60001778

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Dozer Hill Area, Drill Plan Map and Drill Logs, Pershing County, Nevada
AUTHOR	Mueller, J.; Kenner K
DATE OF DOC(S)	1991-1994
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co.; Dozer Hill; South Zone; North Zone
COMMODITY If not obvious	gold; silver
NOTES	Drill hole located map; Drill logs for holes RL-170c, RL-193c; RL-196c, RL-198c geology; assay 23p 1 large oversized plate

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

SS: DP 7/29/08
Initials Date
DB:
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

6000 1778 4010

DEPTH (ft)	RECOVER	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.	DESCRIPTION	ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
500	97	0-10°		2-3% diss to VN py + marcasite		Wbl WX m celad	448.4 - 716 LBT (continued)	488-493					
							476-501 2 precious stages of veining: 1) fine stk wk qtz, py veins 2) Kaolin, py, marca, qtz ± CaCO3 ~ 6-50 VNS/ft most precious sub ∥ to C.A w/ VNS to 90° - C.A	493-498					
		+ to 90° VNS						498-503					
510	100	40° qtz clay marcasite ± py VNS		1-2% diss + VN py + marcasite		M bl M ≈ W-M celad	501-528.5 Tectonically brecciated LBT w/ fine gr. buff matrix, large clasts ± 50 mm, fine clasts w/ in matrix average ~ 2-10 mm lithics are bl white w/ local hint green matrix is buff to flesh colored averaging ± 4 VNS/ft composed of marcasite-py stockwork & secondary druzy qtz lined vuggy VNS w/ clay + marcasite fill orientation ~ 0-40° on the average	503-508					
	101			2%+ VN marcasite + py + diss py				508-513					
520	100							513-518					
								518-523					
								523-528					
530	99			1-2% diss. + VN py + VN marcasite fill		↑ bl ≈	528.5 - 555.8 FGT w/ slightly mottled to varigated texture w/ blue green clay filling interstices of rock fabric giving characteristic texture wk ↑ bl + argillic alt ~ 3-5 VNS/ft fine VNS of druzy qtz lining w/ py/marcas fill w/ local clay, orientation varies from 0-40° & elsewhere are 50°-70° to C.A	528-533					
								533-538					
540								538-543					
	102						558.3 - 564.6 SPECKLED - VESICULAR TUFF vesicles are filled w/ amber brown qtz - locally druzy to blue green clay ↑ overall bl + argillic clay alt local clay envelope w/ v. fine powdery sulfides m-s veining w/ strong kaolinite - marcasite fill + fine qtz py VNS. local "duck butter" alt kaolinite in fracts & VNS ~ 3 coarse well ½" opened spaced VNS/ft sub ∥ to 60° to CA	543-548					
550		60° local						548-553					
	101							553-558					
60				3% diss + VN py + marcasite		MS ≈ Sbl							

HOLE # RL-193C LOGGED BY KUK DATE 6-91 PAGE 4 OF 7

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.	DESCRIPTION	ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
570	98	50°		3% diss + vn marc + py		MS ☆ sbl	448.4 - 716 LBT (continued)	558-563					
	94	50° 70° vns 50° 50° 70°		±2% diss + vns + buck shot py w/ marcasite		sbl M ☆ W X	564.6 - 577 "pseudo" flow banded FGT ~50-60° to C.A. breakage: fracturing along this plane. veining - mod subparallel to 40° to C.A containing kaolinite + py ± marcasite STR fracturing; blue green celadonite local weak silica flooding	563-568					
								568-573					
								573-578					
580	101					MS sbl M ☆ TR celad	577 - 618 Intermittent textorically brecciated FGT volc bxa sized clasts pervasively w/ lt green to dgn matrix w-m veining; beginning to pick up calcite veins ~3-5 vns/ft parallel to 90° subparallel to 50° w/ some 40° to 90° are composed of 1) qtz-py vns 2) clay-py-marcasite ± CaCO3 3) calcite ± py	578-583					
								583-588					
590	99	50°						588-593					
		location to 90°						593-598					
600								598-603					
	101						pervasive peach-flesh coloration	603-608					
610							618-653 Lithic Lapilli Tuff - w/in LBT with finer sized lithics than above larger clasts are 18-45 mm fine lithic matrix is 2-8 mm w/in fg tuff lithics bleached flesh to but w/ few local hint green	608-613					
	97			~2% diss + vns py + vn marcasite + ruby Ag				613-618					
620		30°			gouge	M-S sbl M ☆ tr celad poss wk X	618-630 2-3 vns/ft ~30°-40° to C.A. ? locally is ±15° composed of kaolinite, py ± marcasite ± ruby Ag + local CaCO3 local vuggy druzy qtz + free gold floating in powdery white clay ? also w/ in fine qtz stkwk which is riddled through Δ LBT volc bxa	618-623					
	99	40° vns py-clay marcasite carb vns						623-628					
630													

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
640	99	40° VNS		2% disst + VN py + VN marcasite ± ruby Ag		M-S bl M ≈ tr celad
650	98	predom 30-40° VNS w/ few @ 80°	30° VN	2-3% disst + VN py + marcasite		M ≈ M X local M-S bl
660	97					M-S ≈ M-S bl
670	99			±3% VN py + marcasite + fine diss py		M-S bl W-M ≈ W X weak local celad
680	99	25° predom 40° 5°				
690	98					
700	100					

DESCRIPTION

4494-716 LBT (continued)

630-653 LLT in LBT @ above VNS are subparallel → 40° composed of pyrite, $CaCO_3$ ± marcasite ± clay ~ 1-3 VNS/ft

648-653 intermittently brecciated vein Δ w/ SiO_2 flooding matrix w/ open spaced drusy vuggy qtz w/ marcasite ± clay all weak loose duckbutter clay silt or Δ matrix grustewk ± within FGT frag

653-663 FGT w/ pseudo "how to stretch mark" texture slight ↑ peru argillic alt w/ flesh coloration, stretch texture is peach/pink w/ white gray rims crackle fracturing throughout w/ local vein brecciation - both w/ "duck butter" alt kaolin clay, locally the healing clays have alt to lt yellow orange color. m-s veining w/ fine qtz ± clay stkwk secondary duckbutter clay, py ± SiO_2 ± local calcite which also fills VN Δ w/ micro Δ matrix ~ 10+ veins/ft w/ fine stkwk fractures VNS - unsurtable

663-704.2 FINEGRAINED TUFF - pervasive peach flesh coloration in sunlight sparkles w/ flecks of poss sericite alt @ 5-7% poss wk peru. silicification m-s fracture veining ranging from 5-75° w/ predom orientation @ 0-40° 2 predom stages of veining 1) fine stkwk like py-celadonite clay ± SiO_2 <1mm wide 2) coarser vuggy open spaced VNS up to 10 mm wide w/ clay marcasite ± py + SiO_2 ± local celad bluegreen clay fill, locally kaolin alt to duckbutter ? w/ local yellow orange color ~ 8-15 VNS/ft. Local vein brecciation w/ SiO_2 ± clay cement ; local ↑ peru silic assoc w/ peru. Δ w/ orange SiO_2 cement + green clay local

ASSAYS					
Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
628-633					
633-638					
638-643					
643-648					
648-653					
653-658					
658-663					
663-668					
668-673					
673-678					
678-683					
683-688					
688-693					
693-698					

