CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
416 W. Congress St., Suite 100
Tucson, Arizona 85701
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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1990 PROGRESS REPORT
ON THE
STAR HILL, MAUD HILL, AND PEDIMENT PROJECTS

W. D. Riesmeyer
Santa Fe Pacific Mining, Inc.
Albuquerque

1990 PROGRESS REPORT ON THE STAR HILL, MAUD HILL, AND PEDIMENT PROJECTS

SUMMARY

In addition to the programs at Courtland and Mexican Hat, three additional areas within the Courtland-Gleeson project area were drill-tested during 1990. The three areas investigated were: 1) Star Hill, 2) Maud Hill, and 3) various parts of the southern Dragoon pediment. A total of 14,575 feet of core and reserve circulation drilling was completed in these areas.

At Star Hill, drilling was undertaken to the north, east, and south of the CRD discovered in 1989. Areas north and south of Star Hill which were thought to host possible strike extensions of the CRD were found to be dominated by Pima lithologies which contain only weak skarn mineralization. Abrigo limestone, the most favorable host for CRDs, is largely lacking in these areas and probably has been down-dropped on the east side of a major basin-range fault. Additional exploration for possible strike extensions of the Star Hill CRD, accordingly, is not recommended.

Two holes in the Railroad Pass area, southwest of Maud Hill, were drilled to investigate strong, shallow ground magnetic anomalies. These holes cut no significant mineralization, nor did the lithologies encountered explain the geophysical anomalies. It is suspected that the magnetic response may be related to cultural artifacts buried in the old railroad grade.

Four holes were drilled in the eastern pediment of the southern Dragoons. These holes investigated ground mag, aero-magnetic, IP, and/or resistivity anomalies, some of which were associated with strong air photo lineaments. All holes drilled fanglomerate sections, up to 805 feet thick, before reaching the bedrock surface. The presence of strong clay alteration and/or highly magnetic volcanic rocks explained the associated geophysical anomalies in most cases, but no significant mineralization was cut in any of the drill holes. As a result, recommendations have been made to drop most of the state prospecting permits which cover the pediment areas of the Courtland-Gleeson project land holdings.

INTRODUCTION

General. In addition to the intensive drill programs at Mexican Hat and Courtland, a number of other targets in the Courtland-Gleeson project area were drill-tested during the 1990 season. These included the Star Hill and Maud Hill areas, as well as several locations on the eastern pediment of the southern Dragoon Mountains. Drilling near Star Hill attempted to locate extensions of the CRD orebody discovered in 1989. Two geophysical targets were drill-tested at Maud Hill. Most pediment targets were geophysical anomalies, although one "wildcat" hole was drilled north of Mexican Hat based on structural

interpretation of air photo linears. A total of 14,575 feet of core and reverse circulation drilling was completed in the three areas.

The following sections outline the targets and drilling results in each of the three general areas. A table showing significant mineralized drill intercepts, and simplified graphic drill hole summaries accompany each section. Figures 1, 2, and 3 show the location of each drill hole discussed.

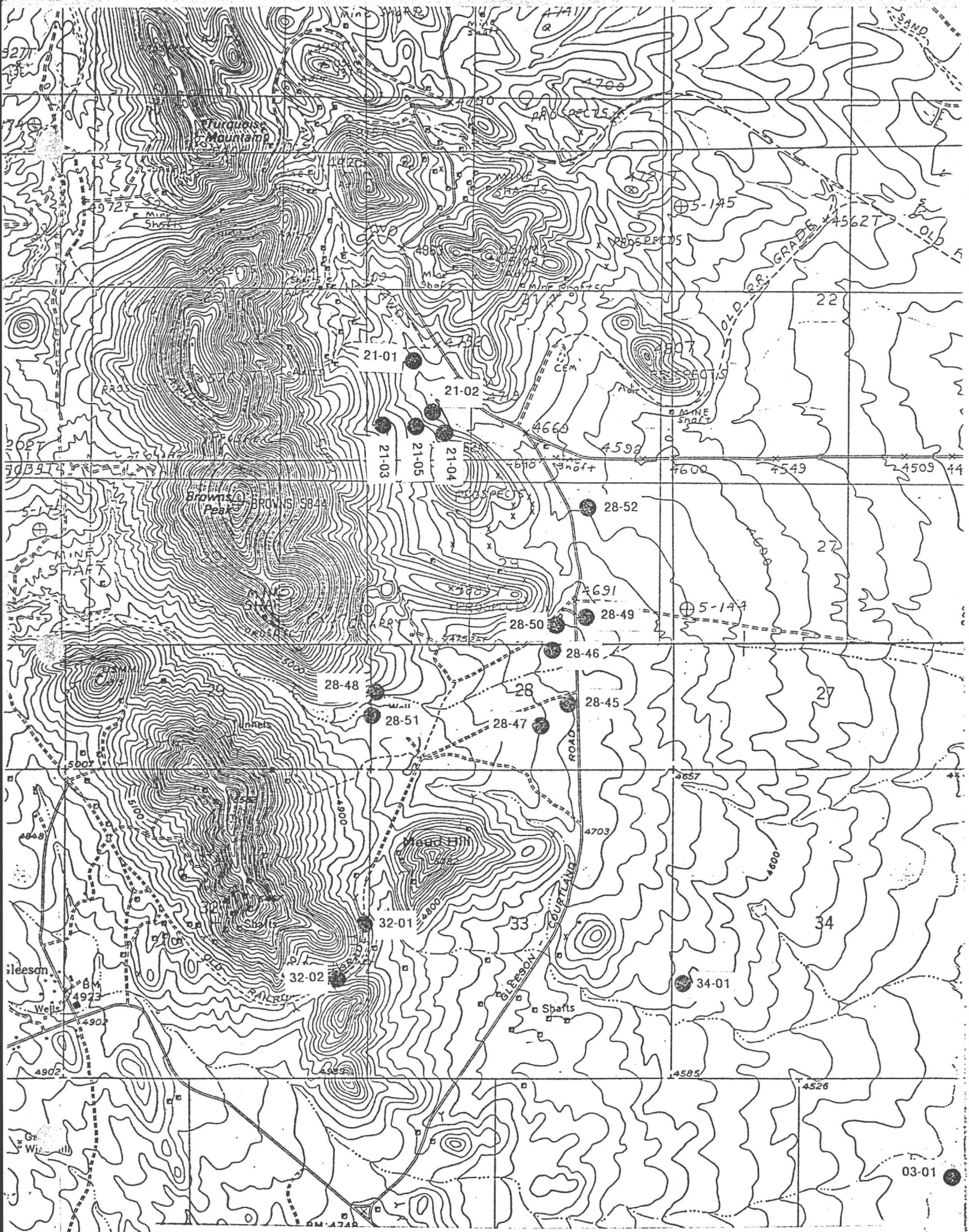

Figure 1. Location of Star Hill, Maud Hill, and Pediment Drill Holes.

