60001585

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. KM-3
AUTHOR	R. Donata; T. Kuhl; N. Whitten
DATE OF DOC(S)	1991
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Coates Drilling; Lac Minerals Exploration (Texas) Inc; Bondar-Clegg, Inc.; Lac Minerals (U.S.A) Inc.
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 600' handwritten notes ~~25~~ p. 27

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 6/2/08
Initials Date
DB: MCG
Initials Date
SCANNED: NV Blue
Initials Date

Revised: 1/22/08

Drill Log KM-3
Rosebud

60001585 4010

60001585

LAC MINERALS EXPL. (TEXAS) INC.

DRILL LOG SUMMARY SHEET

PROJECT Rosebud

HOLE NUMBER KM-3 TOTAL DEPTH 600' LOGGED BY _____

Date started _____

Date completed _____

Initial bearing _____

Initial inclination VERT.

Elevation 5335

Collar coordinates:

N 2204028.0

E 482194.6

Contractor _____

Drill Type _____

Hole Size _____

Comments _____

Data by MCH, PC Explor 6/91

DOWN HOLE SURVEY INFORMATION

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

KM-3 Summary LOG

0-205 FGT locally flow banded Bl- CHOCOLATE

205-365 green lithic lapilli tuff - bedded bud

300-310 } Drusy qtz sulfide zones
330-345 } w/ poss. oxidized clay or (jarosite stain?)

365-455 Bleached FGT (Bud tuff unit) w/ mod drusy qtz sulfide veins

455-590 green lithic lapilli tuff (Bedded Bud)

455-520 mustard OXIDATION

520-590 army green <u>un</u>oxidized

590-600 Bl. FGT w/ mustard OXIDATION stain

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

DRILL LOG SUMMARY SHEET

PROJECT ROSEBUD

HOLE NUMBER KM-3 TOTAL DEPTH 974.5 LOGGED BY KLK

Date started 6-28-91

Date completed 6-29-91

Initial bearing vertical

Initial inclination

Elevation

Collar coordinates:

N

E

Contractor: COATES / UDR

Drill Type: UDR

Hole Size: HQ to N

Drilling Conditions:

Footage: Wet / Dry

Comments: FAIRLY good hole except for bottom many short runs w/ decreasing recovery w/ depth.

DOWN HOLE SURVEY INFORMATION

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

HOLE # KM-3 LOGGED BY KLK DATE 7-91 PAGE 1 OF 6

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.	DESCRIPTION	Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
							600-663.1 TMB						
600	80			2-3% VN + diss py + VN marca site		Mbl w-~ w* w celad	CORE BEGAN @ 600						
							600-663.1 TMb - TUFF MARKER BED	600-605				<	.06
							2-3% pyrite replaced relict plagioclase phenos. poss wk perv. Silicification mod perv. bl w-m fracture veining w/ celadonite + pyrite fill ± local Kaolinite, locally celadonite selvages out several inches out from fractures. > celad is intermittent throughout. perv. buff coloration weak to moderate veining ~ 3 types	605-610				.002	.08
610	65 110	35°						610-615				<	.08
			VNS				1) v. fine qtz stockwork ± pyrite	615-620				<	.08
	100	±75°					2) celadonite pyrite fractures w/ weak local clays	620-625				<	.07
620			VNS				3) vuggy druzy qtz VNS w/ Kaolinite ± local pyrite fill ± marcasite locally	625-630				.004	.06
	103						AN Average of 3-5 VNS/ft ±1 mm wide	630-635				.002/<	.06/.06
630	101							635-640				.007/.012	.06
640	100							640-645				<.003	.05
								645-650				<<	.05
650	98						659-663.1 mod ↑ in bleaching w/ ↑ assoc. veining filled w/ clay sulfides + celadonite w/ few micro breccia veins	650-655				.004	.04
660								655-660				<	.06

HOLE # KM-3 LOGGED BY KLK DATE 7-91 PAGE 2 OF 6

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
	102	70°		±3% vn + diss py	90°	M-S bl w/ celad
		90° contact w/ LBUD		1-2% diss + vn py + marcasite	90°	M-S w bl
	91					M celad
670						
	97					
		60-65° wisps				
680		45				
	101	70° Ca(O) clay vns + Hrr				
690						
	97					
700						
	99					
710		±55°			55°	S XX bl
	100	CONTACT 0° + vns		±2% diss + vn py		S bl
720		40° 5°	75° Δ vn	±2% diss + vn py + marcasite		W-M XX M-S celad w bl
	92	vns 75° vns				
730						