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-193C DIP: VERTICAL CORE SIZE: HQ DATE: 5-29-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
355	360	5'	4.6	3.7	4	92%	74%	0.9	50-55°	J/TH, FD/CLY, CAL/PL, R
										NOTE: 355' to 448.5 Bedded Bud *
360	365	5'	5.0	5.0	2	100	100	0.4	60°	J/TH, FD/CLY, CAL/PL, R
										NOTE: 363' to 364' CLAY Gouge
365	370	5'	4.7	1.85	7	94	37	1.5	35-50°	J, VN/TH, FD/CLY, CAL/PL, R
										NOTE: 367.5 to 370' Broken Rubble
370	375	5'	5.0	5.0	1	100	100	0.2	50°	VN/TH, FD/QTZ, CLY/PL
375	380	5'	4.65	4.65	1	93	93		55°	VN/TH, FD/QTZ, CLY/R
380	385	5'	4.9	4.9	1	98	98	0.2	50-90°	VG/OP, FD/QTZ, CLY, BA/R
385	390	5'	4.15	4.15	1	83	83	0.2	55-60°	VN/TH, FD/CLY/R
390	395	5'	4.8	3.85	1	96	77	0.8	75°	J/OP, FD/CLY/R
					3				70-80°	J, VN/TH to OP, FD/QTZ, CLY, ±CAL/R
395	400	5'	4.2	2.0	8	84	40	2.4	60-70°	J, VN/TH to OP, FD/CLY, QTZ/R
					2				10-20°	J/TH, FD/CLY/R
400	405	5'	4.6	3.2	7	92	64	1.5	50-60°	J, VN/TH, FD/CLY/R
										NOTE: 400.8' to 401.3' Clay Gouge and Rubble
405	410	5'	4.9	4.45	3	98	89	0.6	35-45°	J/TH/PL, R
										NOTE: 409.6' to 410', Rubble
410	415	5'	4.75	4.75	2	95	95	0.4	40°, 65°	VN/TH to OP, FD/CAL, CLY/PL, R
415	420	5'	4.3	4.3	2	86	86	0.5	60°	VN/TH to OP, FD/CAL, CLY/PL, R
										NOTE: 355' to 448.5' Has numerous joints or foliations
										that break upon handling at a preferrential angle
										of ~ 45° from core axis. (Bedded Bud) *
420	425	5'	4.8	4.8	1	96	96	0.2	75°	VN/OP, FD/CAL/R
425	430	5'	4.85	4.85	0	97	97	0.0	—	
430	435	5'	4.6	3.95	1	79	79	0.2		VN/TH to OP, FD/CAL/R
435	440	5'	4.65	4.65	0	93	93	0.0	—	—
440	445	5'	5.0	4.7	5	94	94	1.0	50-55°	VN/OP, FD/CAL, CLY/R
445	450	5'	4.9	4.9	1	98	98	0.2	60°	J/TH/PL, R (Note: Contact Between
										Bedded Bud and Lower Bud Tuff, 448.4')
450	455	5'	4.95	4.65	3	93	93	0.2	10-45°	VN/TH to OP, FD/QTZ, CLY, PY/R
455	460	5'	4.3	4.3	3	86	86	0.2	5-25°	VN/TH to OP, FD/QTZ, CLY, PY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-193C DIP: VERTICAL CORE SIZE: HQ DATE: 5-29-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
460	465	5'	5.0	5.0	2	100%	100%	0.4	45-55°	VN/TH to OP, FD/QTZ, CLY/R
465	470	5'	4.7	4.7	4	94	94	1.3	55°	J, VN/TH, FD/QTZ/PL, R
					2				0-30°	VN/OP, FD/QTZ/R
470	475	5'	5.0	5.0	NOTE →	100	100	—		NOTE: 472.8' to 475.3' Vuggy, w/Druzy QTZ, ±MAR
475	480	5'	4.2	2.9	14	84	58	3.8	55-65°	J/TH, FD/QTZ, CLY/PL, SM
					2				20°	J/TH, FD/QTZ, CLY/PL, SM
480	485	5'	4.9	3.8	9	98	76	2.9	50-55°	J/TH, FD/CLY/PL
					5				30-65°	J, VN/TH to OP/CLY, QTZ/PL-R
485	490	5'	4.75	3.7	13	95	74	2.7	35-45°	J/TH, FD/CLY/PL, SM
490	495	5'	4.95	4.95	1	99	99	1.4	0-5°	J/TH, FD/CLY, QTZ, PY/PL, SM
					6				40-55°	J/TH, FD/CLY, QTZ/PL
495	500	5'	4.4	4.4	1	88	88	0.9	50°	J, VN/TH, FD/CLY/PL-R
					3				0-20°	VN, VG/TH to OP, FD/QTZ, CLY/R
500	505	5'	4.7	4.35	1	94	87	0.6	55°	J, VN/TH to OP/QTZ/PL
					1				0-10°	J, VN/TH/PL-R
					1				70°	VN, VG/TH to OP/QTZ, CLY/R
505	510	5'	4.65	4.65	1	93	93	0.2	35°	VN/TH, FD/QTZ, CLY, MAR/R
510	515	5'	4.9	4.9	4	98	98	1.0	45-55°	VN/TH, FD/QTZ, MAR/R
					1				0-55°	VN/TH to OP, FD/QTZ, MAR/R
515	520	5'	4.7	4.7	3	94	94	1.1	0-35°	VN, VG/TH to OP, FD/QTZ, CLY, PY/R
					2				45°	VN, VG/TH to OP, FD/QTZ, MAR, CLY/R
520	525	5'	4.8	4.8	3	96	96	0.6	0-35°	VN, VG/TH to OP, FD/QTZ, MAR, CLY/R
525	530	5'	4.7	4.35	1	94	87	0.6	0-35°	VN, VG/TH to OP, FD/QTZ, MAR/R
					2				50°	VN, VG/TH to OP, FD/QTZ, CLY/R
530	535	5'	5.1	5.1	2	102	102	0.6	65-75°	J, VN/TH, FD/QTZ, CLY, MAR/PL
					1				45°	VN/TH, FD/QTZ, CLY/R
535	540	5'	4.1	4.1	4	82	82	1.0	40-60°	VN/TH, FD/CLY, QTZ, MAR/R
540	545	5'	5.1	5.1	1	102	102	0.2	20°	J, VN/TH-OP, FD/QTZ, CLY, MAR/PL
545	550	5'	4.9	4.9	1	98	98	0.4	10-15°	J, VN/TH, FD/CLY, QTZ/PL
					1				60°	VN/TH, FD/CLY, QTZ/R
550	555	5'	4.7	4.7	2	94	94	0.6	55-65°	VN/TH, FD/CLY/R
					1				0-30°	VN, VG/TH-OP, FD/QTZ, PY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-193 C DIP: VERTICAL CORE SIZE: HQ DATE: 5-30-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
555	560	5'	4.7	3.1	2	94%	62%	0.4	0-20°	VN/TH to OP, FD/QTZ, CLY/R
										NOTE: 558' to 560' crumbly, w/ Clay Gouge @
										558.4' to 559.1'
560	565	5'	4.7	4.4	3	94	88	1.3	0-25°	VN, VG/TH-OP, FD/QTZ, CLY, MAR/R
					3				50-65°	VN/TH, FD/CLY/R
565	570	5'	3.95	3.2	2	79	64	0.5	50-60°	J/TH, FD/QTZ, CLY/PL
										NOTE: 565'-569' Vuggy, CLY-QTZ cemented rubble,
										Easily broken.
570	575	5'	4.8	1.1	4	96	22	0.8	55°	J/TH, FD/CLY/PL
										Note: 571'-575' Rubble and easily broken core
										cemented along numerous veins w/ CLY, CAL
575	580	5'	4.2	2.9	4	84	58	1.0	35-55°	VN/TH, FD/CLY, CAL/W
580	585	5'	4.8	4.8	1	96	96	0.2	75-80°	VN/TH, FD/CLY, CAL/PL-R
585	590	5'	4.85	4.8	3	97	96	0.6	45-85°	VN/TH, FD/CLY, CAL/R
590	595	5'	4.9	4.7	2	98	94	0.4	60-70°	VN/TH, FD/CLY, CAL/R
595	600	5'	4.65	4.4	3	93	88	0.6	40-65°	VN/TH, FD/CLY/R
600	605	5'	5.0	5.0	0	100	100	0.0	—	—
605	610	5'	4.9	4.6	4	98	92	0.8	50-70°	VN/TH, FD/CLY, ± MAR/R
610	615	5'	5.0	5.0	1	100	100	0.4	65°	VN/TH, FD/CLY, MAR/R
					1				30-35°	VN, VG/TH-OP, FD/QTZ, CLY, MAR, PY, BAR/R
615	620	5'	4.5	4.2	2	90	84	0.9	55-60°	VN, VG/TH-OP, FD/QTZ, CLY/R
					2				25-35	VN, VG/TH-OP, FD/QTZ, CLY/R
620	625	5'	4.7	3.95	SEE NOTE	94	79	—		NOTE: 618'-624' Vuggy L.L.T. W/ CLY, QTZ, MAR, PY
										621'-621.5' Clay Gouge.
625	630	5'	4.45	4.45	2	89	89	0.4	20-30°	VN/TH, FD/CLY, MAR/R
630	635	5'	4.9	4.9	1	98	98	0.2	0-30°	VN/TH, FD/CLY, MAR/R
635	640	5'	4.75	4.75	0	95	95	0.0	—	—
640	645	5'	5.05	4.8	3	101	96	0.6	35-40°	J, VN/TH, FD/CLY, MAR, PY/R
645	650	5'	4.4	4.2	3	88	84	0.7	65-70°	VN/TH, FD/QTZ, CLY, MAR/R
										NOTE: 649' to 651' Vuggy W/ QTZ, CLY, MAR
650	655	5'	4.9	4.45	SEE NOTE	98	89		—	Same NOTE FOR 654.5'-655.5'
655	660	5'	4.3	3.0	8	86	60	1.9	40-75°	VN, TH-OP, FD/CLY, QTZ/PL-W