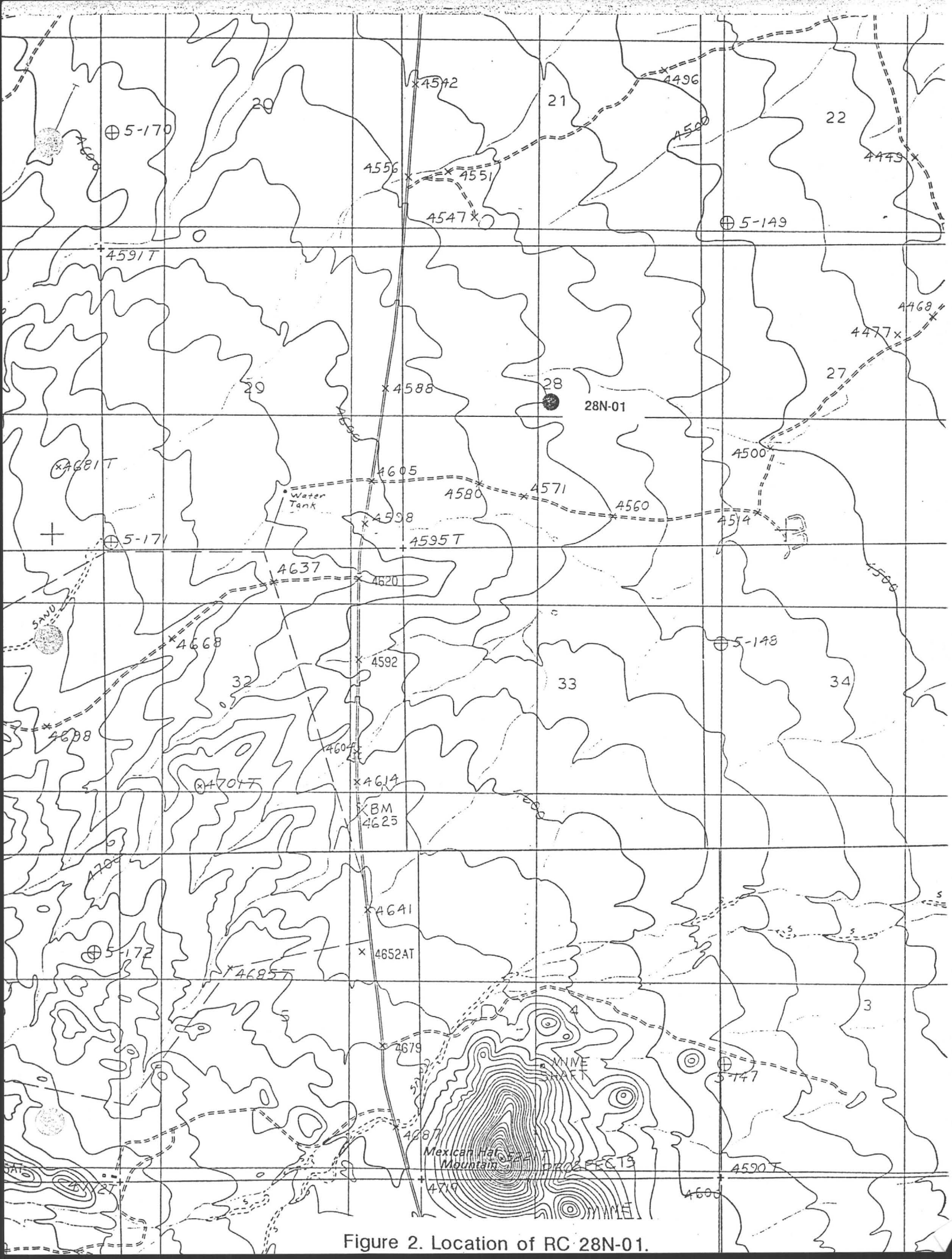

Figure 2. Location of RC 28N-01.

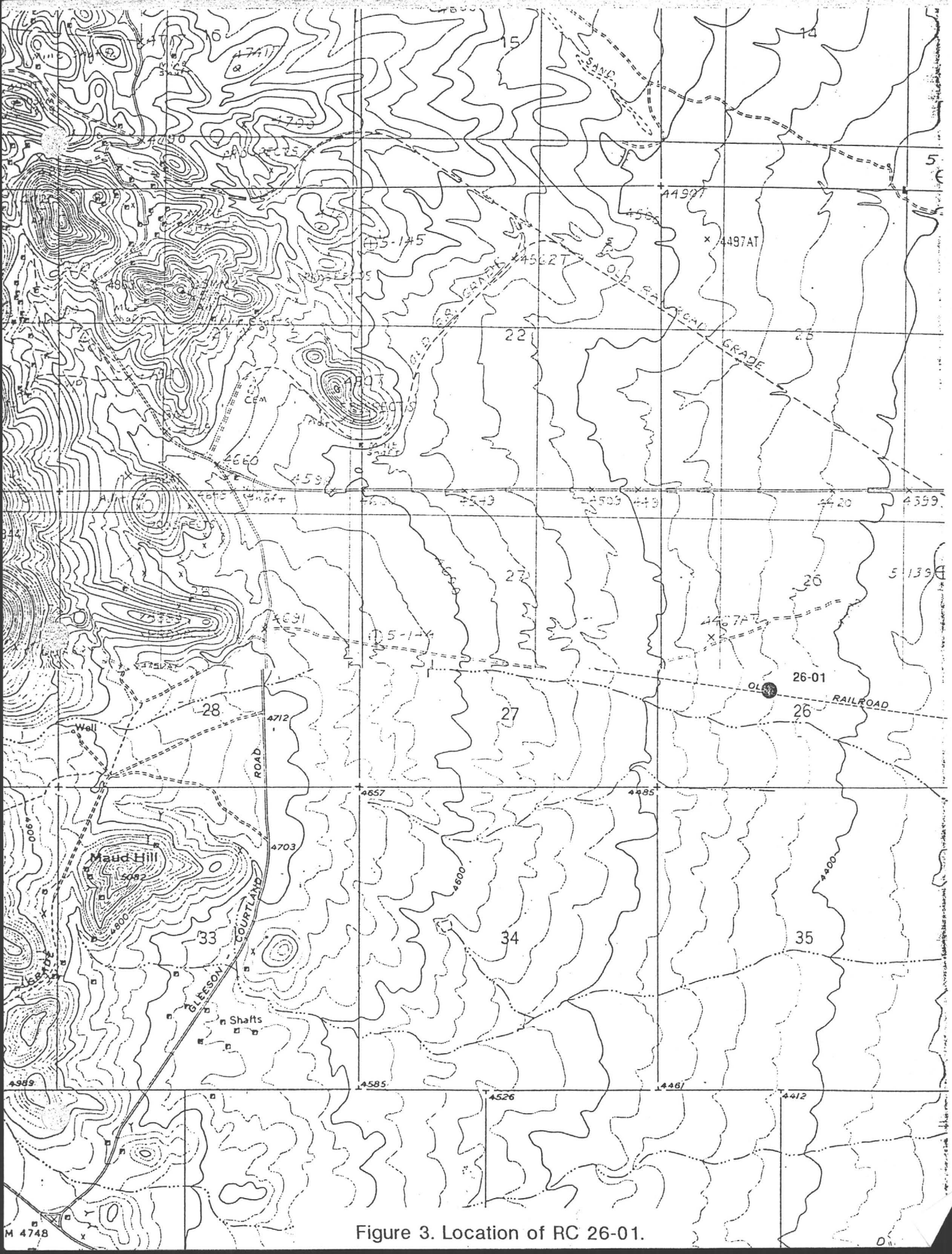

Figure 3. Location of RC 26-01.

THE STAR HILL AREA

General. Thirteen drill holes were completed in the Star Hill area in 1990: seven core holes with an aggregate footage of 4,715 feet, and six reverse circulation holes totalling 5,580 feet. The bulk of this drilling was undertaken in an attempt to locate possible extensions of the Star Hill CRD in three areas: 1) to the north of Star Hill (21-01, -02, -03, -04, and -05), 2) to the east (28-52), and 3) to the south of Solo Ridge (28-45, -46, -47, -49, and -50)(fig. 1). Two holes (28-48 and -51) were drilled in Rat Canyon in an attempt to off-set MH-4 mineralization and to explore a ground mag anomaly. Drill hole summaries for all Star Hill area holes appear in Appendix I.

Star Hill North. Five holes were drilled in this talus and alluvium-covered area. The first (21-03) was spotted on the supposition that the northwest-striking belt of mineralized Abrigo at Star Hill had been off-set to the west by an east-trending tear fault (Riesmeyer, 1989). The drill hole location was supported by the presence of a linear ground mag anomaly also apparently off-set to the west by a fault. DDH 21-03 drilled Pima lithologies; succeeding holes were thus spotted progressively to the east (and up section) in an attempt to locate the favorable Abrigo limestones. Only the last hole (21-01) was spotted far enough up section to cut the Abrigo (21-02 and -04 cut mostly intrusive rock to TD). The earlier proposed fault off-set was therefore disproved by drilling. Drilling further to the west of 21-01 was not undertaken as the Abrigo in this area is thought to have been down-dropped by a basin-range fault extending from the Mame shaft to the toe of Solo Ridge. Thus, significant widths of near-surface Abrigo probably do not exist north of Star Hill and south of 21-01.

