60001248

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud Drill Hole File - Hole No. RE-9
AUTHOR	K. Kenner; N. Brewer; R. Grondin
DATE OF DOC(S)	1989-1990
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Lac Minerals (USA) Inc Environmental West Exploration
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 700' handwritten notes 22 p.

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: DD 5/19/08
Initials Date
DB: MSH
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

DRILL LOGS RE-9
Rosebud

60001248 4010 ✓

60001248

LAC MINERALS (U.S.A.) INC.

DRILL LOG SUMMARY SHEET

PROJECT ROSEBUD

HOLE NUMBER RE-9 TOTAL DEPTH 700' LOGGED BY KLK

Date started 5-12-89 12:00 noon drilling w/ casing
5-13-89 to 460'

Date completed 8-10-89
8-8-89 460' to 495
8-9-89 495-570
8-10-89 570-700

Initial bearing —

Initial inclination vertical

Elevation 5248.3

Collar coordinates:

N 2203553

E 481359.1

Contractor: ENVIORNMENTAL West Explor.

Drill Type: REVERSE CIRCULATION

Hole Size: 5 1/2" Hammer, 5 1/4" tricone

Drilling Conditions: GOOD

Footage: Wet / Dry Dry: 0-200'

Wet: 200'-460' WETVT TO TRICONE

Comments: 30' N of drill hole # RE-5

end of hole 8 gallons H_2O/minute

Collared 23' NSW of Angle hole RE-5

@ 460' reentered w/ hammer
575' ↑ H_2O 475' ↑ H_2O

DOWN HOLE SURVEY INFORMATION

FROM	TO	SURVEY POINT	INCLI-NATION	BEARING	X (Northing)	Y (Easting)	Z (Elevation)
0	700		VERT				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 1 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ACT	ALTERATION: ARGILLIC W M S	SILICIFICATION W M S	PROPYLLITIC W M S	COLOR FINES	MINERALIZATION: LIMONITE W M S	HEMATITE W M S	JAROSITE W M S	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au ✓	Ag	As	Hg	Sb	Se
0-5	Intervals 100	Lt green to tan fine grained tuff, pervasive argillic alt weak pervasive SiO2, fine qtz stkwk, pervasive limonite, weakly mgy drusy qtz vns w/ clay gall, wk bff yellow clay		X X X				orange tan					~1% relict py casts ± limon fill		.001		<.1			
5-10	"	same w/ strong yellow clay gouge more buff & green ~10% burgundy arg calcedonic silicification	CLAY	X X X				"					<1% limon replac		.001		<.1			
10-15	GOOD	same w/ very strong argillic — clay gouge	CLAY	X X X				lt green buff					"		<.001		<.1			
15-20	"	same w/ very strong weakly limonitic clay	CLAY	X X X				orange tan					"		<.001		<.1			
20-25	"	same w/ pervasive fresh coloration strong buff to weakly limonitic clay	CLAY	X X X				"					"	wk goethite	.004		<.1			
25-30	"	fresh tan fine grained tuff, pervasively silicified strong qtz/wk w/ limonite bff weak fine stockwork qtz, few darks goethite veins, wk yellow clay		XX XX				"					~1% Fe oxy replac py	"	.001		<.1			
30-35	"	same w/ butterscotch silicif veins slight ↑ argillic alt		XX XX				"					"	"	<.001		<.1			
35-40	"	same w/ ↓ argillic alt ↑ pervasive SiO2 weak hairline stkwk		XX XX				"					"		.005		<.1			
40-45	"	same w/ ↓ argillic alt ↑ pervasive SiO2 weak SiO2 encap sulfide veins, wk stkwk		XX XX tr				"					2% diss & cluster py	+ wk limon replac py	.003		<.1			
45-50	"	same w/ ↑↑ argillic alt, pervasive w/ green hunt ↓↓ pervasive SiO2 pervasive yellow clay		X XX				buff					tr limon replac py		.002		<.1			

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 2 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALT	ALTERATION: ARGILLIC (W M S)	ALTERATION: SILICIFICATION (W M S)	ALTERATION: PROPYLLITIC (W M S)	COLOR FINES	MINERALIZATION: LIMONITE (W M S)	MINERALIZATION: HEMATITE (W M S)	MINERALIZATION: JAROSITE (W M S)	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au V	Ag	As	Hg	Sb	Se
50-55	G OOO	Light buff to lichens green, lime or ground lithic tuff, pervasive argillic alt, weak hairline stockwork, weak drusy qtz w/ limonite clay bill lithics w/ clay alt, weak pervasive SiO2		X X X				Buff + wk org				tr limon replac py		.002		<.1				
55-60	"	same w/ ↑ pervasive SiO2 ↑ per limon clay		X X X				"				"		.002		<.1				
60-65	"	same " " " w/ ↓ limon clay		X X X				"				"		.003		<.1				
65-70	"	Same — predom buff, good pervasive SiO2 wk black mineral ↓ lithics (green frags — contamination		X X X X				buff			pos	tr diss py	wk burg min diss jaus?	.001		<.1				
70-75	"	same @ 65-70'		X X X X				"				" ±lime replac		.001		<.1				
75-80	"	Same @ 65-70' w/ weak green hue slight granular texture wk black mineral		X X X X				orange tan				"		.002		<.1				
80-85	"	Same w/ ~20% argillic alt lt green tuff 81' - fault zone wk chr wk + drusy qtz		X X X				"				1% diss py		.002		<.1				
85-90	"	lt green hue on tuff strong pervasive argillization few SiO2 encap pyrite veinlet wk local silic drip jade frags		X				green				2% diss py + vns		.001		<.1				
90-95	"	same @ 85'-90' w/ ↑ green drip jade mod lt gray clay poss fragmental component w/ strong lithic tuff		X A?				"				" @ 2-3%		.002		<.1				
95-100	"	same " " " weak banded calcedony veins weak green gray clay		X A?				"				"		.001		<.1				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 3 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALT	ALTERATION: ARGILLIC (W M S)	ALTERATION: SILICIFICATION (W M S)	ALTERATION: PROPYLLITIC (W M S)	COLOR FINES	MINERALIZATION: LIMONITE (W M S)	MINERALIZATION: HEMATITE (W M S)	MINERALIZATION: JAROSITE (W M S)	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au V	Ag	As	Hg	Sb	Se
100	GOOD	same @ 105-110' w/ mod med green clay + weak limonite veins						green				" ↑		<.001		<.1				
105	GOOD	Grammy to deep olive green fine grained tuff, totally lithic to fine fragmental, pervasive argillic alt, poss wk calcedonic stock		xc				green				1-2% diss ± vn py		<.001		<.1				
110	"	all tuffaceous same w/ weak gray clay tr calcite veins		CA				"				" @ 1%		<.001		<.1				
115	"	same w/ tr black mineral in veinlets local wk qtz SiO2		x CA				"				"		<.001		<.1				
120	"	same w/ weak pink coloration poss wk calced SiO2, local wk py veins ± epiclastic		xc CA				"				" @ 1-2%		<.001		<.1				
125	"	same w/ ↓ propy green ↑ arg white weak white clay ~ 50% lt gray brn calcedonic w/ silic trace weathey calcareous w/ stockwk qtz + py		CA				lt busy green				~2% diss ± vn py		.014		<.1				
130	"	same w/ pervasive very lt green propy ↑ pervasive SiO2 weak SiO2 + blached sulfide veins		xc xk				"				"	tr marcasite	<.001		<.1				
135	FAULT	same @ 130-135 w/ mod lt green sticky clay more bleached, argillic mod gray hard clasts		xc xk				"				"	"	.001		<.1				
140	"	Intense white clay w/ lt green arg alt as altered tuffs		xc xk				buff				?	"	<.001		<.1				
145	"	same @ above w/ str silicic frag or burn to buff tuffs		X Xk				"				"	"	<.001		<.1				
150																				