DESCRIPTION

contact ~ 70° or 90° to C.A

663.1 - 713.25 LOWER BUD - LITHIC LAPILLI TUFF

wispy bedded bud which are ~ 60-65° to C.A. heterolithic pervasive celadonite/smectite green clay altered matrix - varies from matrix to clast supported all clasts have been altered; replaced by clay + bleached bedding appears to be ±60° to C.A.

very weak veining averaging ±1 vn/ft consisting of either
1) vuggy druzy qtz w/ clay ± py fill
2) clay + calcite veins ± local pyrite

711.5 - 713.25

wispy, lt sage green matrix supported strong clay alt - semi shear zone w/ few lithics whisps ~ 60-70° to CA w/ parelle SiO_2 + clay vns - wk prominent lt green "duck butter" clay alt.

713.25 - 901.8 LBT - LOWER BUD TUFF

713.25 - 719 strongly bl; tectonically brecciated LBT, clasts are angular to locally rounded - milled looking ~ all are white w/ hint green

713.25 - 714.85 m-s perv. silicification lt green to flesh Δ w/ SiO_2 flooding
714 - 714.85 w/ green duck butter clay filling crackle fractures
714.85 - 719 m-s perv. clay alt - soft w/ intermittent green duck butter filling crackle fractures

overall 2 types veining 1) SiO_2 + py + Kaolinite
2) SiO_2 + clay
3) micro Δ vns
~ 1-4 vns/ft

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
660-664				.002	.08
NO SAMPLE					
708-713				.015 / .017 / .088	.03
713-718				<	.03
718-723				<	.06
723-728				4/<	.08

HOLE # KM-3 LOGGED BY KLK DATE 7-91 PAGE 3 OF 6

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
740	100	55 / 65 pseudo flo fract vns		~2% diss + vn py + marcasite		w bl w~ MXY M celad
750	96	25° / 50 clay py SiO2 vns	30° / 30° vn		30°	w~ w x M celad w bl
760	108	20° / 60 vns	x x x x x x	2-3% diss + vn py + vn marcasite	x x x x x x x x	M-S bl M-S w celad
770	101	45° 0° / vns				M bl M XX W-M celad w~
780	100		55° / shear		gouge	S~ M bl M-S w celad
790	93	0° / 80° / crackle fract				W-M bl M XX S into M celad local w~
800	100					↑bl ↓celad M~

DESCRIPTION

713.25-901.8 LBT (continued)

719-748.2 Lt-Medium green FGT w/ pseudo flo fract vns ~ 55°-60° to CA w/ py + celad + orange ox? selvages. Veining is perpendicular to fract vns consisting of SiO2 + clay ± celad + py also locally duck butter clay + celad ± py vns locally vuggy druzy qtz marcasite + clay vns ~ 8-10 vns/ft

731-738.5 perv. Δ to mico Δ vns ~ 2 stages Δ perv. silicif. local peach matrix overprinted w/ vuggy druzy qtz-marcasite vns ± clay (white) ± duck butter clay (green) fill

748.2-749 Δ vn ± 2 stages Δ perv. silicif. w/ zones of strong argillic white clay alt. betw/ SiO2 flooding, clasts are med green subrounded to angular, local vuggy qtz py vns.

749-761.4 mottled creamy buff to lt. green to intermittent flesh colored intermittent fine crackle fracturing zone possibly fault-shear related w/ intermittent broken rubble:

749-751, 756.5-758.4, 759-759.7, 760.5-761.4

secondary veining: green duck butter clay + py ± local SiO2 ~ 3-7/ft w/ probable increase in rubble zones

760.5-761.4 w/ golden butter OXIDE stain - possible post drilling oxidation of FeSO4

768-775 weak perv. tectonic brecciation

761.4-785 LBT - lt to med green w/ pervasive golden orange oxidation - poss FeSO4? pervasive throughout ≥w/ intermittent bright golden orange clay vns intermittent tectonic brecciation weak SiO2 + clay + py ± marcasite vning ~ ±2/ft