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-193C DIP: VERTICAL CORE SIZE: HQ DATE: 5-30-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
660	665	5'	5.0	4.1	4	100%	82%	0.8	35-40	J,VN/TH,FD/CLY,MAR/PL-R
										NOTE: 663'-704' is a fine-grained Tuff which
										appears shattered, and joints are cemented
										primarily w/QTZ, CLY, MAR.
665	670	5'	4.6	4.0	8	92	80	1.7	15-55°	J,VN/TH,FD/CLY,QTZ,MAR/PL
670	675	5'	4.8	2.9	6	96	58	1.3	10-60°	J,VN/TH,FD/CLY,MAR/PL
										NOTE: 672'-675' Vuggy: filled w/QTZ, CLY, MAR
675	680	5'	4.35	3.55	6	87	71	1.4	45-65°	J,VN/TH-OP,FD/CLY,QTZ,MAR/PL-R
680	685	5'	4.9	4.9	2	98	98	1.8	40-55°	J,VN/TH,FD/CLY/PL
					7				15-50°	J,VN,VG/TH-OP,FD/CLY,QTZ/PL-R
685	690	5'	5.0	3.1	9	100	62	2.4	25-35°	J,VN/TH,FD/CLY,QTZ/PL
					3				0-40°	VN/TH-OP/CLY,QTZ/R
690	695	5'	5.0	2.65	2	100	53	2.0	5-10°	J,VN/TH,FD/CLY,QTZ/PL-R
					8				35-65°	J/TH,FD/CLY,QTZ,MAR/PL
695	700	5'	4.4	3.85	6	88	77	1.4	35-65	J,VN/TH-OP,FD/CLY,QTZ/PL
700	705	5'	4.9	4.3	7	98	86	1.4	45-60°	J,VN/TH,FD/CLY,QTZ/PL-R
705	710	5'	4.8	4.4	5	96	88	1.0	0-75°	VN/TH-OP/CLY,MAR/R
710	715	5'	4.85	4.85	5	97	97	1.0	0-75°	VN/TH-OP/CLY,QTZ,MAR/R
715	720	5'	4.6	4.6	SEE NOTE→	92	92	—		NOTE: 716'-724' Highly Argillized and can
720	725	5'	5.0	5.0	" "	100	100	—		be broken @ any angle.
725	730	5'	4.4	3.95	5	88	79	1.1	50-60°	J,VN/TH,FD/QTZ,CLY,PY/R
730	735	5'	5.0	2.5	3	100	50	0.6	50-65°	J,VN/TH,FD/CLY,QTZ/PL
						NOTE:	730'-735' Clay Gouge:		732'-784' Crumbly Rubble	
							Fault Contact @ 730'			
735	740	5'	0.3	0.0	1	6	0	3.3	~40°	VN/TH-OP,FD/QTZ/R
740	745	5'	5.0	3.35	2	100	67	0.4	25-60°	VN,VG/OP,FD/QTZ,CLY/R
										NOTE: 740'-744' Vuggy; W/QTZ, ± CLY
										742.5'-743.5' broken Rubble
745	750	5'	3.4	2.5	1	68	50	0.6	65°	VN/TH-OP,FD/QTZ,CLY/R
					1				5-15°	J,VN/TH,FD/CLY/R
750	755	5'	5.0	2.0	5	100	40	1.0	35-65°	J,VN/TH-OP,FD/CLY,QTZ/PL-R
755	760	5'	3.9	3.9	2	78	78	0.5	45-35°	VN/TH-OP,FD/QTZ,CLY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-193C DIP: VERTICAL CORE SIZE: HQ DATE: 5-30-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
760	765	5'	4.95	2.6	8	99%	52%	2.0	55-85°	J,VN/TH,FD/CLY,QTZ/PL-R
					2				0-15	J,VN/TH,FD/CLY/PL-R
765	770	5'	3.7	2.0	10	74	40	2.7		J/TH,FD/CLY/PL
770	775	5'	2.3	0.5	SEE	46	10	—		NOTE: 774'-776' Clay Gouge
775	780	5'	1.2	0.0	NOTE	24	0	—		
780	785	5'	4.7	0.5	—	94	10	—		NOTE: 782'-783.5' Clay Gouge
785	790	5'	3.4	1.4	1	68	28	0.3	30°	J,VN/TH,FD/CLY,QTZ/PL
							NOTE:	784'-	840' (T.D.)	Cracked Rubble w/clean fractures.
790	795	5'	5.2	2.6	1	104	52	0.2	5°	J/TH,FD/CLY,MAR/PL
795	800	5'	3.5	2.2	1	70	44	0.3	0-35°	VN/TH,FD/CLY/R
800	805	5'	3.9	3.6	7	78	72	1.8	0-40°	J,VN/TH,FD/CLY,QTZ/PL
805	810	5'	4.9	2.9	10	98	58	2.0	50-70°	J/TH,FD/QTZ,CLY/PL
810	815	5'	3.1	1.3	6	62	26	1.9	50-55	J/TH,FD/CLY,QTZ/PL
								NOTE: 811'-811.5' and 814.5'-815.5' Vuggy, w/QTZ, CLY.		
815	820	5'	5.1	2.9	5	102	58	1.2	40°	J/TH,FD/CLY,QTZ/PL
					1				0-10°	VN/TH,FD/QTZ,CLY,MAR/R
820	825	5'	4.4	0.0	1	88	0	0.2	0-10°	VN/TH,FD/QTZ,CLY,MAR/R
825	830	5'	4.6	1.8	3	92	36	0.9	55-60°	J,VN/TH,FD/CLY,QTZ/PL
					1				0-5°	J/TH,FD/CLY/R
830	835	5'	2.7	1.4	1	54	28	0.4	0-5°	J/TH,FD/CLY/R
835	840	5'	3.8	2.0	12	76	40	3.2	55-60°	J/TH,FD/QTZ,MAR,CLY/PL
T.D.	840'									

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
440	57, 93, 102	90°		±4% diss + vn py + vn marcasite + poss stien		M-S bl M-S w celad
450	102	prodom // to CA		M-S Cu OXIDE 4-5% marc + Ag min + diss py		S bl M-S local X
460	96	prominent // to C.A	55° gouge	3-4% diss + vn py + earthy bronze gray irredescent metallic	55° gouge	S bl w celad S bl M-S
470	97					
480	75					S bl S
490	88	35°	55° CaCO3 vns	2-3% diss + vn py + marcasite	50° gouge	M-S bl S w celad
500	100		60°		60° gouge	

SOUTH RIDGE FAULT

DESCRIPTION

383.4 - 506 LOWER BUD TUFF
477.8 - 506 SOUTH RIDGE FAULT

431 - 453 VOLE BXA - LBT w/ lt peach/flesh matrix ; bl white buff to lt green clasts intermittent broken rubble throughout w few clay gouge zones intermittent silicified vein breccias 2 predom stages of veining
1) fine ±1 mm qtz - py ± clay veinlets
2) kaolinite, marcasite ± local qtz + poss pyrargyrite
local riddling of fine hairline qtz stkwk
total ~ 3-8 vns/ft inclusive
448 - 450 strong stkwk druzy qtz w/ mar + clay fill

453 - 464 zone of strong Cu oxides @ dk gray to black earthy mineral which turn azure blue w/ HCL. Strong perv bl w/ mod argillic clay alt local silic'd Δ vns w/ str SiO2 flood intermittent strong fine qtz stkwk local Δ + streak prominent kaolinite dk gray irredescent Ag? mineral w/ assoc. Cu oxide + marcasite # vns may be ~ 3-5 vns/ft w/ local str riddling of uncountable amount. Intermitt. broken rubble

464 - 469.5 same @ above w/o Cu oxides

469.5 - 487.5 strongly bl + clay alt intermittent LLT ; FGT calcite veining is introduced wk py + qtz vns ± clay ~ 5-8 vns/ft ~ 2-4 CaCO3 vns/ft locally very fine hairline qtz stockwk riddling - strong locally - uncountable
477.8 - 482 strong clay cemented broken rubble
483.3 - 486.5 broken rubble w/ m-s clay alt

487.5 - 491 FGT lt sage green w/ strong pervasive clay alt prominent CaCO3 vns - xtalline up to 18 mm wide 1-3/ft perv. tensional shearing fracts riddled w/ fine stkwk CaCO3 or qtz

491 - 494.6 broken rubble + clay gouge s ≈

494.6 - 496.9 Δ peach flesh FGT str ≈ clay cemented ± calcite vns

496.9 - 497.25 clay cemented broken rubble

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
429-434					
434-439					
439-444					
444-448					
448-453					
453-458					
458-463.7				.252	
463.7-469				.037	
469-474				.089	
474-478				.036	
478-482				.028	
482-487.5				.118	
487.5-491.5				.05	
491.5-495.5				.004	
495.5-500.5				.027	

HOLE # RL-196C LOGGED BY KLK DATE 6-91 PAGE 4 OF 4

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
510	100	48°		2% disst vn py		M bl S W celad
				± 2% diss ± vn py	48°	M bl W W celad
520	100	35° 60° slicks		<1% diss ± vn py	35°	W bl W celad WM
530	97	40° 10° 50° 80° pseudo flo				
543	102					

DESCRIPTION

477.8 - 506 SOUTH RIDGE FAULT
506 - 543 DOZER TUFF

495.85 - 506 semimassive calcite w/ lt green clay gouge filling interstices between ? within veins.
504 - 506 becomes predominantly lt green gouge + rubble ↓ calcite veining

506 - 543 DOZER TUFF

506 - 520.5 FGT lt sage green, w-m bl intermittently brecciated finely veined w/ hairline stkwk calcite predom appears sub parelle to C.A. Fine white clay filling interstices of Δ maybe w/ SiO2 mix veining is few to many
@ 520.5 baby Δ shear @ 35° to CA w/ 60° rake slicks

520.5 - 543
PSEUDO FLOW BANDED FGT @ 50 - 80° to CA w bl to purple fresh color w/ depth (534-543) densely welded relatively fresh weak veining 10 - 40° to C.A w/ celadonite + clay - SiO2 fill