GOING INTO GOOD ZONE

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 4 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALT	ALTERATION: ARGILLIC (W M S)	ALTERATION: SILICIFICATION (W M S)	ALTERATION: PROPYLLITIC (W M S)	COLOR FINES	MINERALIZATION: LIMONITE (W M S)	MINERALIZATION: HEMATITE (W M S)	MINERALIZATION: JAROSITE (W M S)	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au ✓	Ag	As	Hg	Sb	Se
150	GOOD	XX gray brown fine ash tuff, pervasively silicified, weak chlorite? (dispersion) veins, weak SiO2 + py veins, fine hairline stkwk (wk)		XX, XK				GRAY LT.				1-2% diss + vn py		.003		.62				
155	"	same w/ weak gray clay		XX, XK				"				" @ 2%		.001		<.1				
160	"	same w/ slight ↑ stkwk		XX, XK				"				" w/ ↑ vn sulf.		.001		<.1				
165	"	same w/ ↑ sulfide SiO2 veins, wk calcite veins		XX, XK, LA				"				4% vn + diss py		<.001		<.1				
170	"	same w/ ↑ argillic alt wk calcareous vns, mod SiO2 + pyrite veins		X, XK, LA				"				" @ ~3%		<.001		<.1				
175	"	same w/ ↑ pervasive SiO2		X, XK				"				~4% diss, vn py + marcasite		.001		<.1				
180	"	same w/ ↑ stkwk qtz + wk ↑ argillic alt, pervasive wk flush org-pink hue		X, XK, XCK				"				" @ ~3%		.005		.29				
185	"	same w/ relict flow band w/ pervasive slight pink hue		X, XCK, XK				"				" w/ wk vns		.003		.16				
190	"	same w/ pervasive pink hue, very weak hairline stkwk		X, XCK, XK				"				1-2% fine diss + vn py		<.001		<.1				
195	"	same w/ pervasive pink hue ↑ " SiO2, wk ↑ hairline stkwk		X, XCK, XK				"				~3% diss marcasite + py + vn		.001		<.1				
200																				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 5 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALT	ARGILLIC W M S	SILICIFICATION W M S	PROPYLLITIC W M S	COLOR FINES	LIMONITE W M S	HEMATITE W M S	JAROSITE W M S	% SULFIDES	OTHER COMMENTS	Au	Au V	Ag	As	Hg	Sb	Se
200	DCOG	Flesh fine grained tuff, weak pervasive SiO2, weak pervasive chalcedonic alt, wk fine 0.1 stkwk weak dark green (chlorite) veinlets, leached w/ few fine green xtal (che?) with SiO2 encap py veinlets		XK XX				BUFF FLESH				2-3% VN CLUSTER py ± diss	plus marca site @ diss	.001		.15				
205	"	same w/ ↓ green (che?) veinlets ~ 20% medium cinnamon brown trap w/ str pervasive SiO2 ↑ cluster pyrite + SiO2 veins		XX XK				"				" @ 3-4% cluster preferred	"	<.001		.14				
210	"	same w/ pervasive mottling of green (che?) alt w/ ↓ chl veining		XX XK				lt gray green				" @ ~3%	"	<.001		<.10				
215	"	same w/ ~ 10% green propyllitic trap wk calcedonic green stkwk wk SiO2 encap py veins		X XK XCK				"				" @ 2-3%	"	<.001		.11				
220	"	same w/ ↑ argillic alt mottled light lichen green to flesh very weak hairline stkwk weakly calcareous		XK CA				"				1-2% diss ± VN py		<.001		<.1				
225	"	same w/ ↑ argillic alt; more grainy tuff + poss texture mottled lt lichen green fine fragmental to flesh to cinnamon brown wk little clay		XK CA				"				4-5% VN py		<.001		<.1				
230	"	mottled lt lichen green to flesh fine fragmental pervasive argillic alt fine hairline stkwk, weak tuffy component weakly calcedonic matrix, weak pervasively calcareous		XC XK CA				"				" @ 2-3% diss		<.001		<.1				
235	"	same w/ grainy texture; deeper green propyllitic alt, tr dwtzyite		XC XK CA				"				1% diss fine py		<.001		<.1				
240	MODERATE	mottled burgundy brown and medium lichen green fine tuff w/ poss fragmental component brown trap w/ pervasive SiO2 green - strong argillic alt + pervasively calcareous wk red org clay (bright)		XX XK CA				"				<1% diss marcasite ± py		<.001		<.1				
245	"	same w/ ↑ pervasive argillic alt ↓ green ↓ brown silic tuff		XK CA				"				"		<.001		<.1				
250																				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 6 OF 14

