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04/25/96

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: LUCKIE NO. 1 AND 2

ALTERNATE NAMES:

WHITE
AZ. EASTERN FLUORSPAR CORP.
PACIFIC FLUORIDE
GILA MINING AND MILLING CO.
SYDNEY
DANIELS CAMP GROUP
DUNCAN MILL

GREENLEE COUNTY MILS NUMBER: 91A

LOCATION: TOWNSHIP 7 S RANGE 32 E SECTION 10 QUARTER NW
LATITUDE: N 32DEG 50MIN 51SEC LONGITUDE: W 109DEG 03MIN 13SEC
TOPO MAP NAME: YORK VALLEY - 15 MIN

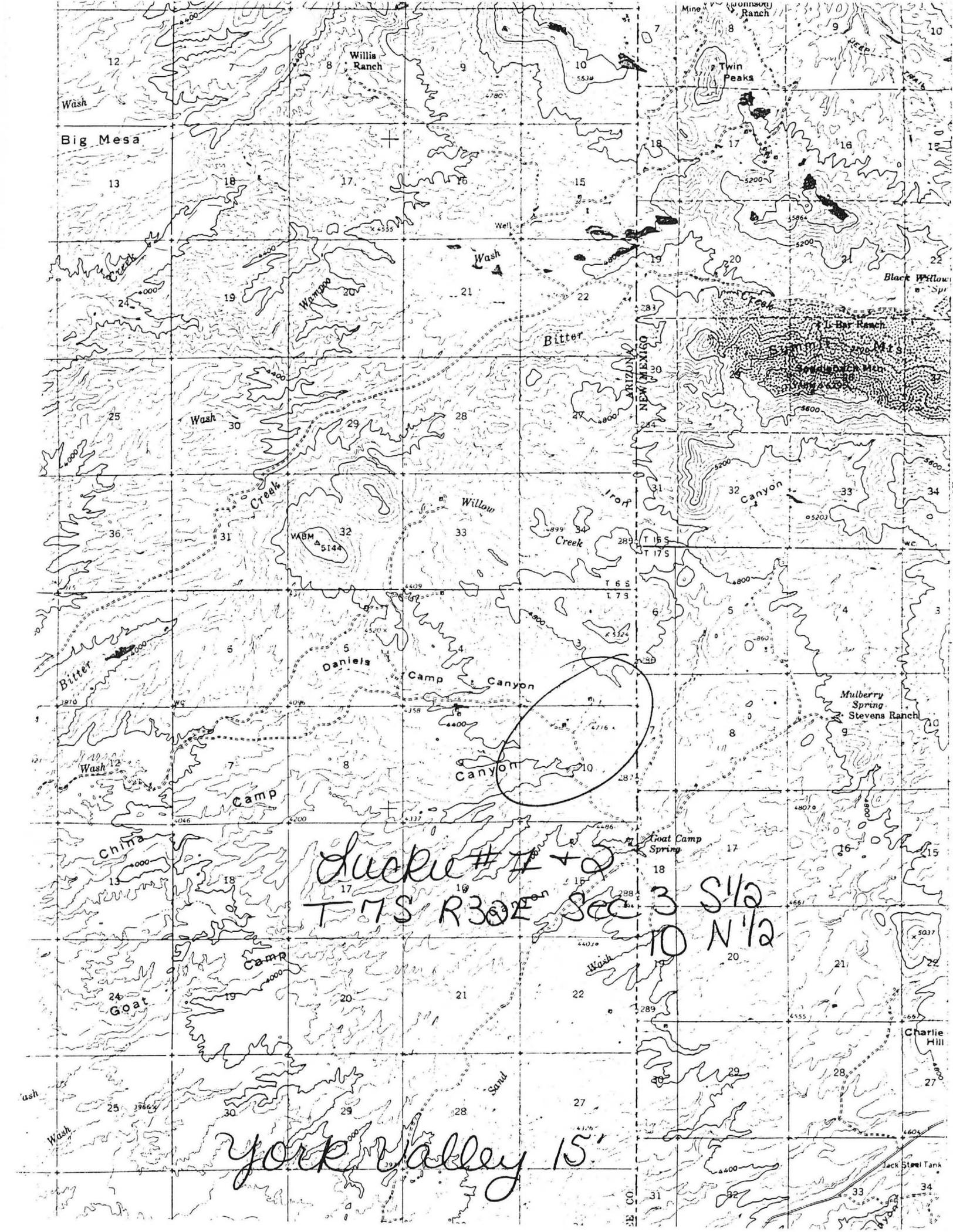
CURRENT STATUS: PAST PRODUCER

COMMODITY:

FLUORINE

BIBLIOGRAPHY:

ADMMR LUCKIE NO. 1 AND 2 MINE FILE
TRACE 1947 USGS STRATEGIC MIN. INV. PRELIM.
RPT. 3-207, P. 1-6, 2 MAPS
ELEVATORSKI, 1971, AZ. FLUROSPAR,
ADMMR P. 23-24
AZBM BULL. 180, P. 349-352, 1968
AZBM CIRC 15, P. 2-9, 1950, WILSON
AZBM BULL. 114, P. 6, 1921, ALLEN & BUTLER



Big Mesa

Willie Ranch

Twin Peaks

Well

Wash

Bitter

Wash

Creole

Willow

Iron

Canyon

Bitter

Daniels

Camp Canyon

Canyon

Mulberry Spring Stevens Ranch

China

Duckie # 1 + 2
T 7 S R 30 E Sec 3 S 1/2 10 N 1/2

Goat Camp Spring

Goat

Camp

Sand

York Valley 15'

Charlie Hill

Jack Steel Tank

SE CO

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

Luckie No. 1 Mine

LOCATION: The Luckie No. 1 Mine is located in the Steeple Rock mining district in the western foothills of the Mule Creek Mountains, about 14 miles northeast of Duncan.

C
O
P
Y
The mine shaft is shown on the York Valley, Ariz.-N. Mex. 15 minute quadrangle in Greenlee C T. 7 S., R. 32 E., Sec. 3, SE $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$, SE $\frac{1}{4}$. The shaft symbol touches the 4720 contour line and extends halfway to the 4660, so the elevation is estimated as 4700 feet (1432 meters). The shaft is located at 32.84749° (32° 50' 50.96") North latitude and 109.05357° (109° 3' 12.85") West longitude on the topographic map.

The Luckie No. 1 can be reached from Duncan by driving northwest on Arizona Highway 75 for 2 miles from the Ariz 75 - U. S. 70 junction. Turn right through a gate in the highway fence and drive 8½ miles northeast on a well-maintained gravel road to Goat Camp Spring. Turn left (northwest) on the jeep road for 1½ miles and the Luckie No. 2 shaft will be immediately to the north of the road. The Luckie No. 1 shaft is ½ mile northeast of Luckie No. 2 but the trail to it is presently washed out in one place.

OWNERSHIP: The Luckie No. 1 unpatented claim is recorded in Book 4, page 60, and amended in Book 5, page 354, of the Greenlee County Records office, Clifton, Arizona. The property is claimed by Judge Forrest Sanders, District Court Chambers, Courthouse, Las Cruces, N. Mexico.

GEOLOGY: The mine is located in an area of andesite porphyry that has several rhyolite dikes running through it. The ore vein lies at or near the contact between the andesite and one of these rhyolite dikes. The vein in the ore zone was approximately 7-8 feet wide, judging from the appearance of outcrops in the open cut-glory hole, but it narrows down to one foot or less to the south. The vein consists of a breccia of silicified volcanic rock, probably andesite, which has been cemented

by quartz and white or colorless fluor spar, with abundant iron oxides and manganese oxides in place. Running throughout both the andesite and the rhyolite are numerous smaller veins consisting mostly of silica. The area of the ore deposit is moderately altered (silicified), making the rock at times difficult to identify.

The fluor spar deposits are the result of fissure filling, perhaps accompanied by some replacement of andesite porphyry along fault zones. Banded milky quartz is the predominant vein mineral, in places constituting almost the entire vein. Veinlets of drusy quartz are believed to be secondary. Even where the vein has been mined for its fluorite content, 35 to 40 percent of SiO_2 is commonly present. No calcite was found, although vein samples contained an average of 5 percent of CaCO_3 . Limonite in places coats fluorite and quartz. Psilomelane containing tungsten is also common in parts of the veins.