Mineralization cut in this drilling area is summarized in Table 1. With the exception of that drilled in 21-01, the nature of the mineralization is very similar to that drilled at Courtland, i.e. disseminated to semi-massive sulfides hosted in chlorite±epidote±garnet±talc retro-skarn. Generally the skarn mineralization is zinc-rich (up to 4.39% Zn over 70.7'), but contains only shattered intervals grading better than .01 opt Au or .50% Cu (Table 1). Two thin Abrigo-hosted CRDs were cut in hole 21-01, one of which contained the assemblage specularite-magnetite-pyrite which is similar to that at Star Hill. Both CRDs, however, were zinc-rich and lacked significant amounts of gold or copper. Based on these results, it is concluded that the sought-after "mirror image" of the CRD discovered in 1989 (Riesmeyer, 1989) probably does not exist in the area north of Star Hill.

It was suggested earlier (Riesmeyer, 1989) that CRD mineralization may occur in the upper Abrigo or Martin Formation, to the east of the Star Hill deposit, in the nose of a recumbent fold above a Copper Belle sill. Drill hole 28-52 explored this potential area with negative results. Barren Star Hill and Copper Belle porphyry was cored almost to TD (see Appendix I), indicating the intrusive sill is much thicker than previously believed. Only a thin sliver of barren Martin was cut immediately above the Courtland thrust.

Drilling south of Solo Ridge tested under-explored ground lying between holes 28-07 and 28-24, both of which cut CRD mineralization. No holes had previously been drilled in the intervening 2,400 feet. Holes 28-49 and 28-50 were laid out to off-set mineralization in 28-24, 200 feet to the SSE and 300 feet to the SW, respectively. Neither hole cut CRD mineralization, although they did contain scattered, thin, low grade gold mineralization hosted by Star Hill and Copper Belle porphyries (Table 1). Hole 28-46 was spotted approximately 400 feet south of 28-50 in the center of a ground mag "bulls eye" high. The hole cut only three feet of magnetite-bearing CRD, which does not adequately explain the geophysical anomaly. One additional Abrigo-hosted CRD zone was intercepted (see Appendix I), but it returned no significant assay values. A Pima skarn zone, deeper in the hole, assayed 4.29% Zn over 25 feet. Hole 28-47 was drilled to off-set skarn and CRD mineralization cut in 28-06. Drilled 200 feet to the west, the hole intercepted only weakly disseminated sulfides in the lower Abrigo and skarned Pima siltstones (see Table 1). Drill hole 28-45 was spotted approximately 600 feet northeast of 28-47 in an attempt to move up section into the middle Abrigo. This hole cut a thick section of barren marbles tentatively assigned to either the Martin or Escabrosa. This suggests the hole was spotted on the down-dropped side of a basin-range fault - possibly the southern extension of that running along the eastern edge of the Star Hill deposit. Thus, no significant mineralization was discovered between Solo Ridge and hole 28-06. Further, the bulk of the sedimentary lithologies which were cut belong to the Pima and lower-most Abrigo which, at Courtland, proved to be very poor hosts for CRD mineralization. The lack of middle or upper Abrigo in the drilling area, along with the limiting effects of the suspected basin-range fault to the east, suggest that additional exploration in this area is unwarranted.

Two holes were drilled in Rat Canyon, southwest of the Star Hill deposit. RC 28-48 was drilled N40W at -45°, spotted to off-set shallow gold mineralization cut earlier in MH-4. Specifically the hole targeted northeast-striking structures extending from MH-4 into the drill area. The hole cut Star Hill quartz monzonite porphyry to TD and, save for a very thin zone of native copper and chalcocite, was barren. RC 28-51 targeted the same northeast-trending group of faults at their intersection with a pronounced east-west-trending ground mag anomaly. The hole cut Rat Canyon quartz monzonite to TD, except for the interval 198-283'. This interval is occupied by a thick Tertiary (?) magnetite-bearing andesite sill (Appendix I). The sill adequately explains the ground mag high. The hole contained no significant assay intervals.

Table 1.
Significant Assay Intervals

Star Hill Drill Holes

DDH 21–01	11,710N, 7980E	Vertical	Vertical		TD 974.5'		
790–794'	(4')					1.40% Zn	CRD py
888–903'	(15')					4.92% Zn	CRD spec–mag–py
DDH 21–02	10,870N, 8500E	Vertical	Vertical		TD 440'		
(no significant intervals to TD)							
DDH 21–03	10,630N, 7640E	Vertical	Vertical		TD 555'		
160–163'	(3')						
227–235'	(8')	.011 opt Au					CRD (pyrite)
255–270'	(15')	.019 opt Au					Skarn py–cpy–sl
282–290'	(8')	.018 opt Au					Skarn py–cpy–sl
301.1–314.2'	(13.1')	.038 opt Au					Skarn py–cpy–sl
276.1–290'	(13.9')			.92% Cu			Skarn py–cpy–sl
310–326.4'	(16.4')			.50% Cu			Skarn py–cpy–sl
215–285.7'	(70.7')					4.39% Zn	Skarn py–cpy–sl
301.1–307'	(5.9')					1.70% Zn	Skarn py–cpy–sl
335–345'	(10')					1.81% Zn	Skarn py–cpy–sl
DDH 21–04	10,550N, 8,750E	Vertical	Vertical		TD 710'		
(no significant intervals to TD)							
DDH 21–05	10,600N, 8200E	Vertical	Vertical		TD 920'		
(no significant intervals to TD)							
RC 28–45	5950N, 10,900E	Vertical	Vertical		TD 1000'		
(no significant intervals; spot assay only)							
DDH 28–46	6660N, 10,440E	Vertical	Vertical		TD 1280'		
705–730'	(25')					4.29% Zn	Skarn py–cpy–sl
RC 28–47	5490N, 10,210E	Vertical	Vertical		TD 800'		
470–480'	(10')					1.50% Zn	Diss py–sl in Ca
515–530'	(15')					2.32% Zn	Skarn py–sl
615–630'	(15')					1.57% Zn	Skarn py–sl
(620–625'	(5')	.040 opt Au					Skarn py)
640–660'	(20')		1.57 opt Ag				Skarn py
740–745'	(5')	.010 opt Au					Skarn py

Star Hill Drill Holes (continued)

RC 28–48 6000N, 7640E N40W -45° TD 500'
(no significant intervals to TD)

RC 28–49 7370N, 10,945E Vertical Vertical TD 1000'

285-300'	(15')			1.97% Cu			Jsqmp + cc?
315-335'	(20')	.010 opt Au	1.48 opt Ag		1.52% Pb	3.47% Zn	Jsqmp
895-905'	(10')	.011 opt Au	.50 opt Ag				Jsqmp
915-920'	(5')	.022 opt Au					Jsqmp
935-945'	(10')		.59 opt Ag				Jsqmp
960-965'	(5')	.026 opt Au	1.80 opt Ag	.36% Cu	1.12% Pb	1.77% Zn	Jsqmp

RC 28–50 7140N, 10,570E Vertical Vertical TD 1000'

30-35'	(5')	.012 opt Au					Jcmp
40-45'	(5')	.010 opt Au					Jcmp
165-170'	(5')	.010 opt Au					Jcmp
190-195'	(5')	.014 opt Au					Jcmp
200-205'	(5')	.028 opt Au					Jcmp-diss py
215-220'	(5')			1.30% Cu			Jcmp
290-305'	(15')			.86% Cu			Jcmp
380-400'	(20')					2.30% Zn	Jcmp
475-480'	(5')	.012 opt Au					Skarn py
530-535'	(5')	.010 opt Au					Diss py in Cap marb.
945-960'	(15')			.94% Cu			Diss py-cpy in Cap marb. —dolo
975-1000'	(25')					1.19% Zn	Diss sl in Cap marb.