778-780.4 perv. Δ w/ 5' shear zone str clay

780.4-785 ↓ perv. silicif. ↑ perv. argillic clay alt vning ↑ to ~5-6/ft SiO2 + clay + py

785-804.3 perv. mod celad green weaking w/ depth intermittent golden oxide? FeSO4? stain which terminates ~ 795. Pervasive crackle fracture veining w/ celad + py + local SiO2 + clay. predom ± 2 mm wide up to 18-20/ft

793-801 ↑bl ↓celad

799.5 w/ white blue opaline SiO2 filling vuggy fractures

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
728-733				<	.11
733-738				.109 / .060 / .086	.24
738-743				.011	.07
743-748				<	.06
748-753				<	.33
753-758				<	2.33
758-763				.005	.50 / .47
763-768				.007	.21
768-773				.029	.05
773-778				<	.04
778-783				4/<	.07
783-788				.014	.12
788-793				<	.12
793-798				<	.04

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.	DESCRIPTION	Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
	95			2-3% diss tvn py + vn marcasite		M bl w cela M	713.25 - 901.8 LBT - continued	798-803				.004	.08/.09
						M bl MXX w	804.3 - 860.5 PSEUDO FLO BANDED LBT w/ assoc. fine parelle veinlet fill < 1mm wide w/ celadonite ± local py ± red orange - wk oxide? w/m pervu. silicification, m-s bleaching to flesh color, locally w/ hint of celadonite to local bright grass green. minor secondary veining 0-50° predom + 2mm wide few weak calcite vns < 1/ft Entodo ~ 8-20 vns/ft including flo vns.	803-808				.002	.09
810	95	pseudo flo 55° 65°						808-813				<	.06
								813-818				<	.04
820	101			1-2% diss + vn py ± vn marcasite		M bl ± w celad w~ w-M XX	804.3 - 818.5 intermittent pervasive micro breccia veins; "duck butter" clay crackle fracture veins ~ + 2 stages Δ w/ in micro Δ vns w/ SiO_2 ± clay filled matrix clasts are flo tuff buff to flesh color, locally Δ veins w/ duck butter matrix Δ veins appear subparelle to 30° to C.A. locally overprinted w/ vuggy druzy qtz vns filled w/ Kaolinite ± py	818-823				.033	.05
								823-828				.008	.07
830	102	15°					823-852 pervasively intermittent + weak golden yellow oxide? stain $FeSO_4$?	828-833				<1/<	.07
							818-823 nothing special - pseudo flo v. wk veining	833-838				<	<
840	94	45° vns					842-852 intermittent micro Δ vns w/ SiO_2 ± clay fill matrix 842-845 Δ vns w/ amber brown ± green chalcedonic SiO_2 matrix + fine diss py ± clay fill 845-852 ↓ micro Δ vns ↑ 2-3 mm wide vns filled w/ SiO_2 + marcasite + white clay locally oxided to limonite up to 15 vns/ft 851.5-852 broken rubble w/ m-s vuggy druzy qtz w/ clay + marcasite fill	838-843				.008/.018	.06
				± 2-3% diss + vn py + fine bladed sulfid ± marcasite				843-848				.029/.050	.14/.12
850	100							848-853				.031	.14
								853-858				.063/.048/.066	.25
860	100	80° 15° vns		1+2% (0) above 2% diss + vn py + marca + bled sulfide		M bl M~ w celad W-M bl W~ w celad	852-857 ↓ overall veining containing white clay + jarosite looking mineral - butterscotch + bladed sulfide ± SiO_2 + clay + $CaCO_3$ 857-860.5 ↑ pervu. bl local micro Δ vns, local lt blue/white opaline SiO_2 filled vns 860.5-898 nonclescript LBT flesh to green which gradationally becomes brecciated → over 863-868 intermittent micro Δ vns w/ SiO_2 + clay + $CaCO_3$ ± marcasite - locally oxidized matrix ~ 2-3/ft	858-863				.014	.12
								863-868				.028	.11
870													

HOLE # KM-3 LOGGED BY KLK DATE 7-91 PAGE 5 OF 6

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
880	102	80° VNS		1-2% diss tvn py		M bl W~ W X W-M celad
890	102			2-3% vn + diss py + vn marc site		W-M bl W-M celad M XX W~
900	99	vn ±80° contact ±80°				M-S bl M~ W X
910	104	60° contact	60° FAULT CONT.	1-2% vn py + fine bladed sulf.	CLAY GOUGE 60° 45°	W bl Meclad M XX S
920	100	45°		2-3% diss tvn py + fine dk gray short bladed sulf.		M-S bl W~ M XX
930	99	sulf + clay ± SiO2 VNS				
940	100					