Both medium and coarse fluorite occur in veins, either brecciated or as a series of closely spaced veinlets interspersed through the brecciated andesite porphyry and gouge. Most of the fluorite is deep green, although some is blue green; fluorite cropping out at the surface is colorless. Fissure veinlets of fluorite as much as one inch thick are scattered irregularly through the quartz-rich part of the vein. The fluorite in these veinlets commonly occurs as well-developed cubes. The thickness of the veins containing fluorite ranges from less than an inch to 5 feet and averages between 3 and 4 feet.

The sequence of the vein minerals probably was milky quartz closely followed by fluorite or in part simultaneous with it. The veinlets of well-developed fluorite cubes cutting the milky quartz indicate that at least some of the fluorite was later than most of the quartz. The psilomelane and iron oxides are supergene minerals.

Much of the fluor spar in the mine is obviously later than the faults, since both the fluor spar and quartz surround and cement breccia fragments of andesite porphyry. Slickensides are common but give no evidence of the general direction of movement or amount of displacement along the faults.

The vein system in claim No. 1 is well exposed as low quartz ridges containing pockets of fluorspar. Because fluorspar is less resistant to erosion than quartz, the quartz content of the veins may be over-estimated in the outcrop.

On the surface fluorspar widths in all exposed veins range from less than an inch to 2.3 feet, although they may be greater in the debris-covered bottom of the long trench just west of the Sanders Shaft. Widths of fluorspar underground are as much as 4.5 feet. The entire fault zone is not mineralized, for barren sheeted zones in the andesite porphyry commonly are parallel to margins of the veins.

The easternmost vein is the best and perhaps the only commercial deposit of fluorspar in Luckie No. 1, but a branch vein about 125 feet northwest of the Sanders shaft may also be of economic value. At the surface, the easternmost vein dips about 50° ; about 20 feet down the raise from the surface the dip flattens to about 35° or 40° and then gradually steepens again, until on the 71 foot level it is about 60° . The widest section of fluorspar is found where the dip of the vein is about 35° or 40° . Neither the north nor south face of the drift on the 71-foot level contains as much fluorspar as the part of the vein near the three stopes. From surface indications, however, it is reasonable to believe that the fluorspar might widen to between 2 and 3 feet farther north along the strike of the vein.

DEVELOPMENT: The mine workings consist of an inclined shaft and headframe, an open cut leading into some underground openings on the vein, and several small pits and trenches dug along the vein. The mine is now inactive and the workings underground were not entered as MESA denied access for safety reasons.

Maps and cross-sections of the underground workings in 1947 are illustrated in the U.S.G.S report by Trace. They include approximately 120 feet tunnel extending from the inclined Sanders shaft on the east across the vein. Where the tunnel intersects the vein, a 220 foot long drift was made at an approximate depth of 80 feet. At approximately 100 feet north of the original tunnel from the Sanders shaft a raise was put in.

Luckie No. 1 Mine

Average grade of the ore is about 40 to 50% CaF_2 , with 35 to 40% silica, and 5% calcite. The Luckie No. 1 & 2 was one of the four largest producers of the district. The ore is said to average 65% CaF_2 , which was attained by crushing and screening at the mine.

"Luckie" # 21
 same as Luckie # 2 except
 key to IIIA's sheet no's

(A1)

6-9 0005 sequence #

(A4)

6-9 0005 sequence #

14-20 ~~(2) 32.84749~~ ^{bill} ~~32.84693~~ ^{bill} lat. ~~32°50'49"~~ ^{32°50'45"}
~~49"~~ ^{49"} ~~60"~~ ^{60"} ~~45"~~ ^{45"} ~~60"~~ ^{60"}
~~1.8167~~ ^{50.8167} = 1.84693

21 "1

22-29 ~~109.05333~~ ^{bill} ~~109.05357~~ ^{bill} long. ~~109°5'12"~~ ^{109°5'12"}
~~12"~~ ^{12"} ~~60"~~ ^{60"} ~~3.2"~~ ^{3.2"} ~~60"~~ ^{60"} = .05333

30 "4

(A2)

6-9 0005 sequence #1

61-2 .03 ^{bill} sec. 3
 63-65 899 ^{bill} SE 1/4 SW 1/4 SW 1/4 SE 1/4
 66 "2
 67-71 ~~(3) 01432~~ ^{bill} elev. 4640' (1412m) ⁴⁷²⁰
 72 "1 ^{1413.8} 4700' (3047) = 1432
 73 "1
 74-5 "292

Luckie #2
 same as Luckie #1 except

(A5)		(A6)		
6-9	0005	1-13		
		14	"	
		15-16	"	
		17	"	
		18-21		up dissov.
		22-5		up 1st prod.
		26-9		up last prod.
		30-31	61	(best shaft) inclined shaft
		32		1 little
		33	?	
		34-7	?	up.
		38-9	? 71	(best adit)? open cut to underground
		40		1 little
		41	?	
		42-5	?	up small pits
		46-7	80	(best pit) several small pits overhead
		48		1 little
		49	?	
		50-53	?	up.
		(A7)		
		1-9		same as A1
		10-12	060	
		14-36		Andesite porphyry <small>June 1880</small>
		37-9	120	shyrite <small>Feb</small>
		40	2	faulting
		41--	000	undetermined
		44-6	120	Tertiary defog
		47		mineraliz after event
		48-50	3.0	density - see Polly Ann
		51-53	156	andesite
		54	1	fractures contain ore
		55	5	replaced by ore
		56-59	156	andesite
		60	7	gangue
		(A7) 10-12	061	
		14-36		Rhyolite dikes
		40-50		as above
		51-53	150	shyrite <small>in fractures contain ore</small>

Luckie 1

(A7) cont	2	lies along ore	22-5	1	tabular
54-55	1	fractures contain ore	26-7	2	ore controls fract
56-59	150	rhysolite		3	fault
60	7	gangue	28	3	moderate alteration
A8		same as Luckie 2	29-34	07	type alt. - silicification
			35-9	0	2 depth to ore
				0	
				0	
				6	
			53-8	61	length $\frac{305}{61.0} = 5.0$ ft $\frac{200}{61.0} = 3.3$ ft 62' mineral pt. 1' N10°E 7m
			59	1	strike
			60-1	10	
			62	3	
			63-8	24	width 80' tract
					$\frac{305}{24.7} = 12.3$
			69-70	50	ave. dip Even 50° 7-8' thick 35-40° 4-6' thick 60° W by map trace
			71	4	
			72-5	1.4	thickness of vein 7-8' thick 4"-2.3 ft up surf 4"-2.6 ft 4.5 ft up trace underground 4.5 ft
					$\frac{305}{4.5} = 67.8$ $\frac{1525}{1220} = 1.25$ $\frac{13725}{1.3725}$

(A9) A-13 as A1

14	0	no confid info
15-16	01	ferrous veins
17-18	02	shale zone
19-20	04	breccia filling
21-2	1	hydrothermal

Location: The Luskie #7 fluorapatite mine is located in the southeast quarter of Section 3 Township 7 South, Range 32 East, about 12 miles north of the town of Puerco, Arizona

Physical Features: The mine is in a desert area of sparsely vegetated rolling hills. The annual rainfall of the area is about 10 inches.

~~The mine consists of a shaft by and headframe, a trench, and 5 prospect pits dug along the vein extension.~~

History:

Ownership: Forest ~~Sanders~~ Saunders, a judge in Las Cruces, New Mexico.

Geology: The mine is located in an area of andesite porphyry that has several rhyolite dikes running through it. The ore vein lies at or near the contact between the andesite and one of these rhyolite dikes.

~~There are numerous smaller veins running throughout both the andesite and rhyolite, mostly of silica. The area of the ore deposit is moderately altered, ^(silicified) making the rock at times difficult to identify, but not drastically reducing its strength and coherence as intense alteration would have done.~~

The ~~ore~~ vein ^{in the ore zone} was approximately 7-8' wide, judging from the appearance of outcrops in the open cut - groy hole, but it narrows down to one foot or less to the south. The vein consists of a breccia of silicified volcanic rock, probably andesite, which has been cemented by quartz and ^{white or colorless} fluorapatite, with abundant iron oxides and manganese oxides in place.