DDH 28–51 5635N, 7200E Vertical Vertical TD 540'
(no significant assays to TD)

DDH 28–52 9150N, 11,150E Vertical Vertical TD 575'
(no significant intervals to TD)

APPENDIX I

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 03Jun90 TO 29Jun90
INTERVAL 0' TO 974.5'
FOOTAGE DRILLED 974.5'
SCALE 1"=50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 03Jun90
COMPLETED 29Jun90
DEPTH 974.5'
NOTES BY DGA/WDR

HOLE NO. 21-01
PROPERTY Star Hill - Gray Horse
LOCATION 11710N
7980E
COLLAR ELEV. 4745'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-15' Qal: colluvium, alluvium				
15'-34': Ca: Abrigo limestone		60° South	mod clay, chl	
34'-91': Jsmp: Star Hill monz. porp 50'		50° South	wk clay, mod chl, ser, wk K spar	
100' 91'-236' Jsmp: Copper Belle monz porp		str Kspar	wk ser, clay, chl str Kspar	1% diss py
200'		75° South 1' bx	wk ser, mod clay wk Kspar; wk ser, clay str Kspar; wk ser, chl, clay; mod Kspar wk ser, clay, chl	
236'-439' Ca: Abrigo silty limestone 250'			wk cal	1-3% py/sl 98/2
300'				3-5% py
				15% py
350'			wk-mod arg, cal, cp	2-4% py
400'				10-20% py/cpy 98/2

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 03 Jun 90 TO 29 Jun 90
INTERVAL 0' TO 974.5'
FOOTAGE DRILLED 974.5'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 03 Jun 90
COMPLETED 29 Jun 90
DEPTH 974.5'
NOTES BY DGA/WDR

HOLE NO. 21-01
PROPERTY Star Hill - Grey Horse
LOCATION 11710 N
7980 E
COLLAR ELEV. 1745
CONTRACTOR CAC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 236'-439': Ca silty limestone (cont.)			mod clay wk cal + ep	4-5% py/cpy 98/2
439'-578' Jsmp: Star Hill monzonite porphyry			wk ser, clay chl, mod Kspar	1% py
450'				str clay (fault) zones @ 493', 507', 510', 517'
500'				
550'		60° fault intr. cont	wk ser mod arg	2% py
578-580' Ca Abrigo ls				
580'-640' Jsmp			wk ep	5% py
600'		intr. cont.		
650' 640'-775' Jsqmp: Star Hill quartz monzonite porphyry			wk clay ser	1% py
			wk ep	
700'			mod silic	
			wk clay, ser ep, chl, mod silic	1% py
750'		55° fault		
775'-785' Ca: silty limestone			mod clay	
785'-794' CRD serp-py	CRD		str serp	50-60% py } 1.40 zn
800' 794'-805' Ca: silty limestone			mod clay	7-10% py/cpy 96/4

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 03 Jun 90 TO 29 Jun 90
INTERVAL 0' TO 974.5'
FOOTAGE DRILLED 974.5'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 03 Jun 90
COMPLETED 29 Jun 90
DEPTH 974.5
NOTES BY DGA/WDR

HOLE NO. 21-01
PROPERTY Star Hill - Gray Horse
LOCATION 11710N
7480 E
COLLAR ELEV. 9745'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
800'		65° fault		
805'-870' Jsmp: Star Hill monzonite porphyry		15° fault	wk silic	7-10% py/cpy 99/1 → 97/3
870'-888' Ca-silty limestone			mod clay chl	20% py/cpy 96/4
888'-903' CRD spec-mag-py		40° shear	str spec wk mag	20-30% py/cpy 96/4 } 4.92 gm
903'-925' Jsmp: Star Hill monz. porp		Courtland Thrust 65°	mod clay	7-10% py/cpy 96/4
925-930' Courtland thrust				
930'-974.5' Kb Bisbee arkosic ss and siltstone				
TD 974.5'				
1000'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 25 July 90 TO 31 Jul 90
INTERVAL 0' TO 440'
FOOTAGE DRILLED 440'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION -90°
STARTED July 24 1990
COMPLETED July 31 1990
DEPTH 440
NOTES BY DGA/DGA/WDR

HOLE NO. 21-02
PROPERTY Star Hill
LOCATION 10R70N
8500E
COLLAR ELEV. 4710'
CONTRACTOR CBC-JOY

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0 0-14 - Qfg				
14 - 412 Star Hill monzonite porphyry			Wk sil Mod clay	
50				BARREN
				1-6% pyrite
100			wk ser	
200				
				2-4% py
250		50° normal flt	Str clay Mod clay wk ser	
300				
350				
400				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 25Jul90 TO 31Jul90
INTERVAL 400 TO 440
FOOTAGE DRILLED 440'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 25Jul90
COMPLETED 31Jul90
DEPTH 440'
NOTES BY DGA/WDR

HOLE NO. 21-02
PROPERTY Star Hill
LOCATION 10870N
8500E
COLLAR ELEV. 4710'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400	* * *		Mod clay wk ser	8% py
412-440 - "Felsite" intrusion	F F F F F F F F F F		wk sil + clay	1% py
440 - TD				
450				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 22 Mar 90 TO 03 Apr 90
INTERVAL 0' TO 555'
FOOTAGE DRILLED 555'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 22 Mar 90
COMPLETED 03 Apr 90
DEPTH 555'
NOTES BY DGA/WDR

HOLE NO. 21-03
PROPERTY Star Hill
LOCATION 10,630N
7640E
COLLAR ELEV. 4800'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-33' Qal: slope wash; cb skree w/ large boulders				
33'-74' Jsmp: Star Hill monzonite porphyry		frac'ed @ 60°	mod silic wk chl, ser arg, tr garnet	3-12% diss py
50'				
74'-115' Jsvp: Snivler qm porphyry				
100'			wk-mod ap = silic > gar > chl	
115'-123' Endoskarn	ES ES ES			10-18% diss py
123'-148 Jsvp Snivler qm porp			incl. 3 short int of endo-skarn	
150' 148'-152' Ca argillites		bedding 40°		
152'-160' py CRD		45° fault	chl, talc, ser	30-80% py
160-163 fault zone in CRD		fault bx		
163'-227' Ca limy siltstone		bedding 70°		3-18% py > sl > cpy 97/2/1
200'		bedding 80°		
		bedding 40°		
227' - 360' Ca retrograde skarns serpentine-chlorite-talc skarns containing minor interbeds of weakly altered Ca limy siltstone and massive to semi-massive bedding controlled CRD as well as disseminated mineralization	Sk	bed 40°	str serp, mod chlor, wk to str talc, calc veining	3-10% diss py > cpy > sl 90/5/5 } .011 Au
250'	Sk	" 35°		5-8% diss py > cpy > sl 95/1/4 } .019 Au } 4.39 Zn
	Sk	" 60°		
	Sk	" 55°		5-60% diss/mass py > cpy > sl 90/5/5 } .018 Au } .92 Cu
300'	Sk	" 55°		
	Sk	" 60°		} .038 Au } 1.70 Zn } .50 Cu
	Sk	" 85°		4-60% diss/mass py > cpy > sl 90/5/5 } 1.81 Zn
	Sk	" 55°		mass. zones 321-2, 335-6, semi mass zones 325-6, 336-7, 355-6
350'	Sk	" 60°		
360'-379' Cap Pima Qtzite		" 50°		5-30% py
379'-393' Ca limey siltstone		" 55°	mod silic	
400' 393'-404' Cap Pima Qtzite		" 70°		

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 22 Mar 90 TO 03 Apr 90
INTERVAL 0' TO 555'
FOOTAGE DRILLED 555'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 22 Mar 90
COMPLETED 03 Apr 90
DEPTH 555'
NOTES BY DGA/WDR

HOLE NO. 21-03
PROPERTY Star Hill
LOCATION 10630N
7640E
COLLAR ELEV. 1800'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 404'-410' Skarn	sk sk	bedding 40°	calc-silic	
412'-424' Ca Skarn 430'	sk sk sk sk sk sk sk	" 40°	str op, wk chl, clay, ser	10-15% py tr cpy
424'-555' C_b Bolsa Quartzite 500' 550'				
TD 555' 600'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 21Aug90 TO 26Aug90
INTERVAL 0 TO 710'
FOOTAGE DRILLED 710'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 21Aug90
COMPLETED 26Aug90
DEPTH 710'
NOTES BY CBE/WDR

