NNW of GD No. 1 portal	This is Clive Bailey's sample number "8". Subhorizontal vein of quartz, very bright red stain, wulfenite ($PbMoO_4$), pyrite (FeS_2) and native gold (Au) noted. Assay (according to Bailey): 0.068 Au, 0.17 Ag (OT)

5) Wall rock alteration is very weak - minor argillic (clay) alteration noted, mainly in the hanging wall.

The vein mineralogy and sequence of mineralization (paragenesis) are summarized in Table III (page 22).

There are many small pods of amphibole biotite schist, biotite schist and pegmatite throughout the area. Some of the amphibole biotite schists and many pegmatites are rimmed with a halo of contact metamorphic minerals (i.e., epidote), suggesting that at least some of these bodies are later intrusives.

And finally, the Gold Duke hills are mantled with colluvium, which is material that has been derived by weathering and has undergone very little transport (that is, it is essentially in-place). This grades outward into alluvium, which is the same material except that it has been transported appreciably and is generally finer-grained and mixed with wind-blown detritus.

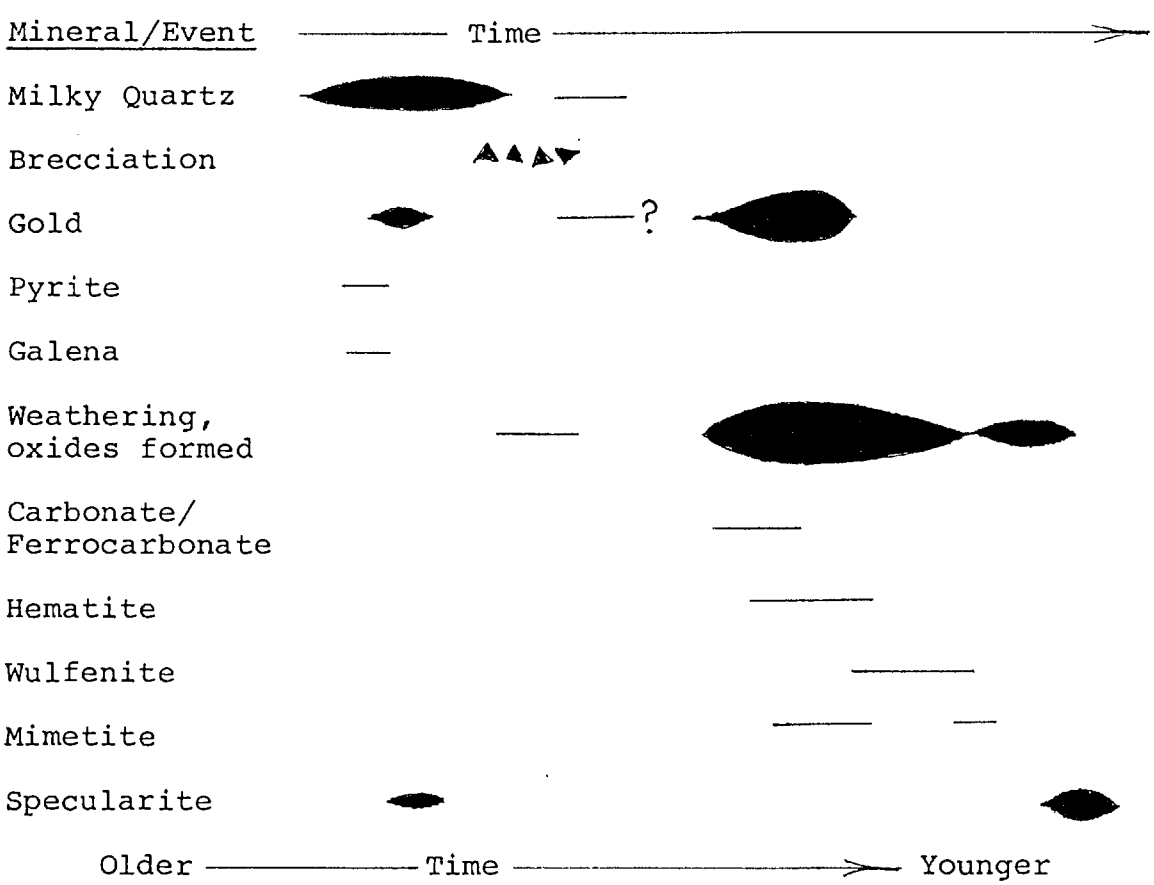
The Gold Duke hills then, are an inlier of Precambrian metamorphic rocks surrounded by much younger sediments.