FAULT — 892-909.2 predom FAULT influence contact @ 906.7

DESCRIPTION

713.2 S - 901.8 LBT 892 - 909.2 SRF
901.8 - 906.7 EPI 906.7 - 974.5 DT

860.5 - 883 LBT - Flesh to green - nondescript mottled w-mod veining filled w/ pyrite ± SiO2 + clay ± lt green "duck butter" clay locally + local CaCO3 begins to be weakly tectonically Δ w/ depth. ± 4 vns/ft

883 - 898 LBT - FGT mottled lt green ; weakly buff w/ intermittent micro Δ vns ~ 2 stages Δ w/ SiO2 + Kaolin + calcite fill matrix + interm. py - marca blades w/in matrix + local lt blue opaline SiO2 locally clay ; sulfides oxidized to golden orange

892 - 898 ↑ pervasive tectonic Δ ; hydrothermal brecciation - influence of SRF - gradationally ↑ perv. silicif. ~ 2+ step. Δ w/ SiO2 + clay + green clay ± CaCO3 filled matrix w/ few 2-4/ft 1/4"-1/2" < 1mm fine white clay ± sulfide stringers w/ no preferred orientation

892 - 909.2 SOUTH RIDGE FAULT

898 - 901.8 PINK - FLESH COLORED brecciated FGT ± 3 step Δ w-m perv X white to butter colored clay + duck butter colored clay filling interstices of Δ - Tuff v. little veining - clay + sulfides - as fine stringers

901.8 - 906.7 EPICLASTIC upper contact ~ 80° to CA heterolithic - lithic lapilli tuff appearance ; poss. secondarily brecciated - no real veining poss 3 step Δ intermittent SiO2 flooded seams lithics blwhite to lt green local Δ vn is 60° to C.A.

906.7 - 974.5 DOZER TUFF contact @ 60° to C.A.

906.7 - 906.8 pure sulfide rich gray clay seam
906.8 - 909.2 pure lt hint sage green clay gouge seam
↳ lower contact @ 45° to C.A.

909.2 - 947 DT - perv. bl, weakly tectonically brecciation - minor fault influence w-m perv. silicification, mod perv veining ≤ 1mm wide filled w/ pyrite ± dk gray sulfide + white clay + local SiO2 ~ 10 - 18 vns/ft on average

ASSAYS

Sample No.	% Cu	% Pb	Au ✓	oz/t Au	oz/t Ag
868-873				.012	.12
873-878				.014	.09
878-883				.005	.10
883-888				.024	.26
888-893				.020	.15
893-898				.003 / .005	.26 / .210
898-902				<	.03
902-906.7				.003	.03
906.7-909.2			.004	.003 / <	< / <
909.2-914				.005	.04
914-918				.005	.03
918-923				.007	<
923-928				.002	<
928-933				.007	<
933-938				<	<

HOLE # KM-3 LOGGED BY KLK DATE 7-91 PAGE 6 OF 6

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	ALTER.
	78	45° 0 VNS		2-3% @ above		M-S bl W~ MW XX
950	90		poss FAULT	2-3% diss + vn py + dk gray sulf.		M-S bl W-M w/ local S≈ poss wx (zone of S≈)
960	95	45° 0 VNS		1-2% diss + vn py		
	90					
	86					
970	79					
974.5	75					

DESCRIPTION

906.7 - 974.5 DOZER TUFF

927 - 956 pervasive golden butter stain oxide? post drilling?

932.1 - 933 mixed strong argillically clay alt tuff + clay gouge

938 - 938.5 intermittent micro Δ vning w/ clay sulfide overprint veining

947 - 956 possible fault zone - all broken rubble w/ intermittent clay gouge seams w/ assoc. dk gray black sulfides + lt green clays

956 - 974.5 DT intermittent broken rubble recovery decrease w/ depth to 45% perv. bl fine stkwk veining - qtz ± 1mm qtz sulfide veins w/ lt orange clay + py filled fractures - local (oxide?) $CaCO_3$ w/in VNS 10+ VNS/ft orange vein fracture fill - poss. siderite? wk local dk gray sulfide - Ag?