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
500.5-506					
506-511					
511-516					
516-521					
NO SAMPLE ↓					

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-196C DIP: VERTICAL CORE SIZE: HQ DATE: 6-11-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
295	300	5'	4.85	4.15	2	97%	83%	0.4	15-45°	VN/TH, FD/QTZ, MAR/R
300	305	5'	4.95	4.85	4	99	97	0.8	20-55°	VN/TH, FD/QTZ, CLY, MAR/R
305	310	5'	3.7	3.35	5	74	67	1.4	0-50°	VN, VG/TH-OP, FD/QTZ, CLY, PY, MAR/R
310	315	5'	4.9	4.2	5	98	84	1.0	20-45°	VN/TH, FD/QTZ, CLY, MAR/R
315	320	5'	4.15	3.4	8	83	68	1.9	15-65°	VN, VG/TH-OP, FD/QTZ, CLY, MAR/R
320	325	5'	4.9	4.75	6	98	95	1.2	~45°	VN/TH, FD/QTZ, CLY, MAR/R
325	330	5'	3.9	3.15	4	78	63	1.0	35-40°	VN, VG/TH-OP, FD/QTZ, CLY, MAR, PY/R
330	335	5'	4.7	4.7	5	94	94	1.1	0-45°	VN, VG/TH, FD/QTZ, CLY, MAR, PY/R
335	340	5'	5.05	3.4	6	101	68	2.0	0-80°	VN, VG/TH-OP, FD/QTZ, CLY, PY, MAR/R
					4				50-55°	J, VN/TH, FD/CLY/W
340	345	5'	4.0	1.4	9	80	28	2.3	55-70°	J, VN/TH, FD/CLY, ± MAR/W, R
										NOTE: 342.5'-344' Broken Rubble
345	350	5'	2.8	1.5	9	56	30	3.2	5-55°	J, VN/TH, FD/CLY/R
										NOTE: 347'-349' Broken Rubble
350	355	5'	5.25	2.85	12	105	57	2.3	0-50°	J, VN/TH, FD/CLY/W-R
355	360	5'	4.1	3.5	6	82	70	1.5	45-50°	J, VN/TH, FD/CLY/W-R
360	365	5'	5.15	3.35	15	103	67	2.9	30-55°	J, VN/TH, FD/CLY/R
365	370	5'	3.65	3.65	4	73	73	1.1	30-40°	VN/TH, FD/CLY, PY/R
370	375	5'	5.05	4.3	5	101	86	1.0	25-35°	VN, VG/TH-OP/QTZ, CLY, MAR/R
375	380	5'	4.2	3.5	7	84	70	1.7	25-35°	J, VN/TH, FD/CLY/R
380	385	5'	5.15	2.45	11	103	49	2.1	20-70°	J, VN/TH, FD/CLY, QTZ, MAR/R
					NOTE ALSO:	383.8	Probable Contact			NOTE: 380'-381' Broken Rubble
					of "Bedded Bud" Tuff & Lower "Bud" F.G.T.					382'-383' Argillized and crumbles fairly easily.
385	390	5'	4.15	2.85	11	83	57	2.7	25-50°	VN/TH, FD/CLY, QTZ, MAR/R
390	395	5'	5.1	2.1	10	102	42	2.0	25-60°	VN/TH-OP, FD/CLY, QTZ/R
										NOTE: 394'-395.5 Vuggy, w/CLY, QTZ, ± MAR, PY
395	400	5'	3.8	3.5	5	76	70	1.3	40-55°	VN/TH, FD/CLY, QTZ, PY/W, PL
400	405	5'	4.4	2.35	3	88	47	0.7	5-70°	VN/TH, FD/CLY, PY/PL, W
										NOTE: 402'-407' Strongly Argillized, crumbles fairly easily.
405	410	5'	4.0	0.95	15	80	19	3.8	30-65°	VN/TH, FD/CLY/W, R
410	415	5'	5.15	3.2	8	103	64	1.6	0-55°	VN/TH, FD/CLY/R

NOTE: 413'-415' Vuggy, w/CLY, QTZ
413'-413.5' - Broken Rubble

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-196 C DIP: VERTICAL CORE SIZE: HQ DATE: 6-12-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
415	420	5'	0.85	0.85	1	17%	17%	1.2	30°	VN/TH, FD/CLY/PL, W
420	425	5'	5.05	3.9	4	101	78	1.8	30-45°	VN/TH, FD/CLY, PY/W, R
					5				0-70°	VN, VG/TH-OP, FD/QTZ, CLY, MAR, PY/R
										NOTE: 424'-426' vuggy
425	430	5'	3.7	2.7	3	74	54	1.6	0-15°	VN, VG/TH-OP, FD/QTZ, CLY, MAR/R
					3				50-70°	VN/TH, FD/CLY, QTZ, MAR/R
										NOTE: 427'-427.5' Broken Rubble
430	435	5'	3.3	0.4		66	8	0.3		NOTE: 430.5'-435' Broken Rubble;
										433.5'-434' Clay Gouge
					1				0-20°	VN/TH, FD/CLY, MAR/R
435	440	5'	3.25	1.5	5	65	30	1.5	0-60°	VN/TH, FD/CLY, MAR/R
440	445	5'	4.9	2.5	2	98	50	0.4	0-20°	VN/TH, FD/QTZ, CLY, MAR/R
										NOTE: 440'-443' contains zones of Rubble
										and easily broken core. Clay Gouge at 441'
445	450	5'	3.85	2.85	7	77	57	1.8	0-50°	VN/TH, FD/CLY, QTZ/R
450	455	5'	5.25	2.3	8	105	46	1.5	0-90°	VN/TH, FD/CLY, QTZ/R
										NOTE: Clay Gouge @ 451.5'; Broken Rubble @
										450'-452' and 453.5'-454'
455	460	5'	3.6	2.05	5	72	41	1.4	0-90°	VN/TH-OP, FD/QTZ, CLY, MAR, PY/R
										NOTE: Core is easily crumbled; Clay-cemented
460	465	5'	4.9	3.7	SEE NOTE	98	74	—		Note: strongly Argillized; crumbles
										easily along veins, 0-90° from core axis.
465	470	5'	4.0	1.7	SEE NOTE	80	34	—		NOTE: strongly Argillized zones, easily broken
										at angles of 10°-45° from Core Axis
470	475	5'	5.2	3.2		104	64	1.0		NOTE: Clay Gouge @ 470.5'
					5				0-45°	VN/TH-OP, FD/CLY, CAL/W, R
										NOTE: 473'-474' Broken Rubble
475	480	5'	4.0	3.05	8	80	61	2.0	60-65°	J, VN/TH, FD/CLY, CAL/R
										NOTE: 478'-480.5', strongly Argillized;
480	487.5	7.5'	4.9	1.85		98	37	1.6		480.5'-482' Clay Gouge and Rubble.
					8				30-55°	J, VN/TH, FD/CLY, CAL/PL, R
										NOTE: 483.5'-486.5' Broken Rubble

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-196 C DIP: VERTICAL CORE SIZE: HQ DATE: 6-12-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
487.5	496	8.5'	5.7	2.5	10	67%	29%	1.8	30-60°	J, VN/TH, FD/CLY, CAL/R
										NOTE: 488', Clay Gouge ; 491'-494.5', Broken Rubble
496	506.2	10.2'	9.65	6.8	11	95	67	1.1	55-60°	J, VN/TH, -OP, FD/CLY, CAL/R
										NOTE: Clay Gouge @ 497' and 506.2'
506.2	510	3.8'	3.65	3.65	1	96	96	0.3	30°	J, VN/TH, FD/CLY, CAL/PL
510	515	5'	5.0	5.0	1	100	100	0.2	45°	J, VN/TH, FD/CLY, CAL/R
515	520	5'	4.65	4.65	3	93	93	0.6	40°	J, VN/TH, FD/CLY, CAL/PL
520	525	5'	5.0	4.4		100	88	0.8		NOTE: Clay Gouge @ 520.5
					4				50-55°	J, VN/TH, FD/CAL, CLY/PL
525	530	5'	4.35	4.35	3	87	87	0.7	70-85°	J/TH/PL
530	535	5'	5.0	5.0	0	100	100	0	—	—
535	540	5'	5.0	5.0	0	100	100	0	—	—
540	543	3'	3.0	3.0	0	100	100	0	—	—
	T.D. 543'									

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
610	95	50 10 SiO2 py VNS	15° Δ VN	±2% diss + buck shot + VN py + local marca site	D.T	M-S bl wn M-S XXX poss wk celad
620	99		38° Δ VN	2-3% diss + VN + buck shot py + short blocked sulfide		
630	103					
640	102					
650	97	15 45 SiO2 Silf. VNS	4 VN 56° 68°	±4% diss + VN py	68°	
660	99		26	3-4% diss + VN py + marca site	26	
670	98	80° 90° VNS	Δ VN 182			