Running throughout both the andesite and the rhyolite are numerous smaller veins consisting mostly of silica. The area of the ore deposit is moderately altered (silicified), making the rock at times difficult to identify.

Development: The mine workings consist of an inclined shaft and headframe, an open cut leading into some underground openings on the vein, and several small pits and trenches dug along the vein. The mine is now inactive and the workings underground were not entered for safety reasons.

Ore Reserves:

Recommendations and conclusions:

(A1) - Greenlee Co., Ariz.
- past producer
- underground mine

(A8) econ. + gangue minerals
qtz, CaF₂, Fe ox, Mn ox

(A4) latitude N32° 50' 49"
longitude W109° 3' 12"
ref. pt. lead frame
precision of pt location mea. 10 m
prime meridian Gila + Salt River
T7S, R32E, sec. 3, se 1/4
survey status unknown
elev. 4640' (1412 m)
datum above sea level
precision of elev. mea. ±10m
USGS 1:250,000 quad Silver City

(A5) distance of road needed 0
distance to adequate water supply ^{about} 6 mi
" " " electrical about 6 mi
mining district Apple Rock
domain BLM
drainage basin ?
topography hilly
annual pptn. - about 10 inches (25.4 cm)
distribution of pptn. - even
temperature - temperate
vegetation - desert
soil texture - undetermined
primary land use - grazing
working season - all year
labor supply - unknown
map series - 15 minute
map name Apple Valley

(A9) type of orebody 01, 02, 04
model of origin - hydrothermal
shape ~~tabular~~ tabular
ore controls 2, 3
degree of alteration - moderate
type of alteration - silicification

Dept. of
Mines
Recon.
Fluorspar
P. 23-4

LUCKIE NO. 1 and NO. 2 MINES

Located in the SE-1/4 sec. 3, and NW-1/4 sec. 10, T7S R32 E, about one airline mile east of the Polly Ann Mine. Elevation of the mine is approximately 4600. It was one of the four largest producers of the district. The ore is said to average 65% CaF_2 . This grade was attained by crushing and screening at the mine.

Development works consist of a glory hole and a vertical shaft. Fluorspar occurs as fissure veins in an andesite porphyry and rhyolite tuff. The veins, 2 to 3 ft. wide consist of mixed fluorite and coarse quartz. Exposed ore is of lower grade than mined at the Polly Ann. The fluorite is medium-grained crystalline ore and is pale green in color.

On Luckie No. 1, the vein system is exposed as low quartz ridges, containing pockets of fluorspar. Surface widths of the ore vary from 4" to 2'6", and underground, they reportedly are 4.5 ft. wide. Dip of the veins is 40° to 60° S. For Luckie No. 2, the average width of ore mined was 4 feet. Much of the fluorspar post dates faulting, with both quartz and fluorspar cementing a breccia. Slicken-slides are common, but give no evidence of the general direction or amount of displacement along the faults. The occurrence of brecciated fluorspar indicates post-mineral movement along the fault.

Average grade of the ore is about 40 to 50% CaF_2 , with silica 35 to 40%, and 5% calcite. Other minerals present are limonite, psilomelane containing tungsten and barite. The sequence of mineral formation was probably quartz, followed by fluorite, or simultaneously with it. In addition, some of the well-developed fluorspar cuts the quartz indicating that some of the fluorite was later than the quartz. Both the psilomelane and iron oxides are supergene minerals.

*some of the ore - developed fluorspar & into the quartz
indicating that some of the fluorspar was later
than the quartz. Both the psilomelane and iron oxides are supergene minerals.*

DANIELS CAMP MINE

Located in the NE-1/4 sec. 5, T7S R32E, about 1.5 airline miles northwest of the Polly Ann Mine at about elevation 4400. It is one of the four largest producers in the district.

Development works consist of one shaft and a large open cut from which most of the production was obtained. In the open cut, the fluorspar occurs as deep green to blue-green stringers in fractured andesite. Nearby is a markedly porphyritic andesite dike. Fluorspar stringers mixed with barren rock extend over an 8 to 10 ft. width.

FOURTH OF JULY MINE (also known as Ellis Shaft)

Located in the NE-1/4 sec. 4, T7S R32E, about 1 mile due east of Daniels Camp Mine at elevation 4600. It is one of the four largest producers in the district.

Mining at the Fourth of July Mine started in 1937 and continued until 1942, when about 1600 tons containing 60 to 65% CaF_2 and 25 to 30% SiO_2 were shipped.

Development work consists of a 150 ft. shaft, 500 ft. of drifting and two small open cuts. Fluorspar occurs in rhyolite porphyry that is faulted and notably porphyritic. Southwest of the shaft is a hydrothermally altered rhyolite tuff. The veins contain dense milky to reddish-brown quartz, grey calcite, and colorless to green fluorspar. Secondary coatings of psilomelane are present and much of the ore is interlaced with reddish-brown iron-stained quartz veinlets. Commonly,

Luckie # 1 & #2 mines

The ^{three} Luckie ~~three~~ unpatented claims are in sections 3 & 10 T 7S R 32E, Greenlee County, Az. The two ~~shafts~~ vertical shafts are shown on USGS ^{15-minute} topographic ~~sheet~~ ~~15 minute~~ sheet Yeak Valley, Ariz + N. Mex. From this map Luckie #1 is at an elevation of 4480ft above sea level and has a location of 109° 03' 30" ~~longitude~~ longitude, 32° 50' 36" latitude; Luckie #2 is at an elevation of 4720ft and is located at 109° 03' 12" longitude, 32° 50' 45" latitude.

The property is claimed by judge Forrest Sanders, District Court Chambers, Courthouse, Las Cruces, N. Mex. and recorded as;

- Luckie #1 Book 4 Page 60
 - " " amended Book 5 page 354.
 - Luckie #2 Book 4 page 60
 - " " amended Book 5 page 355
 - Luckie #3 Book 4 page 60
 - " " amended Book 5 page 356.
- } in the Greenlee County
Recorder's Office, Clifton Az.

The claims can be reached by driving 2 miles northwest on Az. highway 75 from its intersection with US highway 70 in Durcan to a gate in the highway fence. Thence thru the gate & proceed 3/4 miles on a well maintained gravel road to Luckie #1 shaft which is within 7.5 ft north of the road. Luckie #2 is 1/2 mile NE of Luckie #1 but the trail to it is presently washed out in one place.

Access to both of these shafts was denied by MESA inspector David Polk. There is no recorded production although there has no doubt been some.

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

Luckie No. 2 Mine

LOCATION: The Luckie No. 2 Mine is located in the Steeple Rock mining district in the western foothills of the Male Creek Mountains, about 14 miles northeast of Duncan, ^{Greenlee Co.} The mine shaft is shown on the York Valley, Ariz.-N. Mex. 15 minute quadrangel in T. 7 S., R. 32 E., Sec. 10, NW $\frac{1}{4}$, NE $\frac{1}{4}$, SE $\frac{1}{4}$, NW $\frac{1}{4}$. The shaft is on or slightly above the 4480 foot contour line (1366 meters) and is located at 32.84353° (32° 50' 36.71") North latitude and 109.05738° (109° 3' 26.57") West longitude.

The Luckie No. 2 Mine can be reached from Duncan by driving northwest on Arizona Highway 75 for 2 miles from the Ariz. 75 - U. S. 70 junction. Turn right through a gate in the highway fence and drive 8½ miles northeast on a well-maintained gravel road to Goat Camp Spring. Turn left (northwest) on the jeep road for 1½ miles and the Luckie No. 2 shaft will be within 75 feet north of the road.

OWNERSHIP: The Luckie No. 2 unpatented claim is recorded in Book 4, page 60, and amended in Book 5, P. 355, and the Luckie No. 3 in Book 4, page 60, and amended in Book 5, P. 356, in the Greenlee County Recorders office at Clifton, Arizona, under the ownership of Judge Forrest Sanders, District Court Chambers, Courthouse, Las Cruces, New Mexico.