HOLE NO. 21-04
PROPERTY Star Hill
LOCATION 10550N
8750E
COLLAR ELEV. 4705'
CONTRACTOR CBC-JOY

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0 0-3 - Qfg			WK SIL.	
3 - STAR HILL MONZONITE PORPHYRY			WK CLAY MOD. TAR	
			WK TAR	1% PYRITE
			MOD. SIL. WK. SIL.	3-8% PYRITE/CHALCOCITE 99/01
50				6% Py/cc/CHP 98/01/01
				10% Py/cc 99/01
			MOD CLAY WK CLAY	5-6% Py/cc 99/01
100			MOD CLAY STRUG CLAY WK CLAY	
112-114 SHEAR ZONE 70° TO CORE AXIS				
STAR HILL monz. porph				
			MOD CLAY STRUG CLAY	7% Py/cc/CHP 98/01/01
SHEAR ZONE				5-6% Py/cc 99/01
175.3-179.2 STAR HILL monz porph.			MOD CLAY STRUG CLAY WK CLAY	
200				
				pyrite only
250				
300				
350				
400				

BARREN

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 21Aug 90 TO 26Aug 90
INTERVAL 0' TO 710'
FOOTAGE DRILLED 710'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 21Aug 90
COMPLETED 26Aug 90
DEPTH 710'
NOTES BY WDR/DGA

HOLE NO. 21-04
PROPERTY Star Hill
LOCATION 10550N
8750E
COLLAR ELEV. 4705'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
Star Hill monz. porph 179'-648'			wk ser, clay cal chl	5-7% py Fe ox, cpy
450				
500				
600		65° fault		10-15% py/cpy = 98/02
650 648'-674' Ca silty limestone			wk sil, ser clay	10-20% py/cpy/sl 94/2/4
674'-710' Jsmp Star Hill monzonite porphyry			wk ser, clay chl	5-8% py/cpy 99/1
700				
TD 710'				
750				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 04 Apr 90 TO _____
INTERVAL 0' TO _____
FOOTAGE DRILLED _____
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 04 Apr 90
COMPLETED _____
DEPTH _____
NOTES BY DGA/WDR

HOLE NO. 21-05
PROPERTY Star Hill
LOCATION 10,600 N
R200E
COLLAR ELEV. 4760'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0'-23' Qal: Bolsa quartzite scree				
23'-160 Jsmp: Star Hill monzonite porphyry			wk ser, arg mod ser, arg wk sil	BARREW 3-7% disc py > cc 96/2 3-8% py > cc 94/6 8% py > cc 94/6 15-40% py > cc 96/4 40% @ 116-117' 5-7% py > cc 96/2
160'-335' Jsmp: Copper Belle monzonite porphyry		intr. cont	mod sil, clay ser.	5-7% py > cc 99/1 3-6% py, tr cpy
335'-353' Ca: Abrigo silty limestone 353'-366' Jsup: Snivler sill 366'-373' Ca: Abrigo silty limestones 373'-377' Snivler 377'-436.7 Ca: Abrigo silty limestones		55° bed	mod clay ser, wk chl mod sil ser mod clay mod sil ser mod clay wk chl	5-10% py > cpy 99/1 10-20% py > cpy 99/1 1-5% py > cpy 99/1

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 04Apr90 TO _____
INTERVAL 0' TO _____
FOOTAGE DRILLED _____
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 04Apr90
COMPLETED _____
DEPTH _____
NOTES BY DGA/WDR

HOLE NO. 21-05
PROPERTY Stoo Hill
LOCATION 10,600 N
8200 E
COLLAR ELEV. 4760'
CONTRACTOR CAC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
100' 100'-136.7' Ca: Abrigo limestone		50° bedding	mod-str clay	3-8% diss py
136.7'-137.8' CRD - pyrite		50° shear		75% py
137.8'-145' Jtmp: Copper Belle		intr. cont		
150' 145'-562 Jsvp: Snivelar quartz mon. porphyry in lower part is complexly and irregularly intruded into Jtmp			mod silic	5-8% diss py
562'-589' Jtmp: Copper Belle Monz. Porphyry		intr. cont		15-50% py > cpy > ol 95/3/2 50% @ 589-592'
589'-679' Ca: Abrigo ls 600' 650'			strong clay, talc; mod clay wk silic	12-20% py > cpy = sl 98/1/1 40% @ 609-610' 40% @ 633-634'; 4-6% py > cpy 99/1
679'-681': Jasperoid		60° bed	str silic	
681'-703': Cap: Pima Quartzite 700'		50° bed		30% py > cpy 99/1 700'-702'
703'-706' Jasperoid		50° bed	str silic	
706'-756': Cap skarn chlor-ep-garnet 750'		45° bed; 40° bed	chl, ep, gr	4-8% py > cpy 99/1
756'-811' Cap: Pima quartzite silty, calcitic 800'			str chl, ep	10-12% py tr cpy, sl (?); 4-10% py > cpy 99/1

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 01 Apr 90 TO _____
INTERVAL 0' TO 920'
FOOTAGE DRILLED 920'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 01 Apr 90
COMPLETED 20 Apr 90
DEPTH 920'
NOTES BY DGA/WDR

HOLE NO. 21-05
PROPERTY Star Hill
LOCATION 10,600 N
8,200 E
COLLAR ELEV. 4760'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
800' 756'-811' Cap (cont.)				4-10% py > cpy 99/1
811'-828' Jamp: Copper Belle M.P.			mod silic clay	812'-815' 15-25% py, tr cpy 815'-828' 5% py
828'-833' Cap skarn		48° bed	cp sil gr	15-30% py > cpy 97/3
833'-903' Cap Pima quartzite silty 850'			mod sil ser wk ser	5-10% py
900'		72° fault		
903'-917' Courtland Thrust Zone			wk ser, clay calc	
917'-920' Bisbee siltstone & conglom TD 920'				
1000'				
1050'				
1100'				
1150'				
1200'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 22 Mar 90 TO _____
INTERVAL 0' TO _____
FOOTAGE DRILLED _____
SCALE 1"=50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 22 Mar 90
COMPLETED _____
DEPTH _____
NOTES BY DGA/WDR

HOLE NO. 28-45
PROPERTY Star Hill Lot 10
LOCATION ~5,950 N
~10,900 E
COLLAR ELEV. ~4710'
CONTRACTOR Tonto T4

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-185' qal: alluvial fan deposit sand, pebbles, boulders of Paleoz lm, granites, etc				SPOT ASSAY BARREN
185'-320' Jamp: Star Hill monz. porphyry			weak ser, chlor	5-10% py, tr chalcocite 5-10% py
320'- P₂(?)Dm (?) v. dark grey to black limestone; possibly Martin formation or Escabrosa Ls.			weak calcite	10-15% v. fn gr diss py

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 22 Mar 90 TO 24 Mar 90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 22 Mar 90
COMPLETED 24 Mar 90
DEPTH 1000'
NOTES BY DGA/WDR

HOLE NO. 28-45
PROPERTY Star Hill Lot 10
LOCATION
COLLAR ELEV.
CONTRACTOR Tonto T4

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' Pe (?) Dm (?) as above (cont.) 320'-520'				3-8% dissem py
				Tr sphalerite
450'				
500'				
520'-640' Pe-Dm (?) grey-green calcite marble				
550'				
600'				
640'-645' Pe-Dm dolomite marble				
650' 645'-1000' Pe-Dm ? light grey-green calcite marble interbedded with light grey marble			wk chlor	
700'				
750'				2-6% diss py
800'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 22 Mar 90 TO 24 Mar 90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 22 Mar 90
COMPLETED 24 Mar 90
DEPTH 1000'
NOTES BY DGA/WDR

HOLE NO. 28-45
PROPERTY Star Hill Lot 10
LOCATION
COLLAR ELEV.
CONTRACTOR Tonto T41

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
600' 645'-1000' $P_e \cdot D_m$? Alternating light grey and light green calcite marbles (cont.)			wk chl.	2-6% diss py
850'				
900'				
1000'				
TD 1000'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 21 Apr 90 TO 09 May 90
INTERVAL 0' TO 1280'
FOOTAGE DRILLED 1280'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 21 Apr 90
COMPLETED 09 May 90
DEPTH 1280'
NOTES BY DGA/WDR