DESCRIPTION

594.2 - 719.7 DT

569.9 - 574.5 Flow banded LBT peru colored w/ flow textures ~ ±45° to C.A wk local v. fine hydro breccia VNS, intermittently riddled w/ intense fine hairline qtz. stkwk variable argillic - clay alt into peru. m silicif. wk local micro Δ veins mod peru. veining 1) fine riddling of fine qtz hairline stkwk 2) milky SiO2 encap sulfide ± white clays - SiO2 poss. chalcedonic 3) lt yellow green duck butter clay VNS pre ± 2 VN 4) amber brown SiO2 VNS local wk celad alt w/in fractured clay alt clasts. VNing ranges from 3-4 prominent VNS/ft to >50 VNS/ft including fine stkwk

574.5 - 586.4 Hydrothermal breccia w/ fine grained to flo banded tuff clasts peru. flesh colored ; argillically clay altered w/ speckled mottling of clay alt feldspar matrix w/in FGT ~ 3 stages Δ clast supported w/ micro Δ SiO2 flooded matrix → contains blebs of pyrite + chalco-py + poss. V.G.? @ 580.3 ; elsewhere locally w/in matrix is silicified duck butter clay appearing to rim local clasts locally clasts w/ pre Δ veining - stkwk ; also w/ fine qtz stkwk cutting through Δ clasts

582 - 586.4 clasts w/ ↑ bl to lt butter yellow color w/ depth the matrix becomes slightly orangish butter yellow w/ few post Δ open spaced druzy qtz VNS w/ local py + chalcopy fill, + few milky white qtz encap butter clay VNS

586.4 - 593.95 Buff to green hydrothermal Δ - the green celadonite? alt. is variable throughout very finely brecciated w/ predom tuffaceous clasts ; intermittently few 1-2 mm black JR clasts (basement) (591.2) 3-4 stages Δ which has been overprinted w/ druzy vuggy qtz stkwork, locally filled w/ white clay local SiO2 matrix w/ wk-mod gray fine dissem sulfides stk work appears predom subparelle to C.A

593.95 - 719.7 DOZER TUFF

593.95 - 600 bl white to lt green densely welded FGT crackle fractured to weakly, finely brecciated peru. silicified riddled w/ fine hairline qtz stkwk >50 stkwk VNS/ft. Larger 1-3 mm qtz, ± kaolinite + pyrite + chalcopy + marcasite + dk gray/bwn sulfide + poss VG. VNS, locally SiO2 + clay VNS are butter yellow - orientation is 15°-85° to C.A. up to 2-3 stgs Δ

600 - 626 lt green DT - fine w-m crackle fracturing to intermittently brecciated 1-2 stgs w/ SiO2 rich local micro Δ matrix. Intermittently riddled w/ fine hairline qtz stkwk > 50/ft. Local zones 1-2" blebs buckshot pyrite w-m overprinted secondary veining w/ SiO2 + py ± clay. Intermittent red orange oxide? related to fine crackle fracturing

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
600-605				.021	
605-610				<	
610-615				<	
615-620				<	
620-625				<	
625-630				.056	
630-635				.002	
635-640				<	
640-645				.01	
645-650				<	
650-655				.067	
655-660				.034	
660-665				.039	
665-670				.132 / .103	

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
680	80, 96	10, 80° qtz sulf vns		3-4% diss + vn py + marca site + local dk gray short blocky sulfd	D.T.	M-S bl w~ + tr colcd M-S XXX
690	105					
700	103		30° Δ vn	± 4% diss + vn py + marca site		
710	96					
720	102		58°	3-4% diss + vn py + local vn marca site		XXX FAULT; M-S bl w~ SXXX
730	97	0, 90° sulf clay vns				
740						

DESCRIPTION

593.95 - 719.7 DT
719.7 - 745.5 TMb

626 - 670.5 DT peru. bl, intermittent fine brecciation to micro Δ vns ; local crackle Δ white w/ hint green, m-s peru. silicif. moderate peru. veining consisting of qtz encapsulated sulfides w/ local Kaolinite ; local lt green "duck butter" clays locally w/ 1/4" golden orange selvages, locally fine red orange oxide? assoc. w/ fine crackle fracturing. Pervasively riddled w/ fine hairline qtz stkwk. overall average veining ~ 6-15 vns/ft w/ up to >50 vns/ft fine qtz stkwk

653.9 - 655.7 breccia vein ± 2 stage Δ well bl clasts angular to subrounded micro Δ matrix, well silicif. ↑ sulfide content @ veins ; w/in matrix.

655.7 - 670 ↑ veining ; Δ veining w/ peru. crackle Δ. ; intro of more open spaced vuggy druzy qtz w/ kaolinite + marcasite fill

670.5 - 719.7 DT - bl white to verigated lt butter yellow to weak orangish red marbled coloration throughout w/ local leisgang patterning w/in intermittent crackle fracturing to vein brecciation. Pervasively riddled w/ fine hairline qtz stkwork. Perv. mod↑ into strong fine veining which ↑ w/ depth which consist of SiO_2 encapsulated pyrite + local marcasite + local Kaolinite ± local "duck butter" green clay. 15-35 vns/ft ; up to 50 fine stkwk vns/ft locally veining + Δ vns ↑ from 705 - 719.7

715.9 - 719.7 mod pervasive hydrothermal vein brecciation @ 20° + 75° + variations ± 10° to CA.

719.7 - 740.2 TMb - Tuff marker Bed appearing rock contact noted by ~ 4" lt. green clay shear zone @ 58° to C.A. followed by hydro Δ vn ; @ 721.6 is 24° to C.A. which begins true TMb w/ ~ 3% white clay replaced ; pyrite replac. 2-3 mm plagioclase phenos. strong peru. silicif. m-s veining w/ qtz to druzy qtz encapsulated pyrite + marcasite + Kaolinite + local lt orange oxide selvages ; stained white clay, locally w/ green duck butter clays, local fine qtz stkwk riddling 10-24 vns/ft ; local stkwk > 50/ft

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
670-675				.069/.092	
675-680				.029	
680-685				.058	
685-690				.006	
690-695				.01	
695-700				.016	
700-705				.029	
705-710				<	
710-715.8				.025	
715.8-719.5				.019	
719.5-721.6				.039	
721.6-725				.016/.015	
725-730				.036	
730-735				.023	
735-740.2				.038	

HOLE # RL-198C LOGGED BY KLK DATE 6-91 PAGE 6 OF 6

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.	DESCRIPTION	ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
	81 ↓ 70 ↓	30 ↓ 90 qtz sulf clay vns	∠ ∠ Δ ◁ ▷ ▷	3% + diss fvn pyt marg sile	shear Δ ▽ Δ ▽ ▽ ▽	sbl SXXX W ↓	740.2 - 745.5 DT?	740.2-742				.008	
							740.2 - 741.5 broken rubble & lt gray sandy clay gouge FAULT zone	742-745.5				.02	
745.5							T.D.						

741.5 - 745.5 Brecciated Fine grained tuff w/ 3-4 stages Δ clasts are angular to subrounded w/ orangish buffer yellow stain w/ milky white SiO_2 matrix - weakly locally w/ microbreccia tion. Riddled w fine hairline qtz stockwork. m-s short qtz-sulfide stringers ± clay throughout

LOOKS GREAT - HOLE SHOULD HAVE CONTINUED ON!!!