STRUCTURE

The present (low angle) attitude of the Gold Duke Vein is not inconsistent with the gold plays in extensional terranes that have generated so much interest in the industry lately. Deposits associated with low angle normal faults

TABLE III

Paragenesis of the GOLD DUKE VEIN



Summary of the mineralogy and paragenetic sequence of mineralization of the GOLD DUKE VEIN, derived from field evidence and examination of/in the Gold Duke workings.

(detachment faults) are being sought after by many knowledgeable and aggressive exploration companies, including most of the majors. Development drilling (ore-body blocking, etc.) and/or exploitation are underway at Picacho, Mesquite (Goldfields), Roadside (Fischer Watt/Anaconda), Hess (Fischer Watt/Amselco), Van Deeman and the Golden Syncline (both Fischer-Watt). All of these deposits are related to mid-Tertiary detachment faults (low angle normal faults that extend for tens of miles along strike). Because of the shallow depth of burial (low confining pressure), thick intervals of intensely brecciated rock formed above the fault plane during movement. Below the fault plane the rocks are relatively unbroken. Where the brecciated rocks have come in contact with mineralizing solutions (hot springs perhaps), they provide a receptive host for the hydrothermal solutions and gold deposition. Surface manifestations of detachment hosted gold deposits are often as subtle as broken rock with weak chlorite alteration, weak bleaching, and in some instances minor calcite and quart veining. Because the gold was dispersed in very low concentrations there are seldom significant past productive gold mines, but often many small prospects and placer diggings. Gold is the best indicator of favorable mineralization, but in some instances other trace elements associated with gold deposits, such as arsenic, are helpful. Since the rocks above the fault are so intensely broken they are very susceptible to erosion. The most favorable prospecting

grounds are therefore the flanks of mountain ranges in areas of poor rock exposure (Fischer Watt, 1985).

Frequently, there are a series of subparallel structures forming boudins or boudin plates above the mdf (master detachment fault). The Gold Duke vein, the GD No. 4 and V_9 occurrences may represent such structures above a major gold-bearing structure. The obvious target then, lies at depth (hopefully, 150 feet or less), and must be tested by drilling.

It must be noted that most of the detachment related deposits display high angle antithetic splays off the mdf, and such features are absent at the Gold Duke. The great amount of colluvial cover makes it difficult to map structurally; however, the diverse orientations of the migmatite outcrops in the south and southwestern part of the area may indicate a number of discrete structural blocks in a broken upper plate.

Also, it must be stated that little evidence can be brought to bear to prove that the aforementioned extensional domain extends as far east as the Gold Duke area. We may be dealing only with simple low angle faults generated by the uplift associated with the Music Mountains horst. Fortunately, both hypotheses can be tested by the same method.

And finally, Bailey (undated, page 1) states that "The Gold Duke is on trend and possibly genetically related

to the Hackberry Mine seven miles to the south-southwest." This may or may not be the case -- strong arguments can be brought forth both pro and con. It is significant to note that this mine, which was productive from 1907 to 1942 is credited with 5,000 ounces Au; 560,000 ounces Ag; 150,000 lbs. of Pb; 22,000 lbs. of Zn; and 11,000 lbs. of Cu (Keith, et al, 1983, page 28).

RECOMMENDATIONS

GEOPHYSICS

Because there are neither sulphides (essentially) nor sufficient manganese oxides in the vein(s) to give an IP response, geophysical exploration techniques would not be beneficial on the property.

GEOCHEMISTRY

Prospecting techniques to delineate the ULVF have extended the strike length of the Gold Duke Vein an additional 400' south of Clive Bailey's results. However, there is no vein float present between V_3 and V_4; consequently, additional soil geochemistry on 100 foot (or even 50 foot) centres may disclose additional strike length or other low angle structures not readily discernible or covered by colluvium. That such structures do exist to the north is indicated by the presence of GD No. 4 and V_9, respectively.

TABLE IV

Estimated costs for geochemical sampling program at the Gold Duke property (1985).

Item	Description	Amount
Geologist	5 days at $200.00/day (includes 2 days data evaluation)	$ 1,000.00
Casual labour	Field assistant: 3 days at $100.00/day	300.00
Assays (Au)*	475 at $5.65	2,683.75
Assays (Ag)*	475 at $5.65	2,683.75
Assays (As)*	475 at $6.00	2,850.00
Sample prep*	475 at $2.80	1,300.00
Shipping (to Reno)	$300.00	300.00
Expenses	3 days at $50.00/day	150.00
Contingencies	10%	1,126.75
	Total:	$12,394.25

*Data from Chemex Labs 1985 Fee Schedule; some money may be saved by using assay lab at Mindy Mill.

In addition, similar (overlying?) structures may exist to the south and/or southwest of the Gold Duke No. 1 portal, and a geochem program on 100 foot centres (minimum) should pick them up. It is suggested that all of the geochem samples be run for arsenic as well as gold. Geochem costs are estimated in Table IV (page 26).