	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALT	ALTERATION ARGILLIC W M S	SILICIFICATION W M S	PROPYLLITIC W M S	COLOR FINES	MINERALIZATION LIMONITE W M S	HEMATITE W M S	JAROSITE W M S	% SULFIDES	OTHER COMMENTS	ANALYSES Au	Au ✓	Ag	As	Hg	Sb	Se
250	G O O D	brec fragmental alt masks texture mottled lt cream to buff to lt brn pervasive argillic alt, weak calcite veinlets w/ calcedony + py stkwk, SiO_2 ± $CaCO_3$ + py veinlets		XK XCK CA				Lt brn + green				2-3% VN + diss py : marcasite		<.001		<.1				
255	"	same w/ ↓ sulfide veins few light gray silic frags + diss mar		XK XCK CA				"				" @ 1-2% predom diss		<.001		<.1				
260	"	same w/ ↑ argillic alt 263' hit fault + ↑ H_2O		XK XCK CA				"				"		<.001		<.1				
265	"	same ↓ in grn		XK XCK CA				"				"		<.001		<.1				
270	"	same ↓ grn wk white clay ↑ calcedonic, drg brn SiO_2		XC XK CA				"				"		<.001		<.1				
275	"	same w/ more burgundy brn color w/ assoc deep grn, wk tuff component + weak pervasive SiO_2 wk white mod hard clay		X XK CA				Gray				< 1% diss py		<.001		<.1				
280	"	same @ 275' - 280'		X XK CA				Brown				~1% diss py		<.001		<.1				
285	"	same @ 275' - 280'		X XK CA				"				<1% diss py		.001		<.1				
290	"	same @ 275' - 280' w/ tbrn frags bubbly calc tuff		X XK CA				"				"		<.001		<.1				
295	"	same w/ tbrn lt gray silic frags ↑ tuffy component		X XK CA				"				"	tr marcasite	<.001		<.1				
300																				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 7 OF 14

Depth	Recovery	Lithologic Description	Graphic Log	Graphic Alt	Alteration: Argillic (W M S)	Alteration: Silicification (W M S)	Alteration: Propyllitic (W M S)	Color Fines	Mineralization: Limonite (W M S)	Mineralization: Hematite (W M S)	Mineralization: Jarosite (W M S)	% Sulfides	Other Comments	Analyses: Au	Au V	Ag	As	Hg	Sb	Se
300	GOOD	Buff to flesh w/ very weak lt green fine fragmental w/ tuffaceous component pervasive argillic alteration tuff frag more silicified pervasively finely hairline stkwk wk druzy qtz encap marcasite		X XK TT XCK				Lt brown				3% VN + diss marcasite + py		.007		<.1				
305	RANDOM	same w/ ↑ flesh tuff		X XK TT				"				" @ 3-4%	plus clusted py-mar + SiO2	.049		.8				
310	"	same w/ ↑ argillic alt ↑ hairline stkwk more gray clays, few gray SiO2 frags to white ~20-30% buff white bleached tuff		X XK TT XCK				"				"	"	.005		<.1				
315 *	"	Flesh fine to grainy lithic tuff lithics clay alt pervasive argillic alteration fine stockwork druzy qtz weak locally SiO2 flush weak V component, few bleached white tuff argillic frags, wk hairline stkwk, wk SiO2 encap stk sulfides		X XK TT				flesh tan				3% + diss + VN py + marcasite	wk SiO2 encap sulf.	.002		.19				
320 *	"	same w/ clay in solution ↑ good stockwk hairline qtz local druzy qtz w/ black mineral — possibly a Ag relation		X XK TT				"				"	"	.004		<.1				
325 *	"	same w/ ↑ local SiO2 flush pervasive + VN (weak) CaCO3		XX XK TT CA				"				" @ ~4%	diss very fine + sulf in VN SiO2	<.001		<.1				
330 *	GOOD	same more buff gray in coloration w/ ~15-20% calcite ↑ perv. argillic alt, ↓ wk STKWK present of barite? — is there harder calcite?		X XK CA				BUFF				" @ 3-4%	"	<.001		.11				
335 *	HUGE	same w/ ↑↑ pervasive SiO2 - bleached very weak hairline qtz stkwk very weak perv. calcareous		XXX XK				GRAY BUFF				"	predom fine diss	.001		<.1				
340 *	GOOD	same @ 335-340 more grainy + ↓ sulfides		XXX XK				"				" @ 2%+	"	<.001		<.1				
345 *	"	same w/ ↑ argillic alt slight ↓ perv SiO2 more grainy		XX XK				"				"	"	<.001		<.1				
350																				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 8 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION (DOZER → CHOCOLATE ? ANDESITE DIKE?)	GRAPHIC LOG	GRAPHIC ALT	ARGILLIC (W M S)	SILICIFICATION (W M S)	PROPYLLITIC (W M S)	COLOR FINES	LIMONITE (W M S)	HEMATITE (W M S)	JAROSITE (W M S)	% SULFIDES	OTHER COMMENTS	Au	Au V	Ag	As	Hg	Sb	Se
350	DCOG	same @ 315-320 w/ wk calcite vns wk fine hairline stkwk		X XK XCK				GRAY BUFF				2% diss + vn py		<.001		<.1				
355 (DOZER / CHOCOLATE)	"	CHOCOLATE - dup purple fine grained tuff 2% white bleached frags. Pervasive SiO2 ; predom unaltered , wk calcite vns tr hairline stkwk gte Silic = ? welded tuff		X XK CA				DEEP PURPLE				—		<.001		<.1				
360	"	same w/ few red brn frags		XCK XK CA				"				—		<.001		<.1				
365	"	same w/ ↑ bleached frags (7-10%)		XCK XK CA				"				tr diss py in bleached frags		<.001		.27				
370	"	same w/ 2% bleached frags more vein like calcite weak pervasive argillic alt		XCK XK CA				"				tr py		<.001		<.1				
375	"	same w/ few bleached stkwk veined fragmental		XCK XK CA				"				tr py visible in bleached frags		<.001		<.1				
380	"	same becoming more dark gray in coloration more granular in texture, wk lt green frags		XCK XK CA				"				<1% diss py		<.001		<.1				
385	"	same - pervasive bleaching w/ lt purple gray hue + ~20-30% buff frags very weak green hue fine grainy texture		XK CA				lt gray				tr diss py		<.001		.34				
390	"	mottled pink to buff fine grained tuff flow banded fine stkwk weak pervasive argillic alt wk green locally wk calcite frags poss wet bl + choco		XK CA				GRAY BUFF				"		<.001		<.1				
395	"	very lt gray tan to peach flesh fine grn tuff mottled pervasive wk silicification weak argillic alt, wk stkwk SiO2 very weakly calcareous		X XK				FLESH BUFF				~1-2% very fine diss + vn py		<.001		<.1				
400																				

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 9 OF 14

8 gallons/minute H_2O could have been good hammer hole

CHOCOLATE?