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-198 C DIP: VERTICAL CORE SIZE: HQ DATE: 6-18-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
395	400	5'	4.0	3.6	4	80%	72%	1.0	5-40°	VN/TH, FD/QTZ, CLY/PL, R // NOTE: 395.6-398.1 Clay Gouge
400	405	5'	4.05	3.8	2	81	76	0.5	50-65°	VN/TH, FD/QTZ, CLY/PL, R
405	410	5'	4.75	4.75	1	95	95	0.2	25-30°	VN/TH, FD/QTZ, CLY/R
410	415	5'	5.05	5.05	2	101	101	0.4	10-30°	VN/TH, FD/QTZ/CLY/R
415	420	5'	4.9	4.9	0	98	98	0.0	—	—
420	425	5'	4.8	4.1	1	96	82	0.6	5-20°	VN, VG/OP, FD/QTZ, BAR, CLY/R
					2				25-35°	VN/TH, FD/CLY/R
425	430	5'	5.1	5.0	5	102	100	1.0	20-75°	VN/TH, FD/QTZ, PY, CLY/PL, R
430	435	5'	4.95	4.95	4	99	99	1.0	45-55°	VN/TH, FD/QTZ, CLY/R
					1				20°	VN, VG/OP, FD/BAR, QTZ, CLY/R
435	440	5'	4.35	3.85	2	87	77	0.5	40-60°	J/TH, FD/CLY/R
										NOTE: 440'-440.5' Broken Rubble
440	445	5'	5.0	4.8	2	100	96	0.6	60-65°	VN/TH, FD/QTZ, CAL, CLY/R
					1				15-20°	VN/TH, FD/PY, CAL, CLY/R
445	450	5'	4.95	4.95	0	99	99	0.0	—	—
450	455	5'	4.85	4.85	1	97	97	0.4	30°	VN/TH, FD/CLY; CAL/PL
					1				50°	VN/TH, FD/CAL, CLY/R
455	460	5'	3.95	3.45	3	79	69	0.8	30-35°	VN/TH, FD/CLY/PL, R
460	465	5'	5.0	4.2	7	100	84	1.4	25-75°	VN/TH, FD/CLY, PY, MAR/PL, R
										NOTE: 462.9'-463.5' broken rubble
465	470	5'	4.45	4.45	3	89	89	0.7	45-75°	VN/TH, FD/QTZ, CLY, PY/R
470	475	5'	4.8	4.4	3	96	88	0.8	50-60°	VN/TH, FD/QTZ, CLY/R
					1				20°	VN/OP, FD/BAR, CLY/R
475	480	5'	5.05	5.05	2	101	101	0.4	60°	VN/TH, FD/QTZ, CLY/R
480	485	5'	4.85	4.85	3	97	97	0.6	30-45°	VN, ± VG/TH, FD/QTZ, CLY/R
485	490	5'	4.95	4.95	2	99	99	0.4	40°	VN/TH, FD/QTZ, PY, CLY/PL-R
490	495	5'	4.95	4.95	3	99	99	0.6	40-60°	VN, ± VG/TH-OP, FD/QTZ, CLY/R
495	500	5'	5.15	5.15	2	103	103	0.4	0-30°	VN, VG/TH-OP, FD/CLY, QTZ
500	505	5'	4.95	4.05	4	99	81	0.8	40-50°	VN/TH, FD/QTZ, CLY, BAR/R
										NOTE: Clay gouge @ 500.6'
505	510	5'	4.9	4.6	4	98	92	0.8	45-60°	VN, ± VG/TH, FD/QTZ, CLY, BAR/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-198C DIP: VERTICAL CORE SIZE: HQ/N DATE: 6-19-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
510	515	5'	4.65	3.55	5	93%	71%	1.9	30-50°	VN/TH, FD/QTZ, CLY/R
					4				0-55°	VN, VG/TH-OP, FD/QTZ, CLY/R
										NOTE: 513.5'-514.5' Broken rubble
515	520	5'	4.35	3.95	5	87	79	1.4	25-90°	VN/TH, FD/QTZ, CLY/R
					1				0-15°	VN, VG/OP, FD/QTZ, BAR, CLY/R
520	525	5'	4.95	4.7	3	99	94	0.6	25-60°	VN/TH, FD/CLY, QTZ/R
525	530	5'	4.8	4.55	5	96	91	1.0	30-80°	VN/TH, FD/CLY, QTZ/R
530	535	5'	4.85	4.65	7	97	93	1.4	20-60°	VN/TH, FD/CLY/R
535	540	5'	4.05	2.6	13	81	52	3.2	45-70°	VN/TH, FD/CLY, QTZ/R
										NOTE: 535'-545' has zones of strongly argillized
										core.
540	545	5'	4.65	0.8	18	93	16	4.1	60-85°	J, VN/TH, FD/CLY/R
					1				25°	VN, VG/TH, FD/QTZ, CLY/R
545	550	5'	4.75	4.0	4	95	80	0.8	50-60°	VN/TH-OP, FD/QTZ, CLY
550	555	5'	4.6	2.3	14	92	46	3.0	55-70°	J, VN/TH, FD/CLY, ± QTZ/PL, R
										NOTE: Clayey rubble 554'-554.5'
555	560	5'	3.5	1.65		70	33	3.1	*	NOTE: Reduction in core size at 558' *
					11				30-55'	VN, VG/TH-OP, FD/QTZ, CLY/R
560	565	5'	4.4	3.3	5	88	66	1.1	0-55°	VN, VG/TH-OP, FD/QTZ, CLY/R
565	570	5'	4.95	4.6	6	99	92	1.2	0-50°	VN, ± VG/TH, FD/QTZ, CLY/R
570	575	5'	4.9	3.75	5	98	75	1.0	35-65°	VN, ± VG/TH, FD/QTZ, CLY/R
575	580	5'	5.15	5.15	3	103	103	0.6	30-40°	VN/TH, FD/CLY/R
580	585	5'	4.75	3.75	6	95	75	1.3	0-85°	VN, ± VG/TH-OP, FD/QTZ, CLY/R
585	590	5'	4.5	4.1	7	90	82	1.6	0-75°	VN, ± VG/TH, FD/QTZ, CLY/R
590	595	5'	4.95	4.65	6	99	93	1.2	45-90°	VN/TH, FD/QTZ, CLY/R
595	600	5'	5.05	5.05	3	101	101	0.6	35-50°	VN/TH, FD/QTZ, PY/R
600	605	5'	4.8	4.3	4	96	86	0.8	30-40°	VN/TH, FD/QTZ, PY/R
605	610	5'	4.35	4.05	4	87	81	0.9	25-70°	VN/TH, FD/QTZ, MAR, PY/PL-R
610	615	5'	4.8	3.7	7	96	74	1.5	30-70°	VN/TH, FD/QTZ, CLY/R
615	620	5'	4.7	4.45	2	94	89	0.4	0-20°	VN/TH, FD/QTZ, CLY/R
620	625	5'	4.95	4.75	2	99	95	0.4	15-20°	VN/TH, FD/QTZ, CLY/MAR, PY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-198C DIP: VERTICAL CORE SIZE: N DATE: 6-19-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
625	630	5'	5.2	5.2	3	104	104	0.6	20-50°	VN/TH, FD/QTZ, MAR, PY, CLY/PL, R
630	635	5'	4.95	4.95	3	99	99	0.6	20-55°	VN/TH, FD/QTZ, MAR, PY, CLY/R
635	640	5'	5.0	4.8	3	100	96	0.6	30-35°	VN/TH, FD/QTZ, MAR, CLY/R
640	645	5'	4.9	4.9	2	98	98	0.4	10-45°	VN/TH, FD/QTZ, MAR, PY, CLY /R
645	650	5'	4.5	4.5	1	90	90	0.2	20°	VN/TH, FD/QTZ, MAR, PY, CLY/R
650	655	5'	5.0	5.0	2	100	100	0.6	15-20°	VN/TH, FD/QTZ, PY/PL, R
					1				25°	VN/TH, FD/CLY/R
655	660	5'	4.65	4.65	1	93	93	0.2	20°	VN/TH, FD/CLY, PY/R
660	665	5'	5.05	5.05	3	101	101	0.6	5-65°	VN, VG/TH, FD/QTZ, CLY, PY/R
665	670	5'	4.7	4.3	3	94	86	1.1	30-45°	VN, ±VG/TH, FD/QTZ, PY, MAR/R
					2				25-40°	VN/TH, FD/CLY/R
670	675	5'	4.65	4.1	2	93	82	0.6	30-40°	J, VN/TH/R
					1				0-10°	VN/TH, FD/QTZ, PY, CLY/R
675	680	5'	2.9	1.7	4	58	34	1.4	0-60°	VN/TH, FD/QTZ, PY, CLY/R
										NOTE: 675.5'-676' Broken rubble.
680	685	5'	5.2	4.3	5	104	86	1.0	15-75°	VN/TH, FD/QTZ, PY, CLY/R
685	690	5'	5.05	5.05	0	101	101	0.0	—	—
690	695	5'	5.65	5.65	2	113	113	0.4	30-45°	VN/TH, FD/QTZ, PY, CLY/R
695	700	5'	4.95	4.95	4	99	99	0.8	30-85°	VN/TH, FD/QTZ, PY, CLY/PL-R
700	705	5'	5.15	5.15	1	103	103	0.2	60°	VN/TH, FD/QTZ, PY/R
705	710	5'	4.9	4.9	3	98	98	0.6	0-50°	VN, VG/TH-OP, FD/QTZ, CLY, PY, R
710	715	5'	4.55	4.55	4	91	91	0.9	40-55°	VN, VG/TH-OP, FD/QTZ, CLY, PY/R
715	721.6	6.6'	6.35	4.8	2	96	73	0.8	0-25°	VN, VG/TH-OP, FD/QTZ, CLY/R
					3				30-55°	VN/OP, FD/CLY/R
721.6	725	3.4'	3.2	2.2	2	94	65	0.9	0-15°	VN, VG/TH-OP, FD/QTZ, CLY, PY/R
					1				80°	VN/TH, FD/QTZ, CLY, PY/PL-R
725	730	5'	4.95	4.5	2	99	90	0.8	0-30°	VN, VG/TH-OP, FD/QTZ, CLY, MAR/R
					2				30-35°	VN/TH, FD/CLY, MAR/PL
730	735	5'	4.9	4.9	1	98	98	0.8	55°	VN/TH, FD/CLY, MAR/PL
					3				0-20°	VN, VG/TH-OP, FD/QTZ, CLY, PY/R
735	740.2	5.2'	4.6	4.3	1	87	83	0.2	0-30°	VN, VG/TH, FD/QTZ, CLY, MAR/R
740.2	745.5	5.3'			4				65°	J/TH, FD/CLY/PL, R

T.D. 745.5

NOTE: 740.2'-742' Clay gouge

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-170 C DIP: VERTICAL CORE SIZE: NX DATE: 6-13-91