ASSAYS

Sample No.	% Cu	% Pb	Au ✓	oz/t Au	oz/t Ag
938-943				.002	.03
943-948				<	<
948-953				<	.06
953-958				<	.03
958-963			.001	<	<
963-968				<	<
968-974.5				<	<

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: KM-3 C DIP: VERTICAL CORE SIZE: HQ / N DATE: 6-30-91

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
600	605	5'	2.6	1.6	7	52%	32%	2.7	0-55°	VN/TH, FD/CLY, ±QTZ/PL - R
605	610	5'	4.95	4.95	6	99	99	1.2	10-75°	VN/TH, FD/CLY, ±QTZ/PL-R
610	615	5'	5.0	2.4	8	100	48	2.8	35-80°	VN/TH, FD/CLY, ±QTZ/PL-R
					6				65-90°	JN/TH/R
615	620	5'	4.95	4.0	7	99	80	1.4	10-70°	VN/TH, FD/QTZ, CLY/PL-R
620	625	5'	4.95	4.75	6	99	95	1.2	5-80°	VN/TH, FD/CLY, QTZ, PY/PL
625	630	5'	5.2	4.6	2	104	92	1.0	30-40°	J/TH/R
					3				55-65°	VN/TH, FD/QTZ, CLY/PL, R
630	635	5'	4.9	3.45	13	98	69	2.7	10-85°	VN/TH, FD/CLY, QTZ/PL
635	640	5'	4.9	4.15	5	98	83	1.0	20-45°	J, VN/TH, FD/CLY/PL
640	645	5'	4.85	3.8	6	97	76	1.6	10-70°	J, VN/TH, FD/CLY, ±PY/PL
					2				35-50°	VN, VG/TH-OP, FD/QTZ, MAR/R
645	650	5'	4.8	3.85	8	96	77	1.7	5-65°	J, VN/TH, FD/CLY, ±QTZ, PY/PL
650	655	5'	4.9	4.25		98	85	1.0		NOTE: Reduction to "N" size core @ 653'
					5				10-60°	J, VN/TH, FD/CLY, QTZ/PL-R
655	660	5'	4.25	4.15	6	85	83	1.4	15-50°	J, VN/TH, FD/CLY, QTZ/PL-R
660	663	3'	2.9	1.6	9	97	53	3.1	30-60°	VN/TH, FD/QTZ, CLY/PL-R
										NOTE: 663' Contact, with
										"Bedded Bud" Epiclastic L.L.T. below.
663	670	7'	6.4	6.1	6	91	87	0.9	45-60°	VN/TH, FD/CLY, QTZ/R
670	675	5'	5.0	3.55	4	100	71	1.4	45-60°	VN/TH, FD/CLY, ±QTZ/R
					3				60-75°	J/TH, FD/CLY/R
675	680	5'	4.6	3.2	4	92	64	1.7	45-65°	VN, ±VG/TH-OP, FD/QTZ, CLY/R
					4				55-65°	J/TH, FD/CLY/R
680	685	5'	4.95	3.6	4	99	72	1.0	55-60°	J/TH, FD/CLY/R
					1				70°	VN, VG/TH, FD/QTZ, MAR/R
685	690	5'	5.05	3.95	4	101	79	1.2	45-50°	J/TH, FD/CLY/R
					2				45°	VN/TH, FD/QTZ, CLY, ±PY/R
690	695	5'	4.8	3.65	8	96	73	1.7	50-70°	J/TH, FD/CLY/R
695	700	5'	4.65	4.45	9	93	89	1.9	60-85°	J/TH, FD/CLY/R
700	705	5'	5.0	3.25	10	100	65	2.0	60-70°	J/TH, FD/CLY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: KM-3C DIP: VERTICAL CORE SIZE: N DATE: 7-1-91