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALT	ARGILLIC W	ARGILLIC M	ARGILLIC S	SILICIFICATION W	SILICIFICATION M	SILICIFICATION S	PROPYLLITIC W	PROPYLLITIC M	PROPYLLITIC S	COLOR FINES	LIMONITE W	LIMONITE M	LIMONITE S	HEMATITE W	HEMATITE M	HEMATITE S	JAROSITE W	JAROSITE M	JAROSITE S	% SULFIDES	OTHER COMMENTS	Au	Au V	Ag	As	Hg	Sb	Se
400	G D C D	MOTTLED DEEP PURPLE, BUFF & ORANGE FINE GR TUFF weak pervasive silicification weak org calcedonic stkwk intermittent bleach, weakly calcareous		X Xck CA										Purple										1-2% fine diss py ± VN		<.001		<.1				
405	"	same w/ ↑ bleaching		X Xck CA										PURPLE + BUFF										"		<.001		<.1				
410	"	same w/ pervasive bleache pinkish tan to lt hint green buff		X Xck CA										TAN PINKISH										"		<.001		<.1				
415	"	same w/ mix of purple & non purple buff + org		X Xck CA										" to purple										2% fine diss py		<.001		<.1				
420	"	same w/ pervasive bleach is p" tan to peach w/ carb		Xck X CA										PINKISH TAN										"		<.001		<.1				
425	"	same (a) 420-425 less org seams calcedony ~10% tan well silic frags w/ 2-3% very fine diss py		Xck X X CA										"										2-3% very fine diss ± VN py		<.001		<.1				
430	"	Grayish tan fine gr tuff similar to above w/ weak orange hint flush w/ deep purple intermittently pervasively well silicified, w/ stkwk qtz weakly calcareous, weak pervasive bleach		X K XX CA										tan to lt brn										1% very fine diss ± VN py		<.001		<.1				
435	"	same - no deep purple frags trace hairline stkwk		XX Xk CA										"										"		<.001		<.1				
440	"	same w/ lower interval virtually bleach unaltered tuff trace hairline stkwk		XX Xk CA										" to black										"		<.001		<.1				
445	"	Brown Bleach fine grained possibly welded tuff relatively unaltered however appears to possibe well silicified very weakly calcareous but dark chlorite vein seams		XX										BLACK										—		<.001		<.1				
450																																

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PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 10 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION (hard - not silicified)	GRAPHIC LOG	GRAPHIC ALT	ALTERATION ARGILLIC W M S	ALTERATION SILICIFICATION W M S	ALTERATION PROPYLLITIC W M S	COLOR FINES	MINERALIZATION LIMONITE W M S	MINERALIZATION HEMATITE W M S	MINERALIZATION JAROSITE W M S	% SULFIDES	OTHER COMMENTS	ANALYSES Au	Au V	Ag	As	Hg	Sb	Se
450	GOOD	same @ 4445-4450' w/ ↑ chl veins very weak local bleach trace calcite veins		XXX				BLACK				<1% diss py		<.001		<.1				
455	"	same turning lt green trace stkwk qtz		XXX XK				lt green				poss 1% diss py		<.001		<.1				
460	"	very sat'd dark purple to green chl band named - hard tuffaceous w/ pink bleached broad patches material with chl band weakly carbonate white contamination with pink stockwork qtz		X? XK P Ca				dk purple + green				<1% diss py		<.001		<.1				
465	"	same w/ ↑ bleached beds to lt green		X? XK Ca P				"				"		<.001		<.1				
470	"	same w/ ↑ lt green white bleached w/ white pink patches in lt sage green		XK Ca P				"				~1% very fine diss py		<.001		<.1				
475	"	same w/ pervasive dk purple coloration & bleaching		XK Ca P				"				" @ <1%		<.001		<.1				
480	"	same - pervasively gray w/ wh bleached green beds bleached w/ kaolinite + sericite w/ calcite veins		XK Ca P				"				"		<.001		<.1				
485	"	same - w/ pervasive sage green - wk bleaching mottled w/ (wh pink) bleach. wk calcite vns wk chl vns wk calcedony vns		XK XK Ca P				"				" @ <1%	wk FeOx replac py throughout fresh	<.001		<.1				
490	"	same @ 480-485 - purple to gray + green		XK XK Ca P				"				"	"	<.001		<.1				
495	"	same @ 480-485 " "		XK XK Ca P				"				"	"	<.001		<.1				
500																				

LAC MINERALS U.S.A. INC.

PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 11 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION (→ diff bed coloration deep purple)	GRAPHIC LOG	GRAPHIC ALTERATION	ALTERATION: ARGILLIC W M S	ALTERATION: SILICIFICATION W M S	ALTERATION: PROPYLLITIC W M S	COLOR FINES	MINERALIZATION: LIMONITE W M S	MINERALIZATION: HEMATITE W M S	MINERALIZATION: JAROSITE W M S	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au ✓	Ag	As	Hg	Sb	Se
500-	GOOD	Fine grained tuff gray to brown to green to purple very hard bleached w/ chlorite, wk lt green hard clay vns, wk Fe ox vns local wk calcite veins, wk fine stockwork qtz vns		xk				purple to gray brown				tr diss py		<.001		<.1				
505-	"	same w/ mod lt green to gray frags wk ↑ calcite		~ xk ca p				" plus green				"		<.001		<.1				
510-	"	same – pur. purple – gray brown		xk ca p				"				"		<.001		<.1				
515-	"	same – w/ wk mod lt green hard clay vns		~ xk ca p				"				"		<.001		<.1				
520-	"	same ↑ lt green + checkered frags		~ xk ca p				green ± purple gray brown				"		<.001		<.1				
525-	"	same ↑ lt green + checkered frags + tan coloration		~				"				"		<.001		<.1				
530-	"	same ↑ variation lt green + tan vns to purple gray		~				"				"		<.001		<.1				
535-	"	same " "		~				"				"		<.001		<.1				
540-	"	same " " wk ↑ argillic alt (no bleach)		~				"				"		<.001		<.1				
545-	"	same ↑ pur. argillic clay alt w/ lt green hard clay vns		~				purple deep gray				"		<.001		<.1				
550-			↓	↓																

LAC MINERALS U.S.A. INC.

PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 12 OF 14

Depth	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALTERATION	ALTERATION: ARGILLIC W M S	ALTERATION: SILICIFICATION W M S	ALTERATION: PROPYLLITIC W M S	COLOR FINES	MINERALIZATION: LIMONITE W M S	MINERALIZATION: HEMATITE W M S	MINERALIZATION: JAROSITE W M S	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au ✓	Ag	As	Hg	Sb	Se
550	GOOD	555-560 contact Deep purple, fine grained tuff wk hematitic clay wk clay alt few bleached frags wk lt green hard waxy clay, wk fine qtz stockwork wk calcite vns, wk chl vns		xk ca chl				deep purple				tr diss py		<.001		<.1				
555	"	same w/ ↑ bleaching w/ mod lilac clay, few pyroclastic frags		xk ca x				OFF WHITE to deep purple				"		<.001		<.1				
560	"	same @ 555-560 w/ micro Dia vns wk calcite vns wk lilac clay ↑ pyroclastic, few siliceous tuff frags		xk xc x				"				"	1-2% fresh diss py	<.001		<.1				
565	"	Pink to tan pyroclastic w/ siliceous tuffaceous interbeds perv. bleached w/ wk clay alt wk hematitic vns local micro breccia vns, wk calcite vns wk pink clay wk grn vns, wk calcedony vns		xk xc ca				PINK				1-2% fresh diss ± vn py		<.001		<.1				
570	"	same ↓ clay, wk calcite vns		xk xc ca				"				"		<.001		<.1				
575	"	same w/ mod grey to tan tuffaceous comp		x xk xc ca				BUFF TO PINK				" @ 2-3%	strong bladed sulfide	<.001		<.1				
580	"	same w/ ↑ sulfides		x xk xc ca				"				" @ 3-4%	"	.001		<.1				
585	"	same w/ ↑ pyroclastic component + micro breccia vns + perv Diatom w/ brick red matrix & bleached frags, prel ✓		x xc xk ca				"				" @ ± 3%	"	<.001		<.1				
590	"	same @ 585-590 with tan clay		x xc xk ca				PINK TO BRICK RED				"	"	<.001		<.1				
595	"	same @ 585-590 wk tan clay		ca xc xk				"				"	"	<.001		<.1				
600																				

LAC MINERALS U.S.A. INC.

LAC

PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 13 OF 14

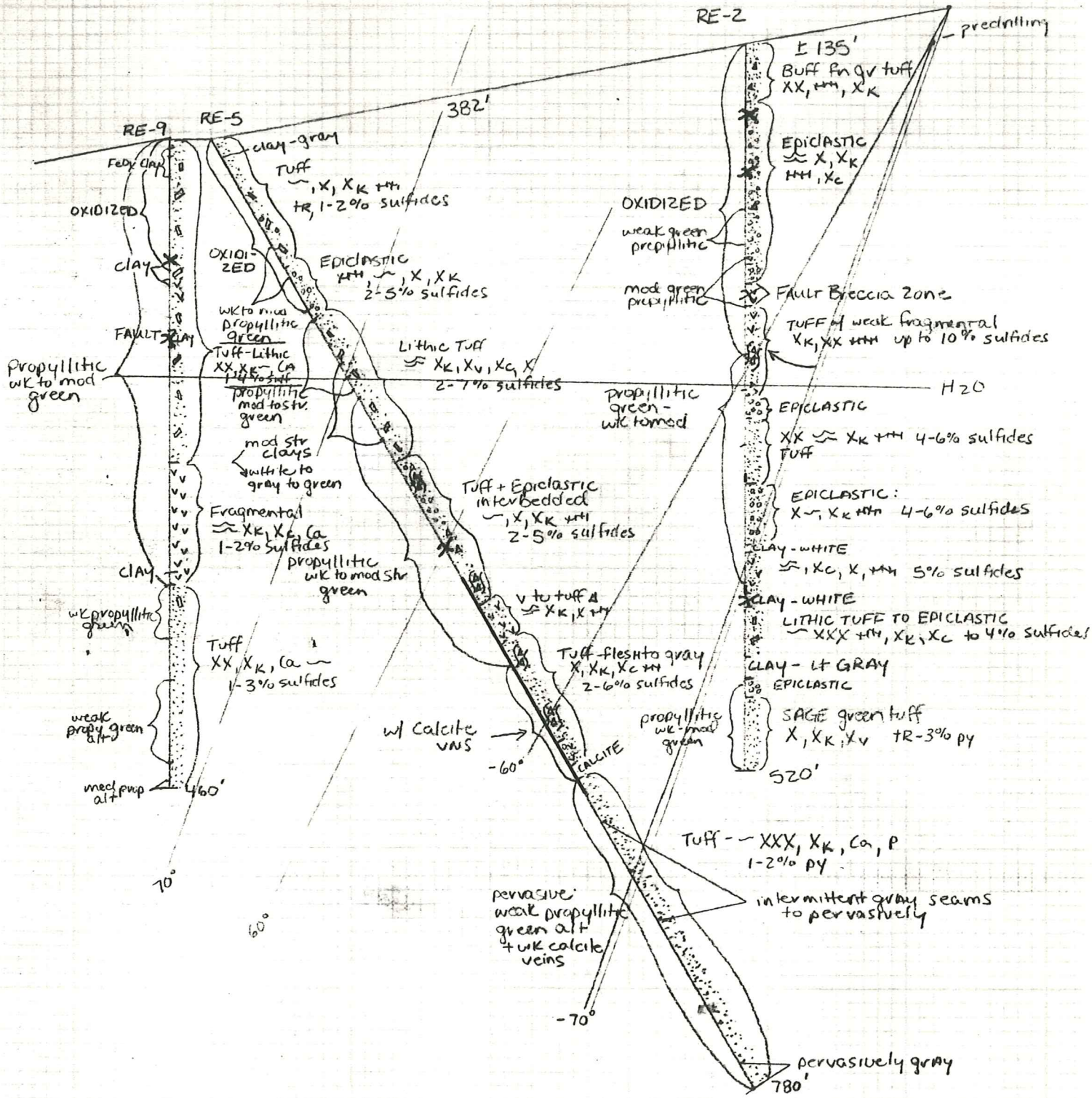
Depth	RECOVERY	LITHOLOGIC DESCRIPTION (vv may be a volcaniclastic)	GRAPHIC LOG	GRAPHIC ALTERATION	ARGILLIC W M S	SILICIFICATION W M S	PROPYLLITIC W M S	COLOR FINES	LIMONITE W M S	HEMATITE W M S	JAROSITE W M S	% SULFIDES	OTHER COMMENTS	Au	Au V	Ag	As	Hg	Sb	Se
600	G O O D	Immersbedded lime grained tuff + fragments (poss pyroclastic) mottled tan to olive green clay wk calcedonic veinlets + veining wk pers. argillic bleach ± clay + wk lt orange clay vns intermittent smectite to local wk montm		X Xc Xk				lt green + tan				2-3% diss + vn py + bladed py?		<.001		<.1				
605	"	alt, local silicif of tan tuff beds wk qtz stkwk wk felx veinlets - v frags are subrounded w/ pers. ~~peach~~ brown, local flow banding / same w/ wk white clay + v. wk local bleaching wk calcite veining		X Xc Xk Ca				"				" @ 3%		.001		<.1				
610	"	Same w/ mod. lt gray clay ↑ qtz stockwork ↑ sulfides		X Xc Xk Ca				"				" @ 3-4%		.001		<.1				
615	"	Same w/ ↑ red orange to peach hue wk chl vns wk ↑ stockwk qtz. 617-619 strong white clay - plugged rods local bleach frags poss ~~TR~~ frags shale		X Xc Xk p Ca				"				" @ 2-3%		<.001		<.1				
620	"	Same - predom pyroclastic w/ deeper tan to green matrix w/ chl to smectite alt frags wk calcite veining + chl vns wk white clay wk ↑ fine qtz stockwork wk ↑ silicification to dk to black opaque mineral		X Xc p Xk Ca				"				" "		<.001		<.1				
625	"	Same w/ red burn matrix in smectite to chl alt frags wk calcite vns wk white clay ↑ calcedonic vns ± frags - lt green		X Xc Xk p Ca				"				"		<.001		<.1				
630	"	Same w/ ↑ montmorillonite ± chl ± smectite alt wk ↑ mod calcite veining wk local bleaching wk local ↑ stockwork qtz vns local microbialums		Xc Xk p Ca				"				" @ 3%	predg bladed sulfide	<.001		<.1				
635	"	Same w/ ↑ pers. montmorillonite ↑ grainy tuff component wk ↑ pers. silicif wk calcite vns, few bleached frags		X Xc Xc Ca				bright green tan org burn				"	"	<.001		<.1				
640	"	Same w/ pers. smectite alt (to chl) → lt gray green wk gray to tan tuff, frags - silicified wk ↑ stkwk qtz vns, sparse ↑ calcite veining few chl vns, wk - mod 10% contam		X Xc Xk p Ca				lt gray green				" @ 2-3%	" @ mod bladed	<.001		<.1				
645		Same - predom gray green to smectite green wk lt gray clay ↑ pers argillic bleach alt wk chl vns wk contamination ~ 5%		X Xc Xc p Ca				"				"		<.001		<.1				
650		+ wk lt blue translucent opaline qtz - vug fill																		