GEOLOGY: The Luckie No. 2 Mine is located in an area of fresh andesite porphyry along whose fractures the fluor spar has been replaced by hydrothermal solutions along with considerable silica. In this area very little alteration is present. The vein which forms the ore body strikes S. 56° E. and is surrounded by andesite porphyry along most of its extent. Rhyolite dikes adjoin the vein southeast and southwest of the vein as shown on Trace's geologic map. The andesite in the 'glory hole' has many quartz veins up to 1 inch wide running through it. The fluor spar outcrops at the surface in the glory hole and is colorless to light green in color.

The fluor spar deposits are the result of fissure filling, perhaps accompanied by some replacement of albite porphyry along fault zones. Banded milky quartz is the predominant vein mineral, in places constituting almost the entire vein. Veinlets of drusy quartz are believed to be secondary. Even where the vein has been mined for its fluorite content, 35 to 40 percent of SiO_2 is commonly present. No calcite was found, although vein samples contained an average of 5 percent of CaCO_3 . Limonite in places coats fluorite and quartz. Pallmelane containing tungsten is also common in parts of the veins. Both medium and coarse fluorite occur in veins, either brecciated or as a series of closely spaced veinlets interspersed through the brecciated albite porphyry and gouge. Most of the fluorite is deep green, although some is blue green; fluorite cropping out at the surface is colorless. Pressure veinlets of fluorite as much as one inch thick are scattered irregularly through the quartz-rich part of the vein. The fluorite in these veinlets commonly occurs as well-developed cubes. The thickness of the veins containing fluorite ranges from less than an inch to 5 feet and averages between 3 and 4 feet.

The sequence of the vein minerals probably was milky quartz closely followed by fluorite or in part simultaneous with it. The veinlets of well-developed fluorite cubes cutting the milky quartz indicate that at least some of the fluorite was later than most of the quartz. The pallmelane and iron oxides are supergene minerals.

Much of the fluor spar in the mine is obviously later than the faults, since both the fluor spar and quartz surround and cement breccia fragments of andesite porphyry. Alkalisides are common but give no evidence of the general direction of movement or amount of displacement along the faults.

The vein system in the Lucke No. 2 claim is largely covered on the surface, in contrast to that in the No. 1 claim. The location of the vein is obtained only from the glory hole and shaft and by projection from underground workings.

Luckie No. 1,
The veins, composed of fluorite and quartz, dip generally about 70° North and have a more uniform dip than those in the Luckie No. 1 calim. The average fluorspar width that had been mined was probably between 3 and 5 feet, but no fluorspar width greater than 3 feet was exposed in 1947. Underground, several veins of varying widths, diverging from the vein system probably represent local irregularities in a complex fracture system. The vein shown in the underground workings, which strikes northwest from the shaft, however, may be related to another fracture system.

DEVELOPMENT: The mine workings consist of a 6 foot by 4 foot cribbed shaft 59 feet deep, a glory hole approximately 40 feet by 20 feet of unknown depth, and an indeterminate amount of underground workings. The underground workings were not examined in 1975 because they were deemed unsafe and access was denied by MESA.

Maps and cross-sections of the underground workings in 1947 are illustrated in the U.S.G.S. report by Trace. They include approximately 100 feet of workings at the 64 foot level and 120 feet of workings at the 90 foot level.

The average grade of the ore was about 40 to 50% CaF_2 , with silica 35% to 40%, and 5% calcite. 65% ore was attained by crushing and screening at the mine.

Luckie #12

key to ...

... can dist.

A-1			A-3 cont.		
1-2	04	Az	18		Forest Sanders
3-5	011	Greenlee			Judge, District Court Chamber
6-9	0004	sequence # later			Courthouse
10-12	010				Las Cruces, N. Mex.
13	blank	Add	74-5	35	N. Mex
14	C	complete	76-8	199	U.S.A
15-16	75	1975	79-80	(?)	70 ownership
17	3	Intermtn Cntr	(A4)		
18-20	230	Fluorine	1-2	04	Az
21	1	wt-%	3-5	011	Greenlee
22-4	090	Calcium (2)	6-9	0004	sequence #
25	1	wt-%	10-12	030	
26-8			13	blank	add
			14-20	(?)	lat. 32° 50' 40" Bill. 32° 50' 36" lat. 32°
42	2	past producer			$\frac{40''}{60''} = .667$ $\frac{50.667'}{60''} = .84445$
43	43	underground			$\frac{36''}{60''} = .600$ $\frac{50.600'}{60''} = .84333$
44	1	located claim	21	1	N
45	9	-	22-29	(?)	long. 109° 3' 26" Bill. 109° 3' 30" lon.
46	9	-			$\frac{26''}{60''} = .4333$ $\frac{3.433'}{60''} = .05721$
47	7	metric tons of ore			$\frac{30''}{60''} = .5$ $\frac{3.5'}{60''} = .05833$
48-5		file link - leave blank	30	4	W
6-71			31-46		
72-80	(?)	evaluator ?	47	1	headframe
(A-2)			48	12	100m. precision
1-2	04	Az	49-50	14	Silver-Salt R.
3-5	011	Greenlee	51-3	007	T 7
6-9	000+	sequence #	54	0	fraction
10-12	010		55	2	S
13	blank	Add	56-8	032	R 32
14	LUCKIE NO. 1		59	0	fraction
			60	3	E
(A-3)			61-2	10	sec. 10 NW 1/4 Bill. Containd some
1-2	04	Az	63	7	
3-5	011	Greenlee	64	6	NE 1/4
6-9	0004	sequence #	65	8	SE 1/4
10-12	020		66	2	surveyed
13	blank	add	67-71	(?)	elev. m. 4490' Bul 4480' elev. m. 1368 m. 1365 m.
14	0	no confidential info	72	1	above mean S.L.
15-16	75	date of information	73	1	10. m. precision
17	1	owner	74-5	292	Silver City 20 sheet

(A5)		
1-2	04	Az
3-5	011	Greenlee
6-9	0004	sequence #
10-12	049	
13		blank add
14	1	rd needed - on site
15	? 3	dist. to water - 6 mi. = 9.66 km
16	? 2	6 mi. to elect. - < 10 km
173		STEEPLE ROCK
32-33	49	BLM
34-7	(2)	drainage basin
38	? 4	hilly 225-300 ft relief 75-100 m. relief
39-42	0025	~10" = 25.4 cm
43	? 1	even
44	2	temperate
45	3	veg. - desert
46	0	soil - optional - undeterm. num.
47	6	grazing
48	4	all yr. - working season
49	? 2	avail. locally (< 40 mi)
50	2	minor - land - short term
51	1	mil " long "
52	2	minor veg. short term
53	2	minor " long "
54	1	mil wildlife short "
55	1	mil " long "
56	2	minor water short "
57	2	minor " long "
58	1	mil air short term
59	1	mil " long "
60	2	minor aesthetics short "
61	1	mil " long "
62	1	mil sound short "
63	2	minor overall short "
64	1	mil " long "
65-69		max surf. area 1 claim = 20 acres
	00008	20ac (0.40468 hect/ac) = 8.09 hect.
70	2	15 min quad - largest scale map
71-80		YORK VALLEY

(A6)		
1-2	04	Az
3-5	011	Greenlee
6-9	0004	sequence #
10-12	050	
13		blank add
14	0	no confidential info
15-16	75	1975 info added
17	1	ore min. in place
18-21	?	yr. discovery
22-25	?	yr. 1st production
26-29	?	yr. last prod.
30-31	61	vert. shaft 6'x4' x 59' deep
32	1	little
33	?	
34-37	?	yr.
38-39	80	glory hole (test pit) 40'x20' x 2' deep
40	1	little
41	?	
42-45	?	yr.
(A7) 1-9		same as A-1
10-2	060	
13	-	-
14-36		andesite (Bill West)
		(andesite porphyry) (Chow)
37-39	120	Tertiary
40	2	faulting
41-	200	undetermined
44-6	120	Tertiary dip
47	5	mineralization follows event
48-50	3.0	density - see Polly Ann
51-53	156	andesite
54	1	fractures contain ore
55	5	gangue replaced by ore
56-8	156	andesite
59	7	gangue
51-53	150	shyslite
54	7	gangue
55	0	(near ore) but never in contact