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
705	710	5'	4.0	2.55	11	80%	51%	3.8	60-70°	J/TH, FD/CLY/R
					4				65°	VN, ±VG/TH, FD/QTZ, CLY, ±PY/R
710	713.2	3.2'	3.05	0.9	11	95	28	4.3	55-70°	J/TH, FD/CLY/R
					2				55-60	VN, VG/TH, FD/QTZ, PY, CLY/R
										NOTE: 713.2' contact of bedded epiclastic
										with Lower bud Tuff.
713.2	720	7.8'	6.7	6.25	3	86	80	0.6	65-70°	J/TH, FD/CLY, ±PY/R
					1				40°	J, VN/TH, FD/QTZ, CLY, PL
720	725	5'	5.0	3.95	4	100	79	0.8	45-60°	VN, VG/TH-OP, FD/QTZ/R
725	730	5'	4.8	3.3	4	96	66	1.3	5-35°	VN, VG/TH-OP, FD/QTZ, MAR/R
					2				35°	J, VN/TH, FD/QTZ, CLY/PL
730	735	5'	4.2	4.2	3	84	84	0.7	20-40°	VN, VG/TH-OP, FD/QTZ, MAR/R
735	740	5'	4.9	4.9	3	98	98	0.8	10-40°	VN, VG/TH-OP, FD/QTZ, MAR, CLY/R
					1				60°	J, VN/TH, FD/CLY/PL
740	745	5	5.0	5.0	3	100	100	1.0	25-40°	VN, VG/TH-OP, FD/QTZ, CLY, MAR/PL, R
					2				30-40°	J, VN/TH, FD/CLY/PL-R
745	750	5'	4.45	2.7	8	89	54	1.8	25-65°	J, VN/TH, FD/CLY/PL
750	755	5'	4.9	2.6	10	98	52	2.0	25-60°	J, VN/TH, FD/CLY/PL, W
755	760	5'	4.95	1.85	6	99	37	1.2	40-90°	J, VN/TH, FD/CLY/PL, W
										NOTE: 756.5'-758.5' and 759.5'-760' Argillized and
										clay-gouged core chunks and rubble
760	765	5'	5.05	4.0	3	101	80	0.6	30-75°	VN/TH, FD/CLY/W-R
										NOTE: 760.5'-761' strongly argillized
765	770	5'	5.0	4.65	5	100	93	1.0	0-35°	VN/TH, FD/CLY/W-R
770	775	5'	5.05	5.0	3	101	100	0.6	0-60°	VN/TH, FD/CLY/W-R
775	780	5'	5.0	5.0	2	100	100	0.6	50°	VN/TH, FD/CLY/W-R
					1				60°	VN, VG/TH-OP, FD/QTZ, CLY, PY/R
										NOTE: Clay gouge @ 779.5'
780	785	5'	4.85	4.6	5	97	92	1.4	25-65°	J, VN/TH, FD/CLY, ±QTZ/PL-W
					2				0-90°	VN, VG/TH-OP, FD/QTZ, MAR/R
785	790	5'	4.2	4.05	4	84	81	1.7	5-60°	VN, ±VG/TH, FD/QTZ, MAR/PL-R
					3				45-60°	VN/TH, FD/CLY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: KM-3C DIP: VERTICAL CORE SIZE: NQ DATE: 7-1-91