DRILLING

A series of E-W cross sections through the Gold Duke Vein must be drawn up through the areas with the highest geochemical response. Then, a series of holes should be drilled through the vein to test these targets:

A) Gold Duke vein itself.

B) Vein(s) above the Gold Duke vein.

C) Vein(s) below the Gold Duke Vein: i.e. similar (en echelon?) low angle auriferous structures may underlie the Gold Duke Vein.

D) Possible MDF (master detachment fault) target(s). This may entail some holes to be drilled in excess of 250 feet.

The majority of the holes (25 to 30) should be 150 feet or less in depth (total: 30 x 150 = 4,500 feet). There should be at least three deep (250' - 300') holes drilled to test the deeper target(s) fairly early; that way, if these holes are dusters (barren or devoid of vein mineralization or mdf characteristics) the rest of the drilling can be altered accordingly. Table V (page 28) sets forth cost estimates (1985) for air hammer drilling at the Gold Duke property.

TABLE V

Estimated costs for air hammer drilling program at the Gold Duke property (1985).

Item	Description	Amount
Drilling+	5,500 ft. of 6" DHH° hole at $8.00/foot	$44,000.00
Sample bags	500 at $0.15	75.00
Sample shipping	2,500 lbs. at $50.00/ 100 wt.	1,250.00
Sample prep*	500 at $2.80	1,400.00
Sample assay (Au)*	500 at $5.65	2,825.00
Sample assay (Ag)*	500 at $5.65	2,825.00
Mob/Demob/Mud	Estimated at 10% of drilling cost	4,400.00
Geological supervision	10 days at $200.00/day	2,000.00
Field expenses	10 days at $50.00/day	500.00
Assess data, write report	5 days at $200.00/day	1,000.00
	Subtotal:	60,375.00
Contingencies	Estimate 10%	6,037.00
Total	Total:	$66,412.00

+ Drilling - based on Rough Country Drilling quote, January, 1985.

* Based on Chemex Labs 1985 fee schedule; some money may be saved by using the assay lab at Mindy Mill.

° DHH means Down Hole Hammer.

MAPPING AND PROSPECTING

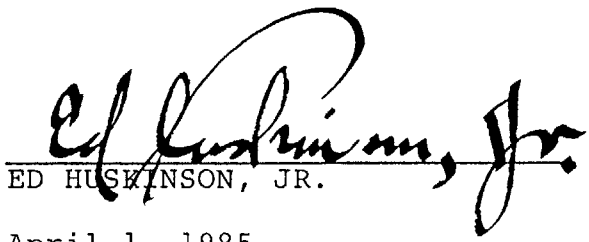
Before drilling, the abstruse geological relationship of the Gold Duke No. 3 trench should be resolved by detailed (1" = 100 feet or even 1" = 50 feet) mapping of that area. In addition, a 1" = 100 feet detailed map along the strike length of the Gold Duke vein to give accurate geochem and drill hole control is called for.

And finally, all of Section 14 to the west is open for mineral location (Figure B, page 3). Hector should have the northeast quarter of this section examined for mineral potential. Although there were no prospects/workings shown on the USGS topographic map (Antares, 1980), there is at least one prospect on this ground. A small pit (about the size of GD No. 4) has been dug about 500 feet south of the southwest corner of Gold Duke Claim #3.

CONCLUSION

The Gold Duke property consists of several low hills of Precambrian migmatites which are cut by a low angle auriferous quartz vein which has had several small adits and prospect pits developed on it. Geological mapping has determined the strike length of this vein (the Gold Duke Vein) to be at least 1400 feet, with the possibility for further extension to the north and south. There may also be other parallel subhorizontal structures above and/or below the Gold Duke Vein.

An initial program of geochemical sampling on 100 foot centers is recommended, followed up with a drilling program to test the geochem "highs" and/or geologically favorable targets. Estimated costs for these programs are included and can be implemented at Hector's discretion.



ED HUSKINSON, JR.

April 1, 1985

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GEOLOGICAL REPORT
GOLD DUKE PROPERTY
HACKBERRY MINING DISTRICT
MOHAVE COUNTY, ARIZONA

General Information: The Gold Duke property consists of eight contiguous unpatented mining claims in the Hackberry (Peacock) Mining District. They are located 23 miles north west of Kingman, Arizona. The property can be assessed by taking State Route 66 twenty one miles north west of Kingman to Antares; two and one half miles north on Pearce Ferry Road and then west one half mile to the Gold Duke #2 portal. The closest railroad is the Santa Fe, three miles south of the property.