(A8)				22-5	1	tabular	
1-13	as A1			26-7	2	ore controls	fract.
14-16	128	Tert.			3	"	fault.
17	2.3	med phan (1-5mm)	2	28	2	alteration	slight
18-20	300	fluorite		29-34	07	type "	silicification
21-2	06	halite					
23	3	md gn. Elev.		35-9	0	depth to ore	2
24-7	50	% 40-50% Elev			0		
28					0		
29-31	412	quartz			0		
32-3	15	SiO ₂		53-8	168	length med. zone	550' m Trace map
34	4	ore rten Elev. md + ore				$\frac{30 \text{ m}}{550 \text{ ft}} = 168 \text{ m.}$	
5-8	40	% 35-40% SiO ₂		59	2	strike	540 E Elev. 557 E Trace map
39				60-1	57		
40-42	090	calcite		62	3		
43-4	07	Carbonate		63-8	21	$\frac{385 \text{ m/ft} \cdot 70 \text{ ft} + 167 \cdot 350}{167 \cdot 350} = 2.1 \text{ m.}$	700 N Trace
45		size					
46-9	5	5%		69-70	70	700 N	70' vein Elev. Trace
50				71	1	N	
51-3	299	limonite		72-5	1.2	ave thick	4' vein Elev. Trace
4-5	04	oxide				$\frac{.305 \text{ m/ft} \cdot 4 \text{ ft} + 1.220}{1.220} = 3.5'$	
56	1	size aph.					
7-60		%					
61							
2-4	402	psilomelane w/ tungsten + barite					
65-6	04	oxide					
67	1	size aph.					
68-71							
72							
(A9) 4-8, 18-20	059	barite					
21-2	09	sulfate					
23		size					
4-7		%					
28		wt - vol %?					
(A9) 1-13	as A1						
14	0	no confid info					
15-16	01	fissure veins					
17-18	02	shear zone					
19-20	04	breccia filling					
21-7	1	hydrothermal					



DEPARTMENT OF THE INTERIOR

INFORMATION SERVICE

3-207

GEOLOGICAL SURVEY

For release MARCH 19, 1947

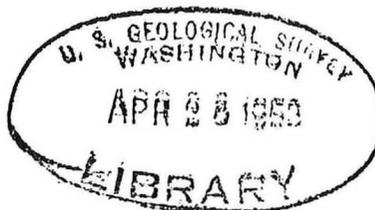
FLUORSPAR DEPOSITS NEAR DUNCAN, ARIZONA, STUDIED

Director W. E. Wrather of the Geological Survey reported today that a preliminary report on the Fourth of July and Luckie No. 1 and No. 2 fluorspar properties, near Duncan, Greenlee County, Ariz., has been released by the Geological Survey.

The fluorspar is found in basaltic lavas at the Fourth of July property, and in andesite porphyry at the Luckie No. 1 and No. 2 properties. The fluorspar forms lenticular veins and pockets along fault breccia zones and fissures. Quartz, calcite, and colorless or green fluorite are the chief minerals. Secondary coatings and thin stringers of psilomelane are associated with the fluorspar. Large-scale geologic and topographic maps and geologic cross sections of the deposits accompany the report.

The report and accompanying maps on the Fourth of July and Luckie No. 1 and No. 2 fluorspar veins near Duncan, Greenlee County, Ariz., by Robert D. Trace, have been released to the public as Preliminary Maps 3-207, Strategic Minerals Investigations series. Only a limited edition of this report is available. Copies may be obtained from the Director, Geological Survey, Washington 25, D. C., by those who are directly interested.

X X X



4 July

The fluorspar is found as lenticular veins and pockets along fault-breccia zones and fissures in basalt. The dips of the veins range between 60° and 80° . Much of the fluorspar is brecciated, indicating post-mineralization movement along the faults. The basalt between the East and West veins is slightly brecciated in places and contains many stringers of quartz.

The distribution of fluorite, quartz, and calcite within the veins is not uniform. Calcite, however, commonly occurs near the hanging wall; this relation is shown in the mine by a rather continuous cavity near the hanging wall, where calcite apparently has been leached from the vein. Commonly the fluorspar-rich part of the vein is a mixture of brecciated quartz and fluorite. Locally, however, definite sequences were noted. A small pit on the surface, for example, contains from west to east: fluorite, calcite, quartz, and calcite. On the 102-foot level, a local sequence from west to east is: quartz, calcite, fluorite, and quartz.

The vein system has a length of at least 2,500 feet, but only small sections are known to contain fluorspar. The width of the fluorspar ranges from less than an inch to approximately 5 feet, and averages 3 to 4 feet in the mine. The surface and underground exposures of fluorspar are shown on plates 2 and 3. At the south end of claim No. 1, a section of the vein about 400 feet along the strike may contain commercial deposits. On the surface, the other veins on claim No. 1 are composed mostly of calcite and quartz. On claim No. 2, a section of the vein about 400 feet along the strike has economic widths of fluorspar, and the underground work has been done in this part of the vein.

The west vein in the Ellis shaft, between the surface and the 57-foot level, dips about 60° W, and this part of the shaft was sunk in fluorspar. Below the 57-foot level, the shaft steepens to 80° or 85° and is mostly in quartz.

The East vein has been mined more than the West vein. A comparison of the fluorspar widths on the 102- and 148-foot levels of the East vein indicates that the fluorspar body possibly is pinching downward. Much fluorspar, however, remains in the mine, particularly between the 57- and 102-foot levels. In the south end of the 102-foot level, the fluorspar vein splits, the wider vein turning gently eastward into the wall. In the north end of this level the vein also splits, one part bearing almost directly north and the other west-northwest. On the 148-foot level in the northwest end of the drift, the vein divides as it did on the level above. The west branch apparently contains more fluorspar.

LUCKIE NO. 1 AND NO. 2 FLUORSPAR VEINS

Introduction

The Luckie No. 1 and No. 2 fluorspar veins of Greenlee County, Ariz., are about $14\frac{1}{2}$ miles by road north-northeast of Duncan and are in secs. 3 and 10, T. 7 S., R. 32 E., about half a mile west of the Arizona-New Mexico State line (see pl. 1). The shortest route to the claims from Duncan, the nearest railhead, is north by way of Arizona State Highway 75 for $2\frac{1}{2}$ miles to a dirt road; then north-east about 12 miles, past the Goat Camp Spring and ranchhouse to the mines.

Fluorspar deposits

The fluorspar deposits are the result of fissure filling, perhaps accompanied by some replacement of andesite porphyry along fault zones. Banded milky quartz is the predominant vein mineral, in places constituting almost the entire vein. Veinlets of drusy quartz are believed to be secondary. Even where the vein has been mined for its fluorite content, 35 to 40 percent of SiO_2 is commonly present. No calcite was found, although vein samples contained an average of 5 percent of CaCO_3 .

Both medium and coarse fluorite occur in veins, either brecciated or as a series of closely spaced veinlets interspersed through the brecciated andesite porphyry and gouge. Most of the fluorite is deep green, although some is blue green; fluorite cropping out at the surface is colorless. Fissure veinlets of fluorite as much as one inch thick are scattered irregularly through the quartz-rich part of the vein. The fluorite in these veinlets commonly occurs as well-developed cubes. The thickness of the veins containing fluorite ranges from less than an inch to 5 feet and averages between 3 and 4 feet.

Limonite in places coats fluorite and quartz. Psilomelane containing tungsten is also common in parts of the veins. Chemical analyses of two samples of psilomelane from the Luckie No. 1 vein showed the following:^{5/}

WO_3	V_2O_5	Mn	BaO*	SiO_2
1.97	none	47.7	14.74	1.59
1.96	none	47.1	15.75	1.79

*BaO soluble in dilute HCl

The sequence of the vein minerals probably was milky quartz closely followed by fluorite or in part simultaneous with it. The veinlets of well-developed fluorite cubes cutting the milky quartz indicate that at least some of the fluorite was later than most of the quartz. The psilomelane and iron oxides are supergene minerals.