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
790	795	5'	4.95	4.45	8	99%	89%	1.6	25-90°	J, VN/TH, FD/CLY/PL-R
795	800	5'	4.8	3.6	12	96	72	2.5	35-50°	J, VN/TH, FD/CLY/PL
										NOTE: Argillized, vuggy rubble 795'-800'
800	805	5'	4.25	2.85	12	85	57	2.8	45-60°	J, VN/TH, FD/CLY/PL-W
805	810	5'	4.2	2.95	11	84	59	2.6	15-75°	J, VN/TH, FD/CLY/PL, W-R
810	815	5'	4.8	2.6	9	96	52	1.9	15-70°	J, VN/TH, FD/CLY/PL, W
815	820	5'	4.45	2.8	9	89	56	2.0	25-65°	VN/TH, FD/CLY, QTZ/W
820	825	5'	4.9	2.9	13	98	58	2.7	15-85°	VN/TH, FD/CLY, ±QTZ, ±MAR/W
825	830	5'	4.65	2.35	4	93	47	3.2	15-30°	J, VN/TH, FD/CLY, MAR/PL
					11				50-70°	J, VN/TH, FD/CLY/PL
830	835	5'	4.95	3.35	12	99	67	2.4	20-65°	J, VN/TH, FD/CLY/PL
835	840	5'	4.85	4.4	9	97	88	1.9	50-65°	J, VN/TH, FD/CLY/PL
840	845	5'	4.8	2.65	11	96	57	2.3	20-60°	J, VN/TH, FD/CLY, ±QTZ, ±MAR/PL
845	850	5'	4.1	3.45	7	82	69	1.7	40-65°	J, VN/TH, FD/CLY/R
850	855	5'	4.75	4.0	8	95	80	1.7	35-50°	J, VN/TH, FD/CLY, ±MAR, ±QTZ/R
855	860	5'	4.65	2.85	10	93	57	2.2	10-50°	VN/TH, FD/CLY/R
860	865	5'	4.75	4.4	3	95	88	0.8	40-70°	VN/TH, FD/CLY/R
					1				30°	VN/TH, FD/QTZ, CLY, MAR/PL
865	870	5'	4.95	4.95	2	99	99	0.4	60-75°	VN/TH, FD/CLY, ±CAL, ±PY/PL-R
870	875	5'	4.85	4.65		97	93	0.2		NOTE: Broken Rubble @ 870.2'
					1				60°	VN/TH, FD/QTZ, CLY, CAL/PL-R
875	880	5'	5.0	4.7	3	100	94	0.6	55-70°	VN/TH, FD/CLY, CAL/PL-R
880	885	5'	5.0	5.0	3	100	100	0.6	60-70°	VN/TH, FD/CLY, CAL/PL-R
885	890	5'	5.1	5.1	0	102	102	0.0	—	—
890	895	5'	5.0	5.0	2	100	100	0.4	50-60°	VN/TH, FD/CLY, CAL/PL-R
895	900	5'	4.5	3.75	3	90	75	0.7	35-60°	J/TH/R /// NOTE: Some broken rubble @ 899'
900	906.7	6.7'	6.55	4.3	8	98	64	1.2	30-85°	J/TH, FD/CLY/R
906.7	909.2	2.5'	2.5	0.0	1	100	0	0.4	55°	J/TH/PL, SM (Contact w/Dozer, 906.7')
										NOTE: 906.7'-909.2' clay-gouged shear
										zone; broken rubble.
909.2	915	5.8'	5.3	4.6	8	91	79	1.9	35-65°	J, VN/TH, FD/CLY/PL, W
					2				10-55°	VN, VG/TH-OP, FD/QTZ, CLY/R

GEOTECHNICAL LOG

PROJECT: ROSEBUD LOCATION: DOZER LOGGED BY: SAS

HOLE NO.: KM-3C DIP: VERTICAL CORE SIZE: NQ DATE: 7-9-91

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
915	920	5'	4.9	3.65	12	98%	73%	2.4	15-70°	VN/TH, FD/CLY/W
920	925	5'	4.9	4.2	8	98	84	1.6	35-75°	VN/TH, FD/CLY, ± PY/W
925	930	5'	4.95	4.85	4	99	97	0.8	50-65°	VN/TH, FD/CLY/W-R
930	935	5'	4.7	3.2	9	94	64	1.9	15-65°	VN/TH, FD/CLY/PL-W
										NOTE: 932'-933' Strongly argillized.
935	940	5'	4.9	3.0	17	98	60	3.5	30-75°	VN/TH, FD/CLY/PL-R
940	945	5'	4.9	2.4	5	98	48	2.7	15-50°	VN, VG/TH, FD/QTZ, CLY/R
					8				40-55°	VN/TH, FD/CLY, ± PY, ± MAR/PL-R
945	950	5'	4.7	1.45	7	94	29	1.5	40-60°	VN/TH, FD/CLY ± PY/PL-R
										NOTE: From 947' to T.D. (974.5')
										Broken rubble and small core chunks,
										w/range of fractures as follows:
									0-65°	J, VN/TH, FD/CLY, ± QTZ, ± PY, ± MAR/PL-R
950	955	5'	3.5	0.75	SEE	70	15			
955	960	5'	4.7	1.15	NOTE	94	23			
960	965	5'	3.7	1.15	"	74	23			
965	970	5'	4.0	0.0	"	80	0			
970	974.5	4.5'	2.5	0.0	"	56	0			
T.D. 974.5'										

KM3C

Bondar-Clegg, Inc.
625 Spice Island Dr.
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Sparks, Nevada 89431
702 (359-9330)

BONDAR-CLEGG

Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

REPORT: R91-11338.4 (COMPLETE)