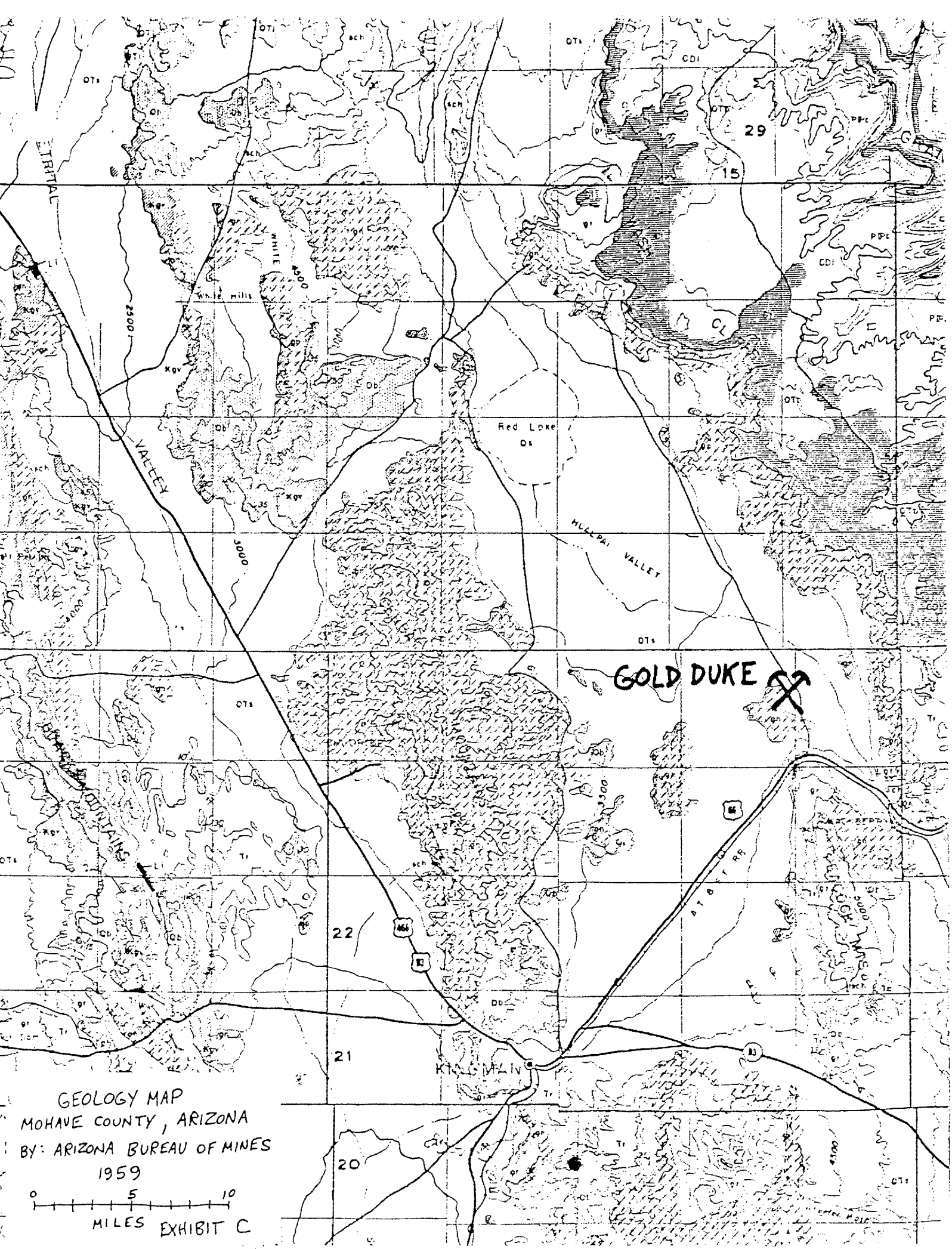
Geographical Discription - The claims are located in the north and east halves of the $NW\frac{1}{4}$ and the $NE\frac{1}{4}$ of the $SW\frac{1}{4}$ of Section 13, T 24 N and R 15 W, G&SRM central portion of Mohave County, Arizona. See Exhibit A.

Legal Documentation - The Gold Duke claims are recorded in the Mohave County Courthouse, Book #750, pages 255 - 270 and with the Bureau of Land Management, serial numbers AMC 144726 - AMC 144733 as shown on Exhibit B.

Geology and Ore Deposits: The property lies in the far northern foothill portion of the Peacock Mountains as shown in Exhibit C. The Peacock's constitute one of the many north-south trending, fault-block ranges of the Southwestern Desert. The foothills consist primarily of Pre-Cambrian granite and schist.

Ore deposits occur in veins in the Pre-Cambrian host. Gold is associated with a minor amount of lead. The oxidized veins contain limonite (hematite), minor wad, vanadinite and/or mimetite. No sulfide minerals have been observed on the surface or underground. Quartz is the primary gange mineral which is coarsely crystalline in part.