Claim No. 1.—The vein system in claim No. 1 (see pl. 5) is well exposed as low quartz ridges containing pockets of fluorspar. Because fluorspar is less resistant to erosion than quartz, the quartz content of the veins may be over-estimated in the outcrop.

On the surface fluorspar widths in all exposed veins range from less than an inch to 2.3 feet, although they may be greater in the debris-covered bottom of the long trench just west of the Sanders Shaft. Widths of fluorspar underground are as much as 4.5 feet. The entire fault zone is not mineralized, for barren sheeted zones in the andesite porphyry commonly are parallel to margins of the veins.

^{5/} Analyses by Fleischer, Michael, U. S. Geol. Survey, June 1944.

The easternmost vein is the best and perhaps the only commercial deposit of fluorspar in Claim No. 1, but a branch vein about 125 feet northwest of the Sanders shaft may also be of economic value. At the surface, the easternmost vein dips about 50° ; about 20 feet down the raise from the surface the dip flattens to about 35° or 40° and then gradually steepens again, until on the 71-foot level it is about 60° . The widest section of fluorspar is found where the dip of the vein is about 35° or 40° . Neither the north nor south face of the drift on the 71-foot level contains as much fluorspar as the part of the vein near the three stopes. From surface indications, however, it is reasonable to believe that the fluorspar might widen to between 2 and 3 feet farther north along the strike of the vein.

Claim No. 2.—The vein system in the Luckie No. 2 claim is largely covered on the surface, in contrast to that in the No. 1 claim. The location of the vein is obtained only from the glory hole and shaft and by projection from underground workings.

The fault pattern and fluorspar widths are shown on plate 7. The veins, composed of fluorite and quartz, dip generally about 70° N. and have a more uniform dip than those in the Luckie No. 1 claim. The average fluorspar width that had been mined was probably between 3 and 5 feet, but no fluorspar width greater than 3 feet is exposed now. Underground, several veins of varying widths, diverging from the vein system, probably represent local irregularities in a complex fracture system. The vein shown in the underground workings, which strikes northwest from the shaft, however, may be related to another fracture system.

Much of the fluorspar in the mine is obviously later than the faults, since both the fluorspar and quartz surround and cement breccia fragments of andesite porphyry. Slickensides are common but give no evidence of the general direction of movement or amount of displacement along the faults.

Location: The Luckie #1 Mine is located in the northwest corner of section 10, Township 7 South, Range 32 East, about ~~12~~¹² miles north of ~~Duncan~~ the town of Duncan, Arizona.

Physical Features: The mine is situated in an area of rolling hills and desert vegetation. The annual rainfall in the area is ^{about} 10 inches.

The mine consists of a 6' x 4' ^{inward} shaft of 59 feet depth and a "glory hole" approximately 40 feet by 20 feet.

History: The mine was originally staked by

Ownership: (~~judge in Safford?~~) Forest Saunders -
judge in Las Lunas, New Mexico.

Geology: The mine is located in an area of fresh andesite ~~which~~^{porphyry} along whose fractures the fluorapatite has been replaced by hydrothermal solutions along with considerable silica. In this area very little alteration is present. The vein which forms the ore body strikes $54^{\circ}E$ and ~~dips to the~~ ^{dips to the} ~~at~~ ^{at} $^{\circ}$. The andesite in the "glory hole" has many quartz veins up to 1 inch

wide running through it. The fluorospar outcrops at the surface in the "glory hole" and is colorless to light green in color.

Development The mine ^{workings} consists of a 6'x4' cribbed shaft of 59' depth, a glory hole approximately 40'x20' of unknown depth, and an indeterminate amount of underground workings. The underground workings were not spanned because they were deemed unsafe. The mine is presently inactive.

One Reserve

Recommendations and Conclusions

- (A1) -Greenlee Co., Ariz.
- past producer
- underground mine

(A4) Latitude N32°50'40"
 Longitude W109°3'26"
 ref. pt. head frame
 precision of pt. location ^{mils.} 10 m
 prime meridian - Gila + Salt River
 T7S, R32E, sec. 10, NW 1/4
 survey status - unknown?
 elev. 4490' (1368 m) ~~4490'~~
 datum - sea level
 precision of elev. mea. - 10 m
 USGS 1:250,000 quad Silver City

(A5) distance of road needed 0
 distance to adequate water supply 6 mi
 " " " electrical 6 mi
 mining district Steeple Rock
 domain BLM
 drainage basin - ?
 topography hilly
 annual precipitation - 10 inches (25.4 cm)
 distribution of pptn. even
 temperature - temperate
 vegetation - desert
 soil test - undetermined
 primary land use - grazing
 working season - all year
 labor supply - undetermined

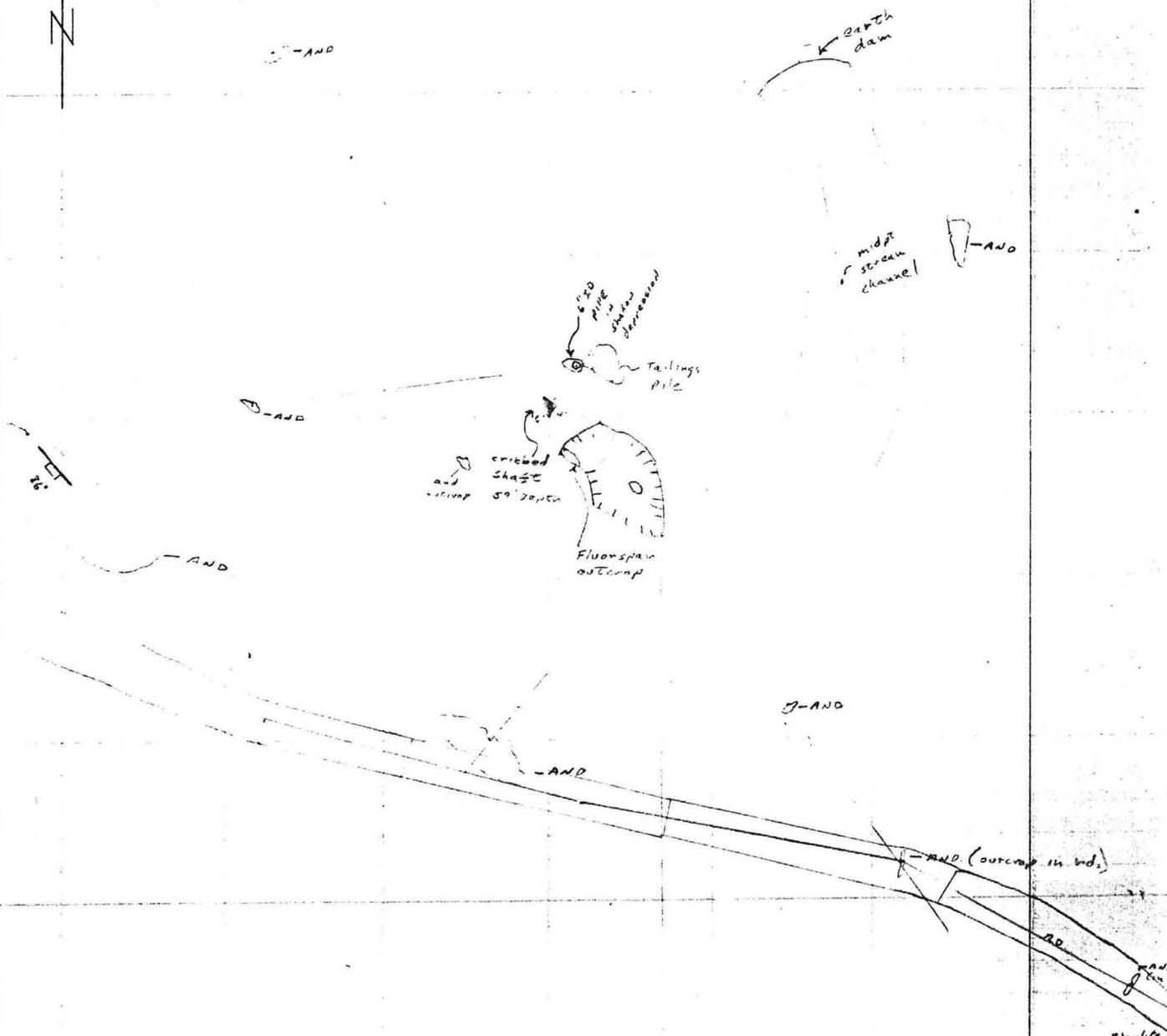
map sheet - 15 min.
 map name - York Valley

(A9) type of ore body - 01, 02, 04
 mode of origin hydrothermal
 shape ~~unknown~~ tabular
 ore controls 2, 3
 degree of alteration slight
 type of alteration silicification
 mineralized zone oxidation + dissolution -
 unknown, except vein
 strikes S40E

(A8) overall grain size 4
 pts, CaF₂

LUCKY #1 MINE
 GREENLEE CO. ARIZ.
 2/23/75

1" = 50'



NOTE: Rhyolite dike @
 southernmost outcrop on
 hilltop (off bottom of map) is ~12' wide
 outcrop widens to ~75' wide
 on northernmost extent
 (outcrops in rd.)
 @ edge of map

AND-RHY
 CONTACT
 Rhyolite
 Rhyolite

Notes - LUCKEY #1²

Owner: Forest Sanders - Judge in Las Cruces N.M.