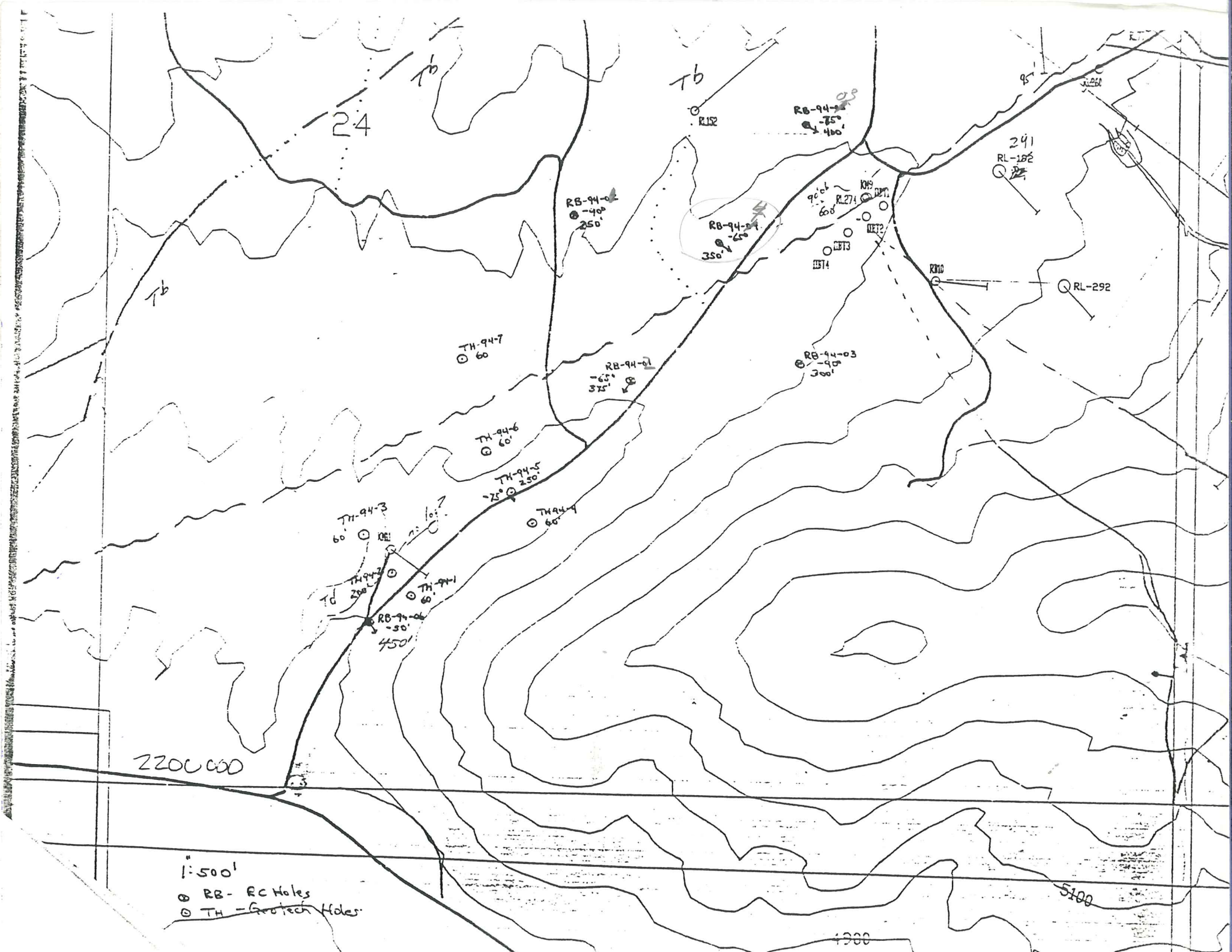
1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
665	670	5'	4.85	4.25	3	97%	85%	0.6	35-55°	VN, VG/TH-OP, FD/QTZ, CLY, MAR/R
670	675	5'	5.0	4.8	2	100	96	0.4	0-30°	VN, VG/TH-OP, FD/CLY, QTZ, MAR, BA/R
675	680	5'	4.5	4.0	5	90	80	1.1	0-60°	VN, VG/TH-OP, FD/CLY, QTZ, MAR/R
680	685	5'	4.95	4.95	2	99	99	0.4	25-50	VN, VG/TH-OP, FD/QTZ, CLY/R
685	690	5'	4.0	4.0	3	80	80	0.8	0-30°	VN, VG/TH-OP, FD/QTZ, MAR, BA, CLY/R
690	695	5'	4.95	4.95	3	99	99	0.6	0-35°	VN, VG/TH-OP, FD/QTZ, MAR, BA, CLY/R
695	700	5'	4.3	4.0	5	86	80	1.2	15-75°	VN, VG/TH, FD/QTZ, CLY, MAR/R
700	705	5'	5.0	5.0	4	100	100	0.8	15-60°	VN/TH, FD/QTZ, CLY, MAR/R
705	710	5'	4.7	4.7	3	94	94	0.6	0-85°	VN, VG/TH, FD/QTZ, MAR, BA, PY/R
710	715	5'	5.0	4.55	4	100	91	0.8	20-65°	VN, ±VG/TH-OP/QTZ, PY, CLY/R
715	720	5'	5.15	5.15	1	103	103	0.2	25°	VN/TH, FD/QTZ, CLY, PY/R
720	725	5'	4.9	4.9	2	98	98	0.4	40-60°	VN, VG/TH-OP/QTZ, CLY/R
725	730	5'	4.45	4.45	3	89	89	2.9	40-45°	VN/TH, FD/QTZ, CLY/R
730	735	5'	5.0	5.0	2	100	100	0.4	25-40°	VN/TH, FD/CLY/PL, SM
735	740	5'	5.0	4.5	8	100	90	1.6	25-60°	VN/TH, FD/CLY/R
740	745	5'	5.0	4.7	6	100	94	1.2	35-60°	VN/TH, FD/CLY, QTZ, PY/W
745	750	5'	4.35	3.85	7	87	77	1.6	0-70°	VN, ±VG/TH, FD/QTZ, CLY, MAR/PL, R
750	755	5'	5.0	3.95	7	100	79	1.4	0-70°	VN, ±VG/TH-OP, FD/QTZ, MAR, CLY/PL, R
755	760	5'	4.8	4.8	0	96	96	0.0	—	—
760	765	5'	5.0	5.0	2	100	100	0.4	20°	VN, VG/TH, FD/QTZ, CLY/R
										NOTE: Broken Rubble @ 764'
765	770	5'	3.85	2.1	6	77	42	1.6	30-35°	J, VN/TH, FD/CLY/R
										NOTE: 767'-770' Broken Rubble
770	775	5'	4.95	4.7	3	99	94	0.6	0-55°	VN/TH, FD/CLY/R
775	780	5'	4.2	4.2	0	84	84	0.0	—	—
780	785	5'	5.05	5.05	2	101	101	0.4	50-70°	VN/TH, FD/CLY, CAL/PL
785	790	5'	5.0	5.0	1	100	100	0.2	70°	VN/TH, FD/CLY, QTZ/PL
790	795	5'	5.0	5.0	2	100	100	0.4	35-50°	VN/TH, FD/CLY, CAL/PL, R
795	800	5'	4.2	3.9	3	84	78	0.7	10-60°	VN/TH, FD/CAL, CLY/PL, R
800	805	5'	4.9	4.5	5	98	90	1.0	40-60°	VN/TH, FD/QTZ, CAL, CLY, MAR, PY/PL
805	810	5'	4.65	4.65	2	93	93	0.4	50-55	VN/TH, FD/CAL, PY, CLY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: RL-170C DIP: VERTICAL CORE SIZE: NX DATE: 6-13-91

1	2	3	4	5	6	7	8	9	10	11
FROM	TO	CORE RUN	RECOVERED CORE	TOTAL LENGTH OF CORE>4"	NO. OF FRACTURES	CORE RECOVERY (%) (4/3 X 100)	R.Q.D. (%) (5/3 X 100)	FRACTURES PER FT. (6/4)	RANGE OR AVERAGE ANGLE OF FRACTURE W.R.T. CORE AXIS	REMARKS
810	815	5'	5.0	5.0	6	100%	100%	1.2	20-35°	VN/TH, FD/CAL, CLY, PY/PL
815	820	5'	4.95	4.95	0	99	99	0.0	—	—
820	825	5'	4.95	4.95	0	99	99	0.0	—	—
825	830	5'	4.7	4.35	1	94	87	0.2	0-20°	VN/TH, FD/CAL, CLY/PL, R
830	835	5'	4.8	3.9	3	96	78	0.6	0-30°	VN/TH, FD/CAL, CLY/PL, R
835	840	5'	4.5	4.5	1	90	90	0.2	35°	VN/TH, FD/CAL/PL
840	845	5'	4.9	4.9	0	98	98	0.0	—	—
845	850	5'	4.2	4.2	1	84	84	0.2	55°	VN/TH, FD/CLY, CAL/PL
850	853	3'	3.0	3.0	1	100	60	0.3	65°	VN/TH, FD/CLY, CAL/PL, R
	T.D. 853'									