The Gold Duke is on trend and possibly genetically related to the Hackberry Mine seven miles to the south-south west. The primary ore vein on the property is 0.5 - 1.5 foot thick and is flat lying, striking N 85 W and dipping 11 degrees south. This vein is bisected by the Gold Duke #1 and #2 drifts as shown in Exhibits D and E. The vein outcrop length can be traced for 1150 feet. Thus a positive ore reserve can be based on 1150' X 100' X 0.8'= 92000 cu. ft. divided by 13 cu. ft./ton; yielding 7077 tons of 0.34 oz/ton gold or 2406 oz. of gold. The potential reserve would be several times this based on similar outcrops throughout the hills to the south on private land.



GEOLOGY MAP
MOHAVE COUNTY, ARIZONA
BY: ARIZONA BUREAU OF MINES
1959

0 5 10
MILES

EXHIBIT C

The surface exposure of the flat vein could easily be strip mined until the stripping ratio became too great and therefore uneconomical. Strip minable ore would be wholly or inpart represented by the positive reserves. Calculations based on current mineral prices and mining cost would have to be done to determine cut off and stripping ratio. Most potential reserves would have to be mined underground, room and pillar for the flat lying portion and open stope for the near vertical (Gold Duke #7) portion.

The gold appears to be related to the limonite-hematite psuedomorphs after original sulfides (pyrite and galena). Current higher assay values in the Gold Duke #2 drift correspond to the basal hematite zones. A comparison of assay values from surface to underground seems to suggest leaching of gold by nascent chlorine (from desert alkali) and manganese (wad) from surface outcrops. Thus gold solutions migrate short distances into cracks in the granite host rocks, diluting original vein exposures. Drilling and blasting should be done to determine gold values unaffected by chlorine leaching and dilution, in order to truly evaluate the surface outcrops. The Gold Duke #7 mineralization is associated with a 3.0' shear zone striking N 60 degrees E and dipping 62 degrees to the south . Not enough work has been done to determine the extent of mineralization or reserves. The Gold Duke #7 vein has many similarities to the veins discribed at the Hackberry Mine. Angle core drilling would have to be done to prove the merits of this structure.

The source of mineralization and association to the famous Hackberry Mine can best be discribed by A. L. Jolius from his 1919 report on the Hackberry Mine. The following is an excerpt from his report on the geology of the district. " The country rock in the Hackberry District is an old granite-porphyry which, as shown by the attached map, has been intruded by two principle, hard siliceous quartz-porphyry dykes, with strike of N 40° W and dip of about 40° to the southwest. One of these dykes, with which the principal ore showings of the District are associated, extends from the Hackberry Consolidated Mine northwestward through the Hackberry Extension property and beyond for several miles. The intrusion of this dyke crushed the softer adjoining country rock and made conditions favorable for ore deposition, in the form of quartz lenses in the crushed zones alongside the dyke." The Gold Duke is the only real mineralized zone to the northwest of the Hackberry Mine. A copy of the Hackberry Extension Mining Company Report is available on request.

History: Iron Duke was the early name of the Gold Duke Property during the 1930's. The main work was done on the property prior to the mid 1930's. More than four hundred and fifty tons of ore were mined by the early miners according to volume calculations of existing workings.

Summary: The Gold Duke has some distinct advantages as a small gold property. The following reasons are given:

1.) The property has easy access on good roads and the option for rail transport. ✓

2.) The vein is of a higher grade and flat lying to accommodate easy mining. The first part is strippable. OK??

3.) The vein lacks detrimental, complexing elements such as copper and zinc which affect mill leaching and/or smelting. ✓

4.) The ore is an ideal smelting "flux" ore with high silica, gold and lead. ✓ (low lead) Exhibit G is a sample smelter ore buying schedule for "flux" ore.

5.) The property is bounded by private land thus negotiations could be made to lease them when the property is developed. ✓

6.) The Gold Duke claims might have a "placer potential" because free lode gold has been observed in a number of places on the property. Trenches would have to be dug to check placer potential.

In light of what can be seen, what has been done, and what can be projected reasonably, it is considered that the Gold Duke is a very unusual prospect and worth further exploration and development.