HOLE NO. 28-46
PROPERTY Star Hill
LOCATION 6660 N
10440 E
COLLAR ELEV. 4715'
CONTRACTOR Tonto / CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-105' Qal: alluvium -50' -100'				
105'-175' Jsmp: Star Hill Monzonite porphyry			wk-mod clay	
175'-177' clay gouge - Ca protolith		"low angle" fault	str clay	mod. neadisite (Cu + Mn oxides)
177'-180' Ca: Abrigo dolomitic marble		gouge		
180'-195 Ca: silty lm		60° bed		
-200' 195'-214' Ca: limey siltstone			wk clay	190'-197' 40% py
214'-225' Jsmp: Copper Belle				
225'-241' Ca: silty limestone		high angle faults		3-5% py > cpy 99/1 231-234 5-20% magnetite
241'-248' Jsmp				
-250 248'-267' Ca: silty limestone				
267'-290' Ca sandy silty limestone		50° bedding		
290'-295' Jsmp				
-300 295'-321' Ca: silty limestone		40° bedding	str chlor	2% py/cpy/sl 55/5/40
321'-332' CRD + jasperoid	CRD		str silic	← 1-2% py/cpy 98/2 ← 25-40% py/cpy 90/4
332-338' jasperoid + honeycomb silica			str silic	← 10% py/cpy 90/4
338'-362' Ca: Abrigo ls -350'				← 55% py/cpy 90/4
362'-420' Ca: Abrigo silty ls -400'				← 1-2% py 2-4% py/cpy/sl 80/10/10

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 21Apr90 TO 09May90
INTERVAL 0' TO 1280'
FOOTAGE DRILLED 1280'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 21 Apr 90
COMPLETED 09May 90
DEPTH 1280'
NOTES BY DGA/WDR

HOLE NO. 28-46
PROPERTY Star Hill
LOCATION 6660N
10440E
COLLAR ELEV. 4715'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 362'-420' Ca: Abrigo silty ls		60° shear		2-4% py/cpy/sl 80/10/10
420'-431' Ca: ls		75° shear		
431'-442' Ca: silty ls				
442-446' Ca: calcite marble				
450' 446'-509 Ca: Abrigo silty ls 500'			wk-mod arg.	2-4% py
509'-524' Jemp: Copper Belle		70° shear 80° shear		
524'-542' Ca: silty limestone		40° bed		
542'-560' Ca: calcite marble				
560'-590' Ca: silty limestone		60° fault		
600' 590'-619' Ca: Abrigo silty ls			wk clay ser	2% py/cpy 97/3; 2-10% py/cpy/sl 88/2/10
619'-641' Ca: Abrigo sandy ls			wk-mod silic	6% py/cpy/sl 89/1/10
641'-644' Cavern				
650' 644'-686' Ca: silty ls		weak shattering 660'-681'	mod sil	
686'-709' Cap: Abrigo-Pima: interbedded silty ls & qtzite 700'				10-15% py/cpy 98/2; 20% py/cpy 40/60; 60% py/cpy 90/10
709-710' ERD pyrite; 710'-750 Cap: interbedded ls-qtzite minor hornfels 750'			wk sil	10-15% py/cpy 90/10 - 95/5 } 4.29 gn
750'-904' Jemp: Copper Belle Monzonite Porphyry 800'			wk ser, arg tr Kspar mod sil	5% py/cpy 99/1

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 21 Apr 90 TO 09 May 90
INTERVAL 0' TO 1280'
FOOTAGE DRILLED 1280'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 21 Apr 90
COMPLETED 09 May 90
DEPTH 1280'
NOTES BY DGA/WDR

HOLE NO. 28-46
PROPERTY Star Hill
LOCATION 6660 N
10 440 E
COLLAR ELEV. 4715'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
800' 750'-904' Jemp (cont.) 850' 900'		intr. cont?	wk sil, ser arg	5% py/cpy 99/1
904'-950' Cap: Abrigo-Pima quartzite w/ interbeds of siltsto		55° bed 60° bed intr cont?	wk arg chl	10% py/sl 90/1 1% py/sl 90/1
950'-998' White "Felsite" porphyry		45° shear	wk sil	2% py
1000' 998'-1030' Cap: Pima quartzite		50° bed	wk ep, chl	5-8% py/cpy/sl 80/2/8
1030'-1170' White "Felsite" porphyry 1050' 1100' 1150'		thin bx	wk sil, ser, arg	2% py
1170'-1205' Cap: Pima silty qtzite 1200'		50° bed	wk sil, arg	8-30% diss & semi-mass py

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 21 Apr 90 TO 09 May 90
INTERVAL 0' TO 1280'
FOOTAGE DRILLED 1280'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 21 Apr 90
COMPLETED 09 May 90
DEPTH 1280'
NOTES BY DGA/WDR

HOLE NO. 28-46
PROPERTY Star Hill
LOCATION 6660N
10940E
COLLAR ELEV. 4715'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
1200' 1170'-1205' Cap (cont)			wk arg	8-30% py
1205'-1243' Jsmp: Star Hill (?) monzonite porphyry		cont. is bx intr cont	wk sil, ser arg	4% py
1250' 1243'-1255' cap qtzite		70° thrust		8% py/sl 90/10
1255'-1273' Courtland thrust zone				
1273'-1280': Kb: maroon siltstone				
TD 1280'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 01Jun90 TO 04Jun90
INTERVAL 0' TO 800'
FOOTAGE DRILLED 800'
SCALE 1"=50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 01Jun90
COMPLETED 04Jun90
DEPTH 800'
NOTES BY DGA/WDR

HOLE NO. 28-17
PROPERTY Star Hill
LOCATION ~5490N
~10210E
COLLAR ELEV. ~4735'
CONTRACTOR Foote

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0 0'-185' Qal: alluvial fan gravels 50' 100'				
185'-210' Dm(?) sandy limestone 200'				
210'-245' Ca: calcite marble				
250' 245'-435' Jsmp: Star Hill monzonite porphyry 300' 350' 400'			wk arg alt	3-8% py

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 01Jun90 TO 04Jun90
INTERVAL 0' TO 800'
FOOTAGE DRILLED 800'
SCALE 1"=50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 01Jun90
COMPLETED 04Jun90
DEPTH 800'
NOTES BY DGA/WOR

HOLE NO. 28-47
PROPERTY Star Hill
LOCATION -5490N
-10210E
COLLAR ELEV. - 4735'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 245'-435' Jomp (cont.)				
435'-515' Ca: marble and silty limestone (450', 500')				2-5% diss py } 1.50 gm
515'-535' Ca: limey siltstone				10-15% py/sl 90/10 } 2.32 gm
535'-595' "Felsite"				1% diss py; 590'-5' 20% py
600' 595'-610' Ca: skarn			mod-pi wk chl sil	15-30% py/cpy/sl 80/3/17
610'-750' Cap: Abrigo-Pima siltstone & quartzite (650', 700', 750')				} .04 Au } 1.57 gm; } 1.57 Ag; 1-5% py; } .01 Au
750'-800' Cb: Bolsa quartzite (800')				
TD 800'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 19Jun90 TO 20Jun90
INTERVAL 0' TO 500'
FOOTAGE DRILLED 500'
SCALE 1" = 50'

DIRECTION N40W
INCLINATION -45°
STARTED 19Jun90
COMPLETED 20Jun90
DEPTH 500'
NOTES BY CBE/WOR

HOLE NO. 28-48
PROPERTY Star Hill (Flux Pit)
LOCATION 6000N
7640E
COLLAR ELEV. 4795
CONTRACTOR Toots

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0 0'-25' Qal: alluvium				
25'-500' Jqmp: Star Hill quartz monzonite porphyry				BARREN
50				
100				
150				
200				
250				1% native copper/chalcocite
300				
500'		break in scale		
TD 500'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 16 Jun 90 TO 19 Jun 90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 16 Jun 90
COMPLETED 19 Jun 90
DEPTH 1000'
NOTES BY CBE/WDR