24
Tb
Tb
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RL152
RB-94-08
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400'
RL261
95'
241
RL-182
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-40°
250'
RB-94-09
-60°
350'
90°
60'
RL274
RL-292
RB-94-03
-90°
300'
TH-94-7
60
RB-94-01
-65°
375'
TH-94-6
60'
TH-94-5
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TH-94-2
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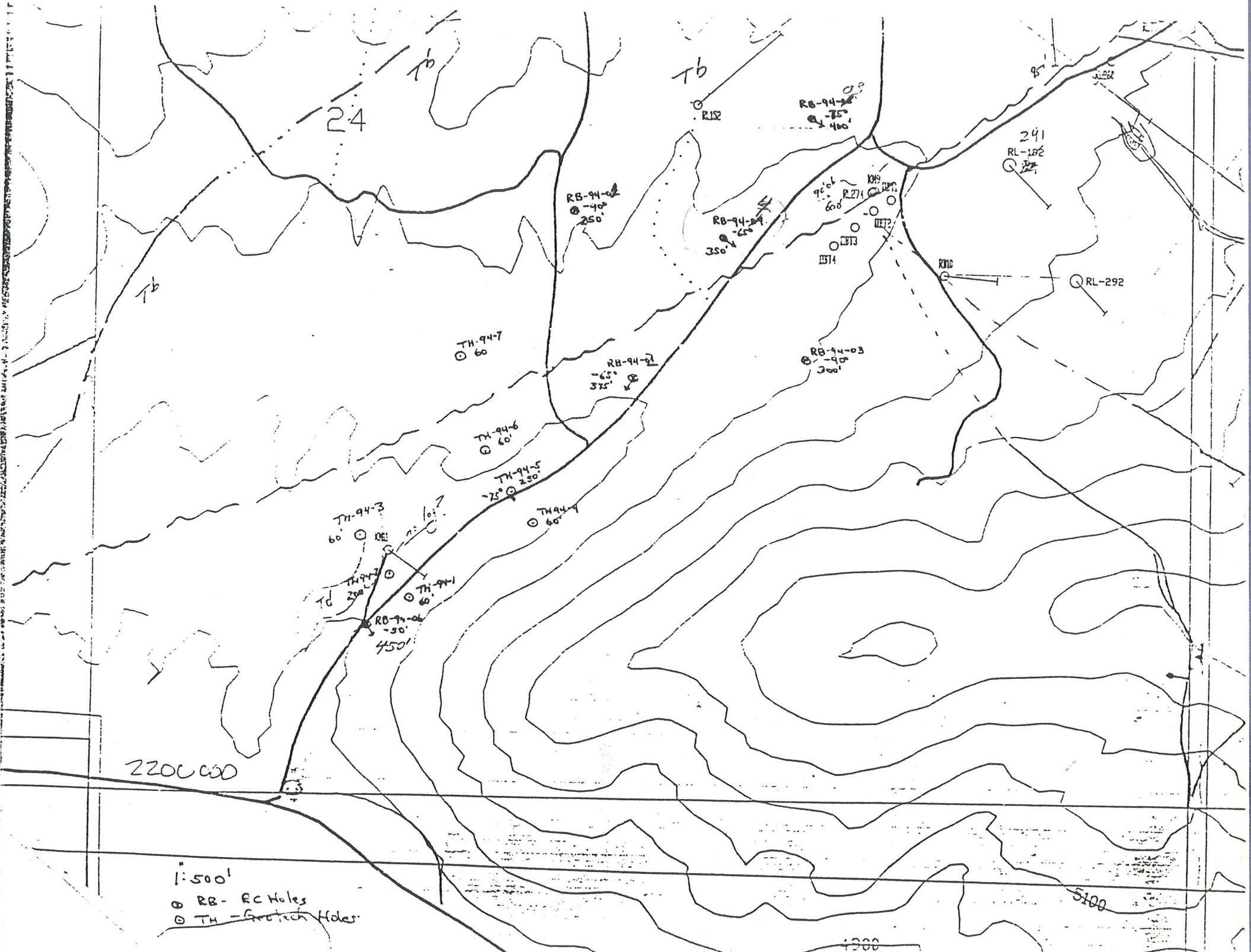
24
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Tb
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R152
RB-94-04
-75°
400'
95'
241
RL-182
RB-94-02
-40°
250'
RB-94-09
-65°
350'
R271
60'
RL-292
TH-94-7
60
RB-94-01
-65°
375'
RB-94-03
-90°
300'
TH-94-6
60'
TH-94-5
250'
-25°
TH-94-4
60'
TH-94-3
60'
TH-94-2
200
TH-94-1
60'
RB-94-06
-30°
450'
2200000
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RB- RC Holes
TH - Geotech Holes
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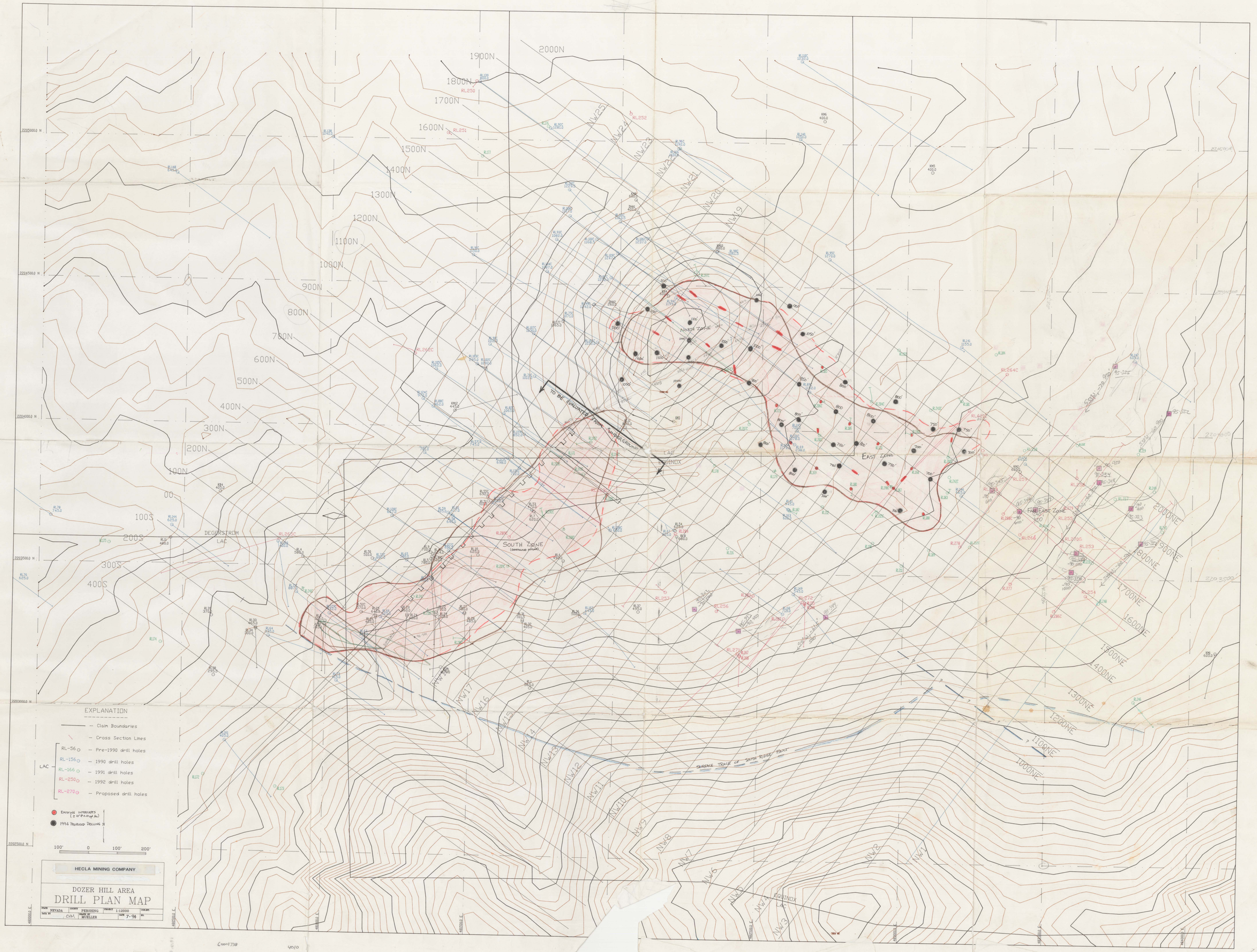
1900


EXPLANATION
Claim Boundaries
Cross Section Lines
RL-56 Pre-1990 drill holes
RL-156 1990 drill holes
RL-166 1991 drill holes
RL-250 1992 drill holes
RL-270 Proposed drill holes
LAC
Existing Intercepts
1994 Proposed Drilling
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HECLA MINING COMPANY
DOZER HILL AREA
DRILL PLAN MAP
STATE NEVADA
COUNTY PERSHING
PROJECT 1:12000
DRAWN BY CVM
CHECKED BY MUELLER
DATE 7-94
NORTH ZONE
SOUTH ZONE
EAST ZONE
FAR EAST ZONE
TO BE EVALUATED FROM SURFACE GROUND
SURFACE TRACE OF SOUTH RIDGE FAULT
EQUINOX LAC
DEGERSTROM LAC
1900N
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