Respectfully submitted,

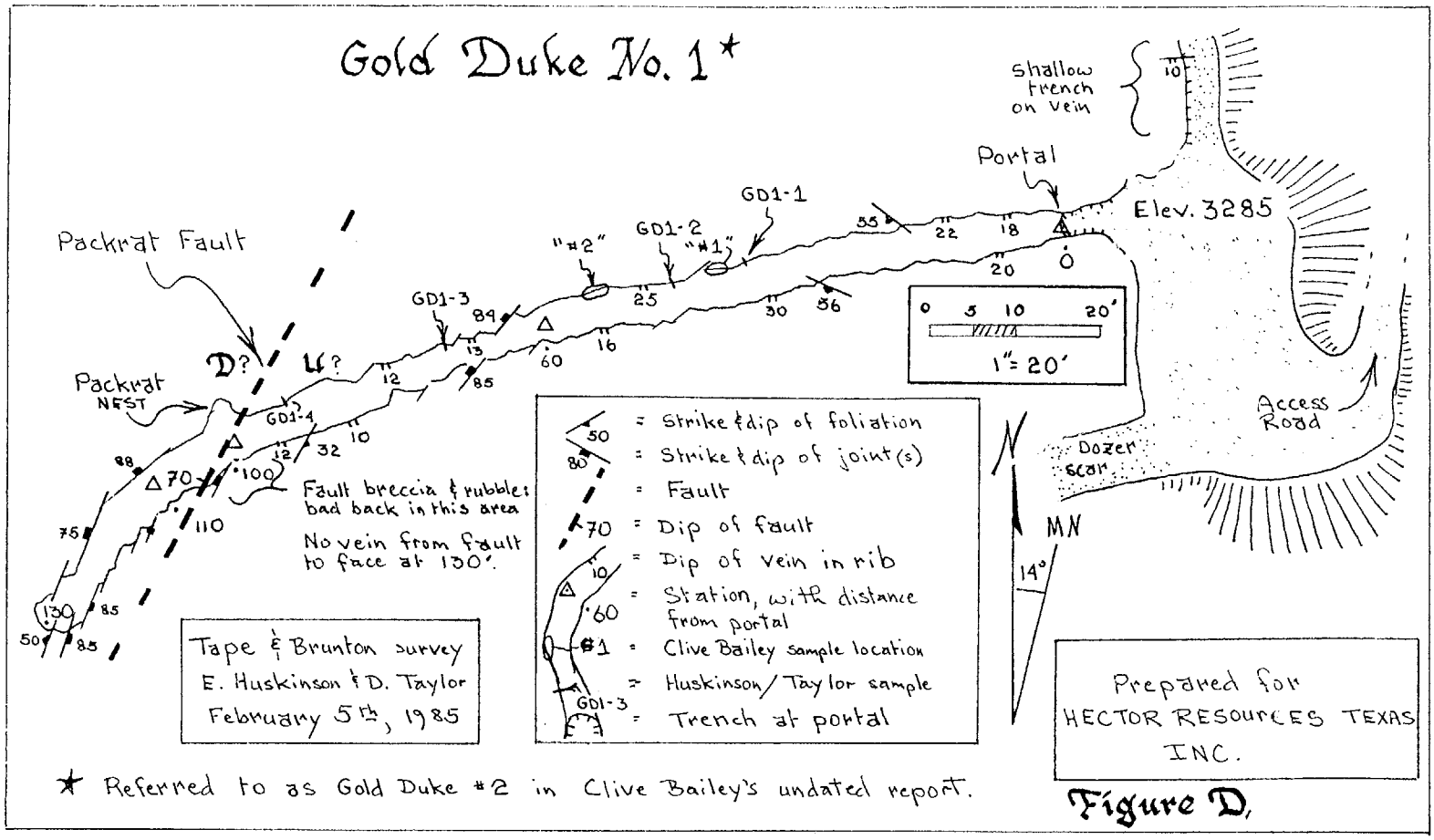
Clive R. G. Bailey

Clive R. G. Bailey

C. P. G. S. #4605

GOLD DUKE SAMPLE RESULTS

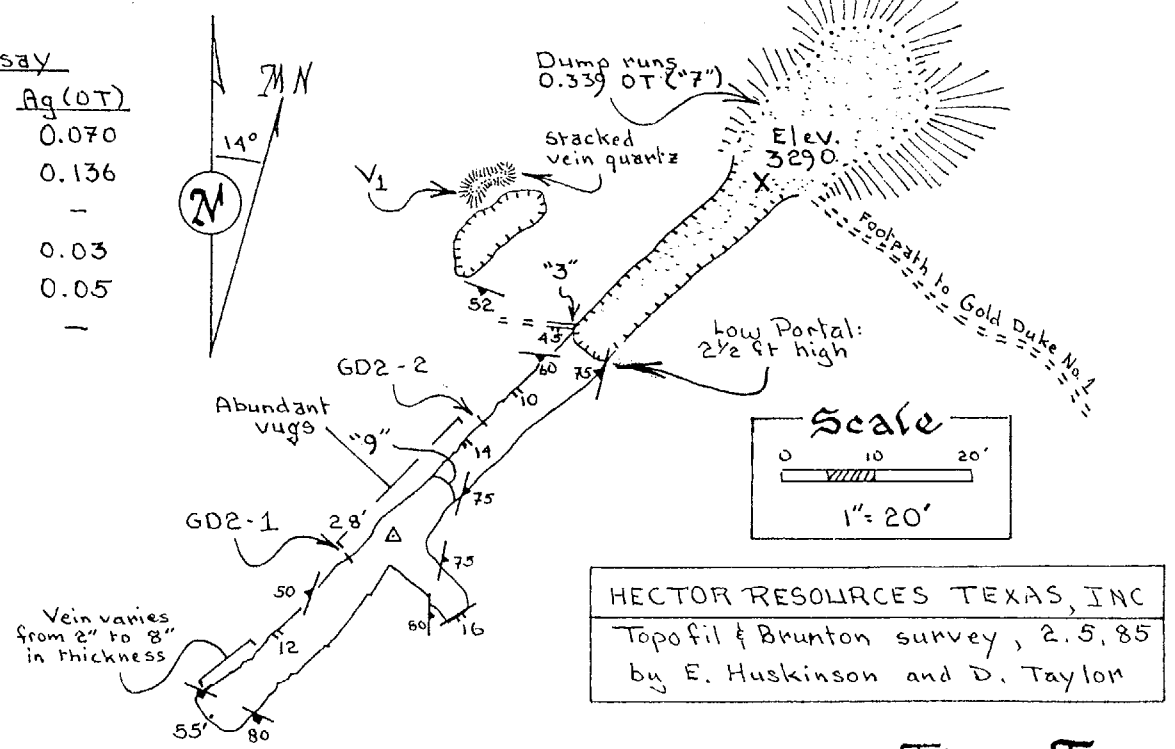
Sample No.	Type Sample	Location	Discription	Au oz/ton	Ag oz/ton
1	3.5' horz. chip enriched sample	Gold Duke #2 (underground)	on 0.35-0.81' thick quartz vein, high hematite at base	0.670	0.018
2	3.0' horz. chip enriched sample	Gold Duke #2 (underground)	on 0.5-0.6' thick quartz vein, high hematite at base	0.856	0.104
3	3.0' horz. chip enriched sample	Gold Duke #1 (portal)	on 0.8-1.0' quartz vein free gold noted	0.142	0.070
4	grab sample	100' North of S. cor. G.D. #5 & #6	surface outcrop limonite stained vein 1.0-1.5' wide	0.038	0.194
5	2.8' horz. chip	Gold Duke #7 surface cut west face	silicified alt granite talc and chlorite vertical vein	0.056	0.176
6	2.7' horz. chip	Gold Duke #7 surface cut E. face, S.$\frac{1}{2}$	on quartz-chlorite vert. vein, alt. granite with limonite alt. granules	0.034	Tr.
7	grab sample	Gold Duke #1 mine dump	from quartz vein material with limonite granules	0.339	
8	chip sample	118' N20W of G.D. #2 portal	on 0.9' quartz vein with hematite and mimitite ? free gold noted	0.068	0.17
9	3.0' horz.chip	Gold Duke #1 (underground)	on 1.0' quartz vein large quartz crystals	0.042	0.136
10	1.5' horz. chip	Gold Duke #1 (underground)	on 0.7' quartz vein, high hematite, bedded inpart	0.076	0.650
11	3.0' horz. chip	Gold Duke #7 surface cut E. face N.$\frac{1}{2}$	alt. mineralized granite vert. vein, chlorite and talc alt. shear zone	0.022	0.123
12	2.0' horz. chip	surface outcrop/oxidized quartz vein 107' N31E of Gold Duke #7 SE end center	manganese stained	0.042	0.064



Figures D & E. Plan view maps of previous workings.