HOLE NO. 28-49
PROPERTY Star Hill
LOCATION 7370N
10945E
COLLAR ELEV. 4700'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-20' Qal: alluvium				
20'-100' Jsqmp: Star Hill quartz monzonite porphyry strongly oxidized & leached			mod hem; mod arg; mod hem	
100'-465' Jsqmp: Star Hill quartz monzonite porphyry			mod arg; mod arg; mod arg; mod arg; mod arg; mod arg; mod arg; mod sil; mod arg; str sil; mod sil	1.97 Cu; .01 Au; 1.48 Ag; 1.52 Pb; 3.49 Zn

50'
100'
150'
200'
250'
300'
350'
400'

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 16 Jun 90 TO 19 Jun 90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 16 Jun 90
COMPLETED 19 Jun 90
DEPTH 1000'
NOTES BY CBE/WDR

HOLE NO. 28-49
PROPERTY Star Hill
LOCATION 7370 N
10945 E
COLLAR ELEV. 4700'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 100'-465' Jsqmp: Star Hill qtz monz. porp. (cont.) 450'				
465'-490' Ca: Abrigo calcite marble				
600' 490'-500' Jcmp: Copper Belle				
500'-580' Ca: marble 550'				
580'-600' Ca: limestone 600'				
600'-620' Ca: marble				
620'-670' Ca: dolomite 650'				
670'-700' Ca: calcite marble 700'				
700'-710' Ca dolomite				
710'-745' Ca calcite marble			mod clay	
750' 745'-750' Ca limestone				
750'-760' Ca dolomite				
0'-810' Ca: limestone 800'			str clay	

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 16 Jun 90 TO 19 Jun 90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 16 Jun 90
COMPLETED 19 Jun 90
DEPTH 1000'
NOTES BY CBE/WDR

HOLE NO. 28-49
PROPERTY Star Hill
LOCATION 7370N
10945E
COLLAR ELEV. 4700'
CONTRACTOR Foote

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
800 760'-810' Ca: ls (cont.)				
810'-820' Ca: dolomite				
820'-845' Ca: limestone			mod clay	
850' 845'-850' Ca marble				
850'-1000' Jsqmp Star Hill qtz monz. porp.				15% py/cpy/sl 98/1/1
900'			mod clay	.011 Au .5 Ag; .022 Au; .59 Ag
950'				.026 Au 1.8 Ag .36 Cu 1.12 Pb 1.77 Zn
1000' TD 1000'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 03Jun90 TO _____
INTERVAL 0' TO _____
FOOTAGE DRILLED _____
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 03Jun90
COMPLETED _____
DEPTH _____
NOTES BY RBE/WDR

HOLE NO. 28-50
PROPERTY Star Hill
LOCATION 7140N
10570E
COLLAR ELEV. 4700'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-20' Qal: alluvium				
20'-375' Jtmp (?) Copper Belle Monzonite porphyry (may be a phase of Jtmp) 50' 100' 150' 200' 250' 300' 350'			mod sericitic	3.012 Au 3.010 Au 3.01 Au 3.014 Au 10% diss py 3.028 Au 31.30 Cu 3.86 Cu
375'-380' White clay		fault ?	str clay	
380'-425' Jtmp (?) Copper Belle (?) 400'			mod clay	2.10 Au

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 03Jun90 TO 14Jun90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 03Jun90
COMPLETED 14Jun90
DEPTH 1000'
NOTES BY CBE/WDR

HOLE NO. 28-5Ø
PROPERTY Star Hill
LOCATION 7140N
10570E
COLLAR ELEV. 4700'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 380'-425' Jemp (cont.)				
425'-455' Ca: Abrigo marble			mod clay	
450'				
455'-500' Cap (?) Pima siltstone				3.012 Au
500'				
500'-540' Cap (?) calcite marble				3.010 Au
530' 540'-550' Cap (?) limestone				
550'-665' Cap (?) calcite marble				
600'				
650'				
665'-705' Cap (?) limestone				
700'				
705'-755' Cap (?) marble				
750'				
755'-760' Cap (?) limestone				
'-800' Cap (?) marble				
800'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 03Jun90 TO 14Jun90
INTERVAL 0' TO 1000'
FOOTAGE DRILLED 1000'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 03Jun90
COMPLETED 14Jun90
DEPTH 1000'
NOTES BY CAE/WDR

HOLE NO. 28-50
PROPERTY Star Hill
LOCATION 7140N
10570E
COLLAR ELEV. 4700'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
800' 800'-810' Cap(?) dolomite				
810'-815' Cap(?) limestone				
815'-830' Cap(?) dolomite				
830'-840' Cap(?) limestone				
850' 840'-860' Cap(?) dolomite				
860'-880' Cap(?) calcite marble				
880'-925' Cap(?) dolomite 900'				
925'-945' Cap(?) calcite marble				
950' 945'-955' Cap(?) dolomite			mod clay	12% py/cpy 99/1 } .94 cu
955'-1000' Cap(?) marble 1000'				} 1.19 cu

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 30 Jun 90 TO 11 Jul 90
INTERVAL 0' TO 540'
FOOTAGE DRILLED 540'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 30 Jun 90
COMPLETED 11 Jul 90
DEPTH 540'
NOTES BY DGA/WOR

HOLE NO. 28-51
PROPERTY Star Hill (Rat Cyn)
LOCATION 5635N
7200E
COLLAR ELEV. 4830'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-10' qal: alluvium				
10'-198' Jrqm: Rat Canyon quartz monzonite	R R		mod clay	3-8% py
50'	R R		wk ser, clay, sil	BARREN
100'	R R			
	R R			6% py/lac 90/10
150'	R R	40° minor shear		
200' 198'-283' Ta: Tertiary (?) andesite	A V A		mod chl, wk sil	
250'	A V A	45° intrusive breccia		
283'-540' Jrqm: Rat Canyon quartz monzonite	R R			
300'	R R		wk ser, sil, clay	
350'	R R			
400'	R R			

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 30Jun90 TO 11Jul90
INTERVAL 0' TO 540'
FOOTAGE DRILLED 540'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 30Jun90
COMPLETED 11Jul90
DEPTH 540'
NOTES BY DGA/WDR

HOLE NO. 28-51
PROPERTY Star Hill (Red Cyn)
LOCATION 5L35N
7200E
COLLAR ELEV. 4830'
CONTRACTOR CRC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
100' 263'-540' J_{rqm}: Red Canyon quartz monzonite 150' 500'	* * * * o o * * * * R R * * * * o o * * * * R R * * * * o o * * * * R R * * * * o o * * * * R R * * * * o o *		wk ser, sil, clay mod sil, wk ser, clay, chl	5-8% py
540' TD 540'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 12 Jul 90 TO 17 Jul 90
INTERVAL 0' TO 575'
FOOTAGE DRILLED 575'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 12 Jul 90
COMPLETED 17 Jul 90
DEPTH 575'
NOTES BY DGA/WDR

HOLE NO. 28-52
PROPERTY Star Hill
LOCATION 9,150 N
11,150 E
COLLAR ELEV. 4640'
CONTRACTOR CBC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-40' Qal: alluvium				
40'-302' Jsmp: Star Hill monzonite porphyry			mod clay	BARREN
			wk-mod clay, ser	5-7% py/cc 98/2
			mod clay ser	5-7% py/cc 99/1
			wk clay ser	5% py tr sl @ 177'
				5-20% py/cpy 237.8' 20% py/cpy 96/4 238'-54' 5-8% py/cpy 99/1 254'-57' 7-20% py/cpy 95/5 257'-67' 8% py/cpy 97/3 267'-302' 5-8% py/cpy 98/2
	67° shear			
302'-467' Jsmp: Copper Belle monz. porp			mod Kaper, wk ser, chl	5% py tr sl, gl, cpy 323-4
			mod Kaper chl, sil, clay	tr sl, gl, cpy 365-6' tr sl, gl, cpy 390-1'

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 12Jul90 TO 17Jul90
INTERVAL 0' TO 575'
FOOTAGE DRILLED 575'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 12Jul90
COMPLETED 17Jul90
DEPTH 575'
NOTES BY DGA/WDR