Geology: Andesite except $\frac{1}{2}$ Rhyolite outcrop SE of mine.

COUNTRY ROCK IN THE MINE AREA IS UNALTERED ANDESITE W. SOME MINOR ~~SILICA~~^{QTZ} VEINS UP TO $\sim \frac{1}{2}$ wide

ANDESITE IN GLORY HOLE HAS MANY QTZ VEINS UP TO ~ 1 " WIDE THROUGH IT
CaF₂ OUTCROPS AT SURFACE IN GLORY HOLE

CaF₂ colorless to lt grn.

Luckie #1 & #2 mines.

The ^{three} Luckie ~~three~~ unpatented claims are in sections 3 & 10 T7S R32E Greenlee County, Az. The two ~~shafts~~ vertical shafts are shown on USGS ^{15-minute} topographic ~~sheet~~ ^{sheet} ~~15-minute~~ sheet Yook Valley, Ariz + N. Mex. From this map Luckie #1 is at an elevation of 4480ft above sea level and has a location of 109° 03' 30" ~~longitude~~ longitude, 32° 50' 36" latitude; Luckie #2 is at an elevation of 4720ft and is located at 109° 03' 12" longitude; 32° 50' 45" latitude.

The property is claimed by judge Forrest Sanders, District Court Chambers, Courthouse, Las Cruces, N. Mex. and recorded as;

- Luckie #1 Book 4 Page 60
 - " " amended Book 5 page 354.
 - Luckie #2 Book 4 page 60
 - " " amended Book 5 page 355
 - Luckie #3 Book 4 page 60
 - " " amended Book 5 page 356.
- } in the Greenlee County
Recorder's Office, Clifton Az.

The claims can be reached by driving 2 miles northwest on Az. hiway 75 from its intersection with US hiway 70 in Duncan to a gate in the hiway fence. Thence thru the gate & proceed 3/4 miles on a well maintained gravel road to Luckie #1 shaft which is within 75 ft north of the road. Luckie #2 is 1/2 mile NE of Luckie #1 but the trail to it is presently washed out in one place.
(opposite of Trace)

Access to both of these shafts was denied by MESA inspector David Polk. There is no recorded production although there has no doubt been some.

There are two Polly Ann claims recorded by Ben Billingsley, Duncan c. book 33 pages 123 + 129. Contiguous to the Polly Ann Mc Billingsley has two White claims and one ~~for~~ White fraction which are recorded in book 33 pages 130, 131 + 132 in the Greenlee County Recorder's office, Clifton, Az. ~~The property is~~

The property is located in sections 4 + 9 T 75, R 32 E, Greenlee County Az. It too is shown on 15 minute quadrangle sheet York Valley, Az + N Mex. From this map the Polly Ann main shaft is at an elevation of 4400 ft and has a location of $109^{\circ}04'24''$ longitude and $32^{\circ}50'44''$ latitude.

This mine can be reached by taking the same route from Duncan c. that to the Luckie #1 ~~but~~ and continuing about 1 mile NW of the Luckie #1. The Polly Ann main shaft is on a trail to the south of the county road about 1/8 mile.

Although it is apparent this mine had an appreciable production none is on record. It has the reputation of having had the best grade ore in the district.

Here too access to the shafts (3) was denied by MESA. These claims are presently leased by Producers Minerals Co. Ralph Morrow, manager, Safford, Az.

Dept. Min
Res.
Fluorspar

over to the Luckie Mine workings. Average grade of the ore shipped was 65% CaF_2 , with 25 to 30% SiO_2 . No metallic sulfides were noted.

LUCKIE NO. 1 and NO. 2 MINES

Located in the SE-1/4 sec. 3, and NW-1/4 sec. 10, T7S R32 E, about one airline mile east of the Polly Ann Mine. Elevation of the mine is approximately 4600. It was one of the four largest producers of the district. The ore is said to average 65% CaF_2 . This grade was attained by crushing and screening at the mine.

Development works consist of a glory hole and a vertical shaft. Fluorspar occurs as fissure veins in an andesite porphyry and rhyolite tuff. The veins, 2 to 3 ft. wide consist of mixed fluorite and coarse quartz. Exposed ore is of lower grade than mined at the Polly Ann. The fluorite is medium-grained crystalline ore and is pale green in color.

On Luckie No. 1, the vein system is exposed as low quartz ridges, containing pockets of fluorspar. Surface widths of the ore vary from 4" to 2'6", and underground, they reportedly are 4.5 ft. wide. Dip of the veins is 40° to 60° S. For Luckie No. 2, the average width of ore mined was 4 feet. Much of the fluorspar post dates faulting, with both quartz and fluorspar cementing a breccia. Slicken-slides are common, but give no evidence of the general direction or amount of displacement along the faults. The occurrence of brecciated fluorspar indicates post-mineral movement along the fault.

Average grade of the ore is about 40 to 50% CaF_2 , with silica 35 to 40%, and 5% calcite. Other minerals present are limonite, psilomelane containing tungsten and barite. The sequence of mineral formation was probably quartz,

followed by fluorite, or simultaneously with it. In addition, some of the well-developed fluorspar cuts the quartz indicating that some of the fluorite was later than the quartz. Both the psilomelane and iron oxides are supergene minerals.

DANIELS CAMP MINE

Located in the NE-1/4 sec. 5, T7S R32E, about 1.5 airline miles northwest of the Polly Ann Mine at about elevation 4400. It is one of the four largest producers in the district.