LAC MINERALS U.S.A. INC.

LAC

PROJECT ROSEBUD LOGGED BY KLK HOLE NO. RE-9 PAGE 14 OF 14

	RECOVERY	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	GRAPHIC ALTERATION	ALTERATION: ARGILLIC W M S	ALTERATION: SILICIFICATION W M S	ALTERATION: PROPYLLITIC W M S	COLOR FINES	MINERALIZATION: LIMONITE W M S	MINERALIZATION: HEMATITE W M S	MINERALIZATION: JAROSITE W M S	% SULFIDES	OTHER COMMENTS	ANALYSES: Au	Au V	Ag	As	Hg	Sb	Se
650	G	675 - contact to SGT fragmental - pyroclastic? perv montmorillonite? wh/lt wnd to tan color intermittently siliceous mod argillic/bleach ± clay/wk local FeOx wnd wk		x xc xk p ca				lt to med green				2-3% disst + vn py + bladed py?		<.001		<.1				
655	"	calcite vns locally traps white clay alt, wk to mod lt green calcedony + fine str stockwork wk lt gray clay Same w/ wk ↑ argillic clay alt		x xc xk p ca				"				"		.002		<.1				
660	"	Same w/ poss strong contamination but tan siliceous tuff frags up to 15-20% wh/gy mod lt gray clay		x xc xk p ca				"				"		<.001		<.1				
665	"	same w/ ↑ siliceous tuff frags mottled pink tan to green		x xc xk p ca				tan to green				@ ~2%		<.001		<.1				
670	"	same w/ mod strong calcite veining wh lt gray clay		x xc xk p ca				"				"		<.001		<.1				
675	"	SGT - tiny orange silica rich tuff - v. hard wh fine str stockwork but wk calcite veining wh chlorite veins locally local str stockwork w/ sulfide encapsulation 675-680 wk lt gray clay wk bleach		p ca xk				sage green				2-3% fine diss + vn py	few limon replac py cubes	<.001		<.1				
680	"	same		xk p ca				"				"	"	<.001		<.1				
685	"	same		xk p ca				"				"	"	<.001		<.1				
690	"	same w/ wk white clay		xk p ca				"				"	"	<.001		<.1				
695	"	same TD		xk p ca				"				"	"	<.001		<.1				
700																				