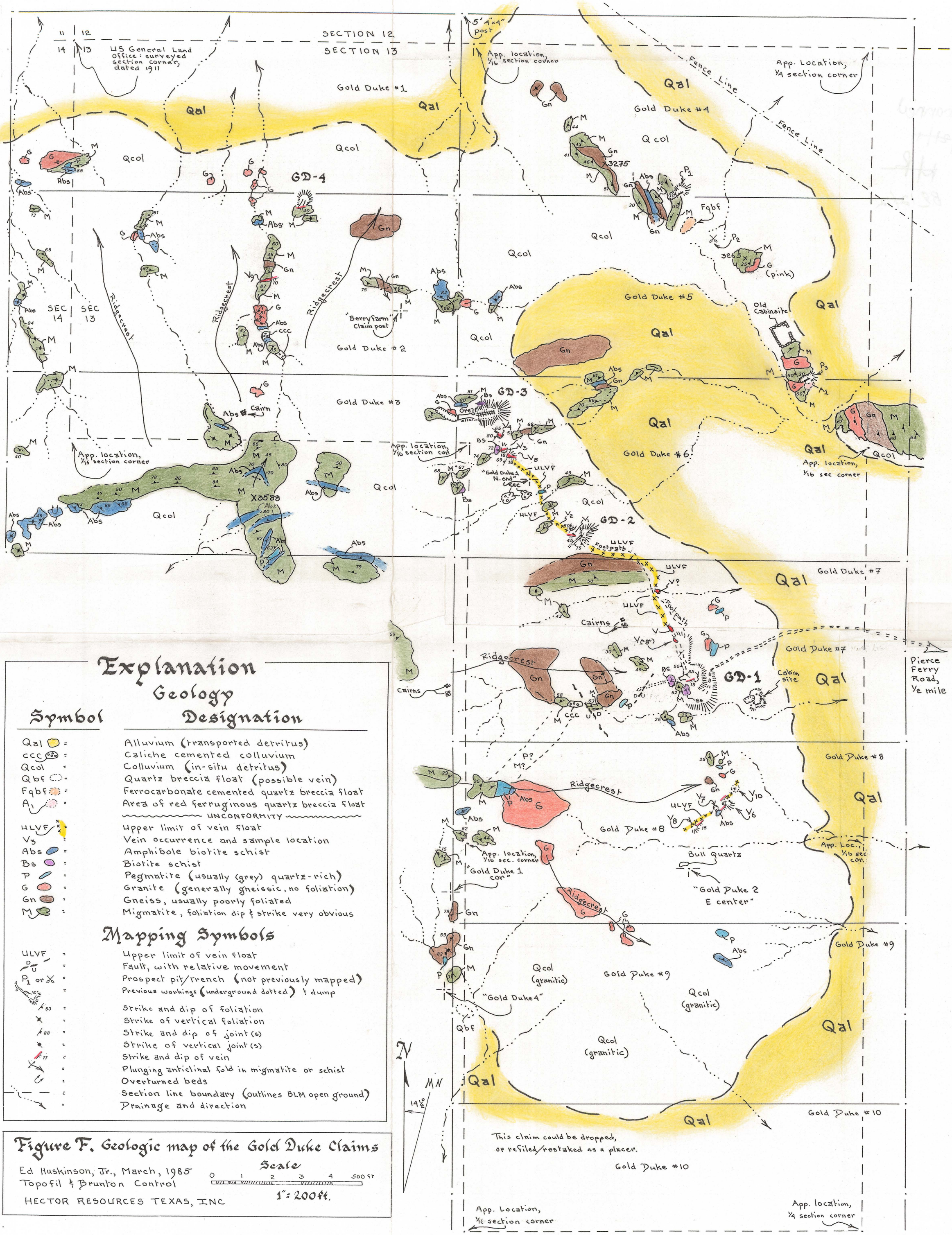
Gold Duke No. 2 ★

Sample Number	Assay Au (OT)	Assay Ag (OT)
"3"	0.142	0.070
"9"	0.042	0.136
"7"	0.339	–
GD2-1	0.001	0.03
GD2-2	0.130	0.05
V_1	0.10	–



★ Referred to as Gold Duke #1 in Clive Bailey's undated report

Figure E.



Explanation

Geology

Symbol	Designation
Qal	Alluvium (transported detritus)
ccc	Caliche cemented colluvium
Qcol	Colluvium (in-situ detritus)
Qbf	Quartz breccia float (possible vein)
Fqbf	Ferrocarbonate cemented quartz breccia float
A_1	Area of red ferruginous quartz breccia float
	UNCONFORMITY
ULVF	Upper limit of vein float
V_3	Vein occurrence and sample location
Abs	Amphibole biotite schist
Bs	Biotite schist
P	Pegmatite (usually (grey) quartz-rich)
G	Granite (generally gneissic, no foliation)
Gn	Gneiss, usually poorly foliated
M	Migmatite, foliation dip & strike very obvious

Mapping Symbols

ULVF	Upper limit of vein float
D U	Fault, with relative movement
P_1 or X	Prospect pit/trench (not previously mapped)
	Previous workings (underground dotted) & dump
53	Strike and dip of foliation
	Strike of vertical foliation
88	Strike and dip of joint(s)
	Strike of vertical joint(s)
17	Strike and dip of vein
	Plunging anticlinal fold in migmatite or schist
	Overturned beds
	Section line boundary (outlines BLM open ground)
	Drainage and direction

Figure F. Geologic map of the Gold Duke Claims

Ed Huskinson, Jr., March, 1985
Topofil & Brunton Control

HECTOR RESOURCES TEXAS, INC

Scale
0 1 2 3 4 500 ft
1" = 200ft.