HOLE NO. 28-52
PROPERTY Star Hill
LOCATION 9150N
11150E
COLLAR ELEV. 4640'
CONTRACTOR CDC

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
400' 302'-467' Jump (cont.)			wk sil, ser clay	5-7% py; 436' 20% py/cp/sl 80/15/5
450'		60°; 50°		
467'-483' "Felsite"			mod-wk clay	1-4% py
483'-487' fault zone			clay	
487'-496 Om(?) gray calcite marble		20°-60° fault		
500' 496-505' Courtland Thrust			mod clay	
505'-575' Kb Bisbee volcanics			wk clay	
550'				
575' TD				
600'				
650'				
700'				
750'				
800'				

THE MAUD HILL AREA

Two reverse circulation holes, totalling 730 feet, were drilled in the Railroad Pass area, southwest of Maud Hill (fig. 1) to evaluate geophysical anomalies. A ground magnetics survey over the area revealed two sharp "bulls eye" highs which Maciolek attributed to very shallow sources. Drill holes RC 32-01 and 32-02 were spotted on the centers of the respective highs. RC 32-01 drilled moderately chloritized Copper Belle monzonite porphyry from surface to TD and yielded but one 5 foot intercept of .01 opt Au. RC 32-02 similarly cut Copper Belle to TD except for a 40 foot section of barren Escabrosa limestone between 50 and 90 feet (Appendix II). Three 5 foot intercepts of weak gold mineralization were cut in the Copper Belle (Table 2). The nature of the gold mineralization is unknown, but it may resemble thin gold-bearing quartz stringers exposed in near-by prospect pits.

The drill holes offered no explanation for the two strong ground mag anomalies. Cuttings from several intervals were panned and yielded only minute amounts of magnetite - no more than that occurring in unresponsive Copper Belle elsewhere in the Courtland-Gleeson project area. It is suspected that the anomalies may be cultural - both are centered close to the old railroad grade which may contain buried rails, spikes and other debris. While a search revealed no debris on the surface, such material buried in the grade ballast might account for the sharp, near surface magnetic response.

Table 2.
Significant Assay Intervals

Maud Hill Drill Holes

RC 32-01	1,925N, 7,260E	Vertical	Vertical	TD 305'	
245-250'	(5')	.010 opt Au			Jcmp
RC 32-02	1,100N, 6,700E	Vertical	Vertical	TD 425'	
95-100'	(5')	.010 opt Au			Jcmp
160-165'	(5')	.024 opt Au			Jcmp mod chl
190-195'	(5')	.016 opt Au			Jcmp

APPENDIX 11

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 02Jun90 TO 03Jun90
INTERVAL 0' TO 305'
FOOTAGE DRILLED 305'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 02Jun90
COMPLETED 03Jun90
DEPTH 305'
NOTES BY CBE/WDR

HOLE NO. 32-01
PROPERTY Mound Hill - RR Pass
LOCATION 1925N
7260E
COLLAR ELEV. 4855'
CONTRACTOR Tacto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-10' Railroad grade fill & ballast				
10'-305' Temp: Copper Belle Monzonite Porphyry			mod jar; mod clay; mod chl; mod jar; mod chl; mod chl; mod chl	
50' 100' 200' 250' 300'				
TD 305'				
350' 400'				

SANTA FE MINING INC.
WEEKLY DRILLING PROGRESS REPORT

DATE 31 May 90 TO 01 Jun 90
INTERVAL 0' TO 425'
FOOTAGE DRILLED 425'
SCALE 1" = 50'

DIRECTION Vertical
INCLINATION Vertical
STARTED 31 May 90
COMPLETED 01 Jun 90
DEPTH 425'
NOTES BY CBE/WOR

HOLE NO. 32-02
PROPERTY Mound Hill - RR Pass
LOCATION 1100N
6700E
COLLAR ELEV. ~4880'
CONTRACTOR Tonto

GEOLOGY	LOG	STRUCT.	ALTN.	MINERALIZATION
0' 0'-10' Qal: Railroad grade fill				
10'-50' Jemp: Copper Belle Monzonite Porphyry			mod chl	
50'				
50'-90' Mc: Escabrosa limestone				
100' 90'-425' Jemp: Copper Belle Monzonite porphyry				
150'			mod chl	
			mod chl	
200'				
250'				
300'			mod chlor	
350'				
400'				

SOUTHERN DRAGOON MOUNTAINS PEDIMENT AREA

Four reverse circulation holes, totalling 3550 feet, were drilled in the eastern pediment of the southern Dragoon Mountains on lands controlled by Santa Fe through state prospecting permits. The first (28N-01) is located in Sec. 28, T18S, R25E, north of Mexican Hat (fig. 2), the second (26-01) in Sec. 26, T19S, R25E (fig. 3), the third (34-01) in Sec. 34, T19S, R25E (fig. 1) and the fourth (03-01) in Sec. 3, T20S, R25E (fig. 1). Most locations were selected based on the results of earlier geophysical surveys (mag and/or IP); in some cases locations were further refined based on the locations of air photo lineaments or their intersections. Bedrock at all sites is deeply buried by fanglomerate and alluvium. As shown in Table 3, no mineralized intervals were cut by any of the holes. Drill hole summaries appear in Appendix III.

Drill hole 28N-01 is located approximately two miles north of Mexican Hat, and was spotted on a strong air photo lineament extending due north from the center of Placer's discovery area. Site selection had no supporting geophysical data. The hole drilled 415 feet of fanglomerate before striking bedrock which is here composed of intermediate volcanics with interbedded mudstone and siltstone. The volcanics are more mafic than those exposed on Mexican Hat and are tentatively assigned to the Bisbee Formation. They are weakly clay-altered, but contain no significant mineralization.

RC 26-01 was drilled on the old railroad grade, near the site of previously drilled 26-02, to investigate a coincident mag-IP-resistivity anomaly. After passing through 805 feet of fanglomerate, the hole cut a ten foot thick basalt flow which contains abundant magnetite in amounts sufficient to explain the magnetic anomaly. Deeper in the hole a series of intermediate volcanics was cut. The lower-most is moderately to strongly clay-altered and may be the source of the IP anomaly and resistivity low. Assays show the hole cut no significant mineralization.

Drill hole 34-01 was collared in the center of a magnetic high which had been outlined by a ground magnetics survey. A strong N-S air photo lineament cuts the anomaly very close to the drill hole collar. The hole intersected the bedrock surface at 320 feet. From this depth to TD at 840 feet, the hole cut a complex jumble of Horquilla (?) limestone and carbonates, clastics, and volcanics of probable Bisbee affiliation (see Appendix III). The complex juxtaposition of diverse lithologies is due, in part, to the Courtland thrust which was cut at 580 feet, and, in part, to later, complex basin-range faulting. Assays show the hole cut no significant mineralization (but did cut numerous caverns between 500 and 540 feet). The magnetite content of the lithologies appearing in the hole was not sufficient to explain the targeted magnetic anomaly.

The final pediment hole, RC 03-01, was drilled in the center of a strong aero-magnetic anomaly where it is cut by a very strong ENE-trending lineament. The hole cut bedrock at 495 feet and drilled Bisbee volcanics and clastic sediments to a TD of 940 feet. The

magnetite content of both the volcanics and sediments is thought to be high enough to account for the targeted aero-magnetic high. No mineralized intervals were cut by the drill hole.

Table 3.
Significant Assay Intervals

Pediment Drill Holes

RC 03-01 Sec. 3, T20S, R25E Vertical Vertical TD 940'
(no significant intervals to TD)

RC 26-01 Sec. 26, T19S, R25E Vertical Vertical TD 960'
(no significant intervals to TD)

RC 28N-01 Sec. 28, T18S, R25E Vertical Vertical TD 810'
(no significant intervals to TD)

RC 34-01 Sec. 34, T19S, R25E Vertical Vertical TD 840'
(no significant intervals to TD)

REFERENCES CITED

Riesmeyer, W. D., 1989, Geology of the Star Hill carbonate replacement deposit: annual progress report on the Courtland-Gleeson project, Cochise County, Arizona: rpt to Santa Fe Pacific Mining, Inc., 60p.