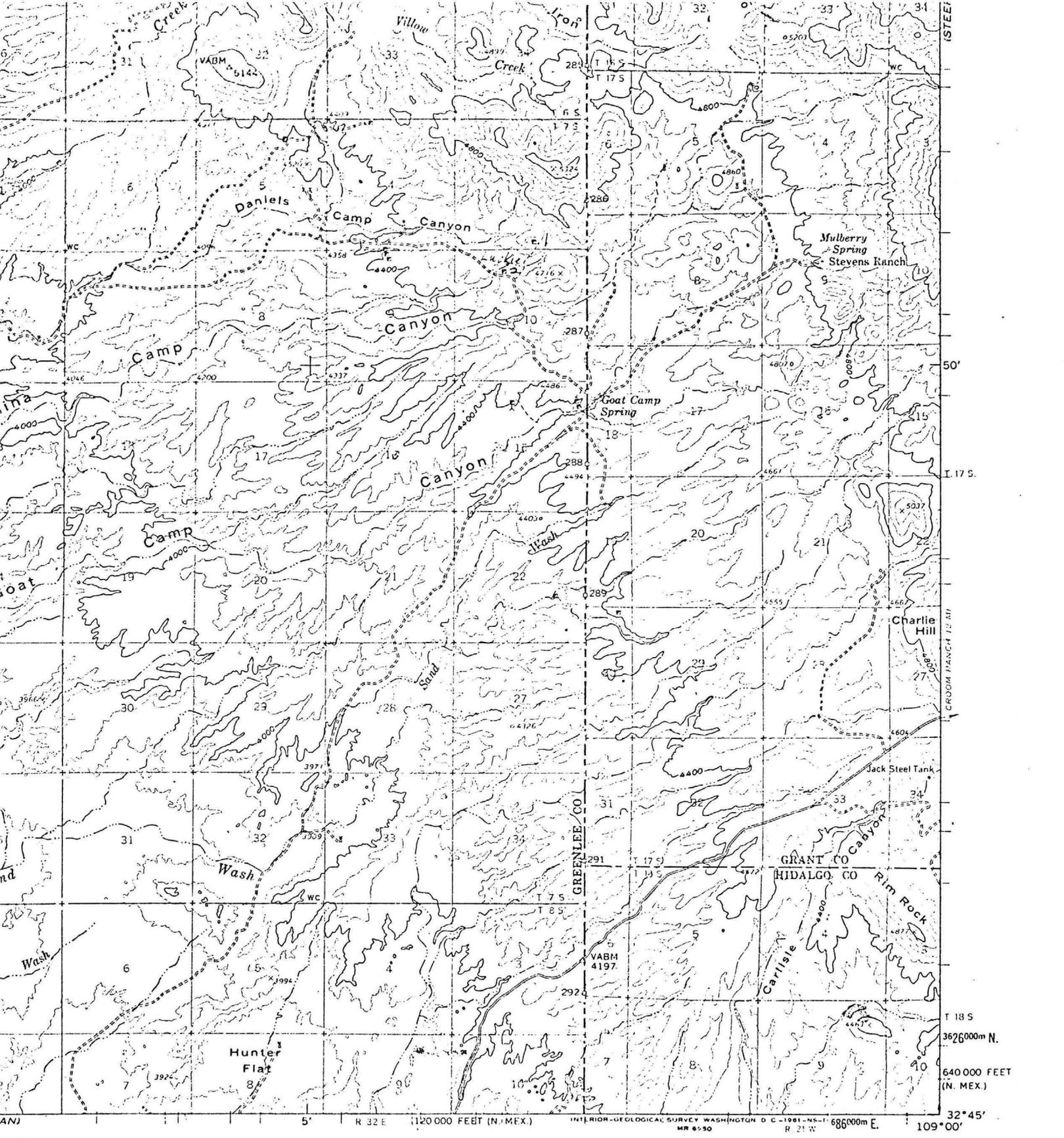
Development works consist of one shaft and a large open cut from which most of the production was obtained. In the open cut, the fluorspar occurs as deep green to blue-green stringers in fractured andesite. Nearby is a markedly porphyritic andesite dike. Fluorspar stringers mixed with barren rock extend over an 8 to 10 ft. width.

FOURTH OF JULY MINE (also known as Ellis Shaft)

Located in the NE-1/4 sec. 4, T7S R32E, about 1 mile due east of Daniels Camp Mine at elevation 4600. It is one of the four largest producers in the district.

Mining at the Fourth of July Mine started in 1937 and continued until 1942, when about 1600 tons containing 60 to 65% CaF_2 and 25 to 30% SiO_2 were shipped.

Development work consists of a 150 ft. shaft, 500 ft. of drifting and two small open cuts. Fluorspar occurs in rhyolite porphyry that is faulted and notably porphyritic. Southwest of the shaft is a hydrothermally altered rhyolite tuff. The veins contain dense milky to reddish-brown quartz, grey calcite, and colorless to green fluorspar. Secondary coatings of psilomelane are present and much of the ore is interlaced with reddish-brown iron-stained quartz veinlets. Commonly,



VAL 80 FEET
SEA LEVEL

MAP ACCURACY STANDARDS
ER 25, COLORADO OR WASHINGTON 25, D. C.
AND SYMBOLS IS AVAILABLE ON REQUEST

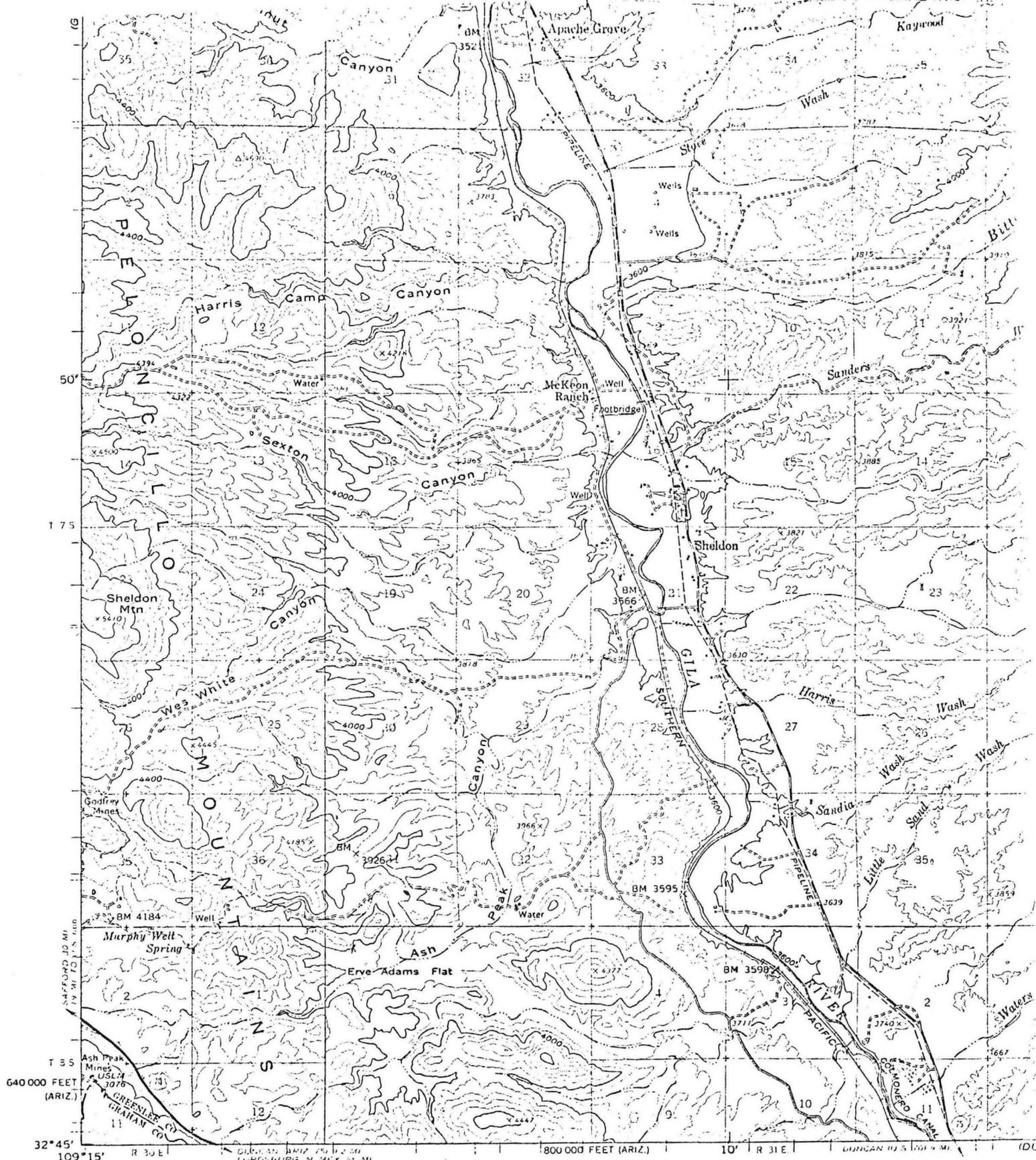


ROAD CLASSIFICATION

Heavy duty		Light duty	
Medium duty		Unimproved dirt	
	U. S. Route		State Route

YORK VALLEY, ARIZ.—N.—MEX.
N3245—W10900/15

1959



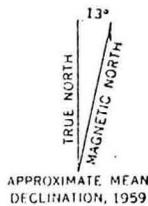
Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1953. Field check 1959

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

Dashed land lines indicate approximate locations
Land lines unsurveyed in part of T. 8 S.-R. 31 E.



CONTOUR IN
DATUM IS M

THIS MAP COMPLIES WITH NA
FOR SALE BY U. S. GEOLOGICAL SURVEY, DE
A FOLDER DESCRIBING TOPOGRAPHIC MA