RE-2
predrilling
± 135'
Buff fn gr tuff
XX, +++, XK
382'
RE-9
RE-5
clay-gray
Fe, clay
TUFF
~, X, XK +++
tR, 1-2% sulfides
OXIDIZED
Epiclastic
≈ X, XK
+++, Xc
OXIDIZED
weak green propylitic
clay
OXIDIZED
Epiclastic
+++, ~, X, XK
2-5% sulfides
mod green propylitic
FAULT Breccia Zone
wk to mod propyllitic green
FAULT
clay
TUFF w/ weak fragmental
XK, XX +++ up to 10% sulfides
Lithic Tuff
≈ XK, XV, Xc, X
2-7% sulfides
Propyllitic wk to mod green
Tuff-Lithic
XX, XK ~ Ca
1-4% sulf
propyllitic mod to str. green
H2O
propyllitic green - wk to mod
EPICLASTIC
XX ≈ XK +++ 4-6% sulfides
TUFF
mod str clays
white to gray to green
Tuff + Epiclastic interbedded
~, X, XK +++
2-5% sulfides
EPICLASTIC:
X ~, XK +++ 4-6% sulfides
Fragmental
≈ XK, Xc, Ca
1-2% sulfides
propyllitic wk to mod str green
CLAY - WHITE
≈, Xc, X, +++ 5% sulfides
clay
V to tuff
≈ XK, X +++
CLAY - WHITE
LITHIC TUFF TO EPICLASTIC
~ XXX +++, XK, Xc to 4% sulfides
wk propyllitic green
Tuff
XX, XK, Ca ~
1-3% sulfides
Tuff-flesh to gray
X, XK, Xc +++
2-6% sulfides
CLAY - Lt GRAY
EPICLASTIC
weak propy green alt
w/ Calcite vns
propyllitic wk-mod green
SAGE green tuff
X, XK, XV tR-3% py
-60°
CALCITE
520'
med pvp alt
460'
Tuff - ~ XXX, XK, Ca, P
1-2% py
70°
intermittent gray seams to pervasively
pervasive weak propyllitic green alt + wk calcite veins
60°
-70°
pervasively gray
780'

NEVADA GSI
GEOCHEMICAL SERVICES, INC.

AUG 29 1989

GEOCHEMICAL ANALYSIS REPORT

August 25, 1989

Mr. Nate Brewer
LAC Minerals
1395 Greg St. #107
Sparks, Nv. 89431

Number of Samples: 48
GSI Number: 5185
Analysis: Fire Assay for Gold and Silver, with an A.A. finish.

	Sample I.D.			Au o/t	Ag o/t
1	SAMPLE:	RE-9	460 465	<.001	<.10
2	SAMPLE:	RE-9	465 470	<.001	<.10
3	SAMPLE:	RE-9	470 475	<.001	<.10
4	SAMPLE:	RE-9	475 480	<.001	<.10
5	SAMPLE:	RE-9	480 485	<.001	<.10
6	SAMPLE:	RE-9	485 490	<.001	<.10
7	SAMPLE:	RE-9	490 495	<.001	<.10
8	SAMPLE:	RE-9	495 500	<.001	<.10
9	SAMPLE:	RE-9	500 505	<.001	<.10
10	SAMPLE:	RE-9	505 510	<.001	<.10
11	SAMPLE:	RE-9	510 515	<.001	<.10
12	SAMPLE:	RE-9	515 520	<.001	<.10
13	SAMPLE:	RE-9	520 525	<.001	<.10
14	SAMPLE:	RE-9	525 530	<.001	<.10
15	SAMPLE:	RE-9	530 535	<.001	<.10
16	SAMPLE:	RE-9	535 540	<.001	<.10
17	SAMPLE:	RE-9	540 545	<.001	<.10
18	SAMPLE:	RE-9	545 550	<.001	<.10
19	SAMPLE:	RE-9	550 555	<.001	<.10
20	SAMPLE:	RE-9	555 560	<.001	<.10
21	SAMPLE:	RE-9	560 565	<.001	<.10
22	SAMPLE:	RE-9	565 570	<.001	<.10
23	SAMPLE:	RE-9	570 575	<.001	<.10
24	SAMPLE:	RE-9	575 580	<.001	<.10
25	SAMPLE:	RE-9	580 585	0.001	<.10
26	SAMPLE:	RE-9	585 590	<.001	<.10
27	SAMPLE:	RE-9	590 595	<.001	<.10
28	SAMPLE:	RE-9	595 600	<.001	<.10
29	SAMPLE:	RE-9	600 605	<.001	<.10
30	SAMPLE:	RE-9	605 610	0.001	<.10

1498 Kleppe Lane • Sparks, Nevada 89431 • FAX: 702/359-6605 • 702/359-6600

Sample I.D.				Au o/t	Ag o/t
31 SAMPLE:	RE-9	610	615	0.001	<.10
32 SAMPLE:	RE-9	615	620	<.001	<.10
33 SAMPLE:	RE-9	620	625	<.001	<.10
34 SAMPLE:	RE-9	625	630	<.001	<.10
35 SAMPLE:	RE-9	630	635	<.001	<.10
36 SAMPLE:	RE-9	635	640	<.001	<.10
37 SAMPLE:	RE-9	640	645	<.001	<.10
38 SAMPLE:	RE-9	645	650	0.001	<.10
39 SAMPLE:	RE-9	650	655	<.001	<.10
40 SAMPLE:	RE-9	655	660	0.002	<.10
41 SAMPLE:	RE-9	660	665	<.001	<.10
42 SAMPLE:	RE-9	665	670	<.001	<.10
43 SAMPLE:	RE-9	670	675	<.001	<.10
44 SAMPLE:	RE-9	675	680	<.001	<.10
45 SAMPLE:	RE-9	680	685	<.001	<.10
46 SAMPLE:	RE-9	685	690	<.001	<.10
47 SAMPLE:	RE-9	690	695	<.001	<.10
48 SAMPLE:	RE-9	695	700	<.001	<.10

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This report reviewed and approved by:

Richard A. Grondin

Richard Grondin, Operations Manager

GSI
4201

	Sample I.D.				Au o/t	Ag o/t
31	RE-8	655	660		0.003	0.18
32	RE-8	660	665		0.003	<.10
33	RE-8	665	670		0.001	<.10
34	RE-8	670	675		0.003	<.10
35	RE-8	675	680		0.002	0.83
36	RE-8	680	680	.25	0.003	<.10
37	RE-9	0	5		0.001	<.10
38	RE-9	5	10		0.001	<.10
39	RE-9	10	15		<.001	<.10
40	RE-9	15	20		<.001	<.10
41	RE-9	20	25		0.004	<.10
42	RE-9	25	30		0.001	<.10
43	RE-9	30	35		<.001	<.10
44	RE-9	35	40		0.005	<.10
45	RE-9	40	45		0.003	<.10
46	RE-9	45	50		0.002	<.10
47	RE-9	50	55		0.002	<.10
48	RE-9	55	60		0.002	<.10
49	RE-9	60	65		0.003	<.10
50	RE-9	65	70		0.001	<.10
51	RE-9	70	75		0.001	<.10
52	RE-9	75	80		0.002	<.10
53	RE-9	80	85		0.002	<.10
54	RE-9	85	90		0.001	<.10
55	RE-9	90	95		0.002	<.10
56	RE-9	95	100		0.001	<.10
57	RE-9	100	105		<.001	<.10
58	RE-9	105	110		<.001	<.10
59	RE-9	110	115		<.001	<.10
60	RE-9	115	120		<.001	<.10
61	RE-9	120	125		<.001	<.10
62	RE-9	125	130		0.014	<.10
63	RE-9	130	135		<.001	<.10
64	RE-9	135	140		0.001	<.10
65	RE-9	140	145		<.001	<.10
66	RE-9	145	150		<.001	<.10
67	RE-9	150	155		0.003	0.62
68	RE-9	155	160		0.001	<.10
69	RE-9	160	165		0.001	<.10
70	RE-9	165	170		<.001	<.10
71	RE-9	170	175		<.001	<.10
72	RE-9	175	180		0.001	<.10
73	RE-9	180	185		0.005	0.29
74	RE-9	185	190		0.003	0.16
75	RE-9	190	195		<.001	<.10
76	RE-9	195	200		0.001	<.10

	Sample I.D.			Au o/t	Ag o/t
77	RE-9	200	205	0.001	0.15
78	RE-9	205	210	<.001	0.14
79	RE-9	210	215	<.001	<.10
80	RE-9	215	220	<.001	0.11
81	RE-9	220	225	<.001	<.10
82	RE-9	225	230	<.001	<.10
83	RE-9	230	235	<.001	<.10
84	RE-9	235	240	<.001	<.10
85	RE-9	240	245	<.001	<.10
86	RE-9	245	250	<.001	<.10
87	RE-9	250	255	<.001	<.10
88	RE-9	255	260	<.001	<.10
89	RE-9	260	265	<.001	<.10
90	RE-9	265	270	<.001	<.10
91	RE-9	270	275	<.001	<.10
92	RE-9	275	280	<.001	<.10
93	RE-9	280	285	<.001	<.10
94	RE-9	285	290	0.001	<.10
95	RE-9	290	295	<.001	<.10
96	RE-9	295	300	<.001	<.10
97	RE-9	300	305	0.007	<.10
98	RE-9	305	310	0.049	0.8
99	RE-9	310	315	0.005	<.10
100	RE-9	315	320	0.002	0.19
101	RE-9	320	325	0.004	<.10
102	RE-9	325	330	<.001	<.10
103	RE-9	330	335	<.001	0.11
104	RE-9	335	340	0.001	<.10
105	RE-9	340	345	<.001	<.10
106	RE-9	345	350	<.001	<.10
107	RE-9	350	355	<.001	<.10
108	RE-9	355	360	<.001	<.10
109	RE-9	360	365	<.001	<.10
110	RE-9	365	370	<.001	0.27
111	RE-9	370	375	<.001	<.10
112	RE-9	375	380	<.001	<.10
113	RE-9	380	385	<.001	<.10
114	RE-9	385	390	<.001	0.34
115	RE-9	390	395	<.001	<.10
116	RE-9	395	400	<.001	<.10
117	RE-9	400	405	<.001	<.10
118	RE-9	405	410	<.001	<.10
119	RE-9	410	415	<.001	<.10
120	RE-9	415	420	<.001	<.10
121	RE-9	420	425	<.001	<.10
122	RE-9	425	430	<.001	<.10

Sample I.D.			Au o/t	Ag o/t
123	RE-9	430 435	<.001	<.10
124	RE-9	435 440	<.001	<.10
125	RE-9	440 445	<.001	<.10
126	RE-9	445 450	<.001	<.10
127	RE-9	450 455	<.001	<.10
128	RE-9	455 460	<.001	<.10

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This report reviewed and approved by:

Richard A. Grondin

Richard Grondin, Operations Manager

RE-9 Quick Log Feb. 6, 1990

0-47 cap rock - argillized - bl + clay
silicified, fine grained, weakly oxidized
may be highly alt pyro - or FGT
5-25 -> strongly clay rich

47-85 lt/gr green, clay alt pyroclastic
poss. w/ silicify, bleached oxidized
70-85 ↑ bleaching + silicific

Bud ?

85-130 mixed peach / green smectite alt
pyroclastic

130-250 lt/gr green + mixed peach fine grained tuffs
wkly perv. bleached
135-140 FAULT clay rich

250-325 mixed peach green pyroclastic

325-355 lt/gr green + peach FGT ± local fragmental

Bud 2 by / 2 w/ mal prob FGT

355-390 medium gray dike - fine grained

390-445 lt/gr green / peach FGT - to locally gray
w/ local Δ vno

445-560 Dike material mixed dk gray / bleached
lt lt/gr green

560-585 fine grained tuffs, weathered lt org / lt/gr

585-675 mottled orange / green pyroclastic
w/ local tuffaceous interbeds

675-700 SGT weakly bleached

CMW 11-90

RL-9

0 - 25	overburden ? / we collared in bedrock
25 - 85	f.gr. white - lt-grey - tan FeOx stained tuff, ± <5% white □ plag ? phenos
85 - 115	blue green ~~[illegible]~~ granular tuff
115 - 225	pink-tan fgt w/ 2-5% diss py & dk green on fracts
225 ~ 330	lt ? pale green frag / lapilli in med flesh matrix more bleached 225 ↓, matrix lt pink / flesh
330 - 355	f.gr. lt grey - lt green tuff, some calc & py veins
355 - 390	dk grey f.gr tuff ± tiny (1/8mm) dk phenos
390 - 440	lt, med grey groundmass w/ lt green frags / lapilli
440 - 560	med-dk pink-grey & green grey f.gr. tuff (?), breaks into ~ flat chips, ± tiny dk phenos
560 - 585	pink-tan to lt grey fgt chips
585 - 633	lt med flesh groundmass w/ white frags / lapilli ?
633 - 675	fault zone ('SRF!'), abt calcite & alt'd chips of above tuff, some py + dk green veins
675 - 700	Sage-green 'fresh' Dozer tuff