REFERENCE INFO: KM3C 868-974.5

CLIENT: IAC MINERALS (USA) INC.
PROJECT: ROSEBUD

SUBMITTED BY: SCHEIDNER
DATE PRINTED: 18-SEP-91

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au Gold	23	0.002 OPT		Fire Assay
2	Au DUP Gold Duplicate	3	0.002 OPT		Fire Assay
3	Ag Silver	23	0.02 OPT	MULT ACID TOT DIG	Atomic Absorption
4	AG DUP AG DUPLICATE	2	0.02 OPT		Fire Assay

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
D DRILL CORE	22	2 -150	22	CRUSH,PULVERIZE -150	22
P PREPARED PULP	1	4 AS REC'D	1	AS RECEIVED, NO SP	1

REPORT COPIES TO: MR. TIM KUHI
~~MR. TIM KUHI~~
MS. KRISTIN KENNER

INVOICE TO: MR. TIM KUHI

Rickey L Smith

Bondar-Clegg, Inc.
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BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 18 SEP-91

REPORT: R91-11338.4 (COMPLETE)

PROJECT: ROSEBUD

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	Au DUP OPT	Ag OPT	AG DUP OPT
D2 KM3C 868 873		0.012		0.12	
D2 KM3C 873 878		0.014		0.09	
D2 KM3C 878 883		0.005		0.10	
D2 KM3C 883 888		0.024		0.26	
D2 KM3C 888 893		0.020		0.15	
D2 KM3C 893 898		0.003	0.005	0.26	0.26
D2 KM3C 898 902		<0.002		0.03	
D2 KM3C 902 906.7		0.003		0.03	
D2 KM3C 906.7 909.2		0.003	<0.002	<0.02	<0.02
D2 KM3C 909.2 914		0.005		0.04	
D2 KM3C 914 918		0.005		0.03	
D2 KM3C 918 923		0.007		<0.02	
D2 KM3C 923 928		0.002		<0.02	
D2 KM3C 928 933		0.007		<0.02	
D2 KM3C 933 938		<0.002		<0.02	
KM3C 938 943		0.002		0.03	
D2 KM3C 943 948		<0.002		<0.02	
D2 KM3C 948 953		<0.002		0.06	
D2 KM3C 953 958		<0.002	<0.002	0.03	
D2 KM3C 958 963		<0.002		<0.02	
P4 BA 15		0.054		0.07	
D2 KM3C 963 968		<0.002		<0.02	
D2 KM3C 968 974.5		<0.002		<0.02	

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702 (359-9330)

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Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 18-SEP-91

REPORT: R91-11338.4 (COMPLETE)

PROJECT: ROSEBUD

STANDARD NAME	ELEMENT UNITS	Au OPT	Au DUP OPT	Ag OPT	AG DUP OPT
AU ASSAY STD		0.150	-	-	-
Number of Analyses		1	-	-	-
Mean Value		0.1500	-	-	-
Standard Deviation		-	-	-	-
Accepted Value		0.150	-	-	-
ANALYTICAL BLANK		<0.002	-	-	-
Number of Analyses		1	-	-	-
Mean Value		0.0010	-	-	-
Standard Deviation		-	-	-	-
Accepted Value		0.002	-	-	-
GEO TRACE STD1(1989)		-	-	1.15	-
Number of Analyses		-	-	1	-
Mean Value		-	-	1.146	-
Standard Deviation		-	-	-	-
Accepted Value		-	-	1.05	-
ASSAY		-	-	3.10	-
Number of Analyses		-	-	1	-
Mean Value		-	-	3.095	-
Standard Deviation		-	-	-	-
Accepted Value		-	-	3.03	-

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A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 18-SEP-91

REPORT: R91-11338.4 (COMPLETE)

PROJECT: ROSEBUD

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	Au DUP OPT	Ag OPT	AG DUP OPT
KM3C 893 898		0.003	0.005	0.26	0.26
Prep Duplicate		0.005		0.26	
KM3C 906.7 909.2		0.003	<0.002	<0.02	<0.02
Duplicate		<0.002		<0.02	
KM3C 953 958		<0.002	<0.002	0.03	
Duplicate		<0.002			

Chemex Labs Inc.

Analytical Chemists * Geochemists * Registered Assayers
994 West Glendale Ave., Suite 7, Sparks,
Nevada, U.S.A. 89431
PHONE: 702-356-5395

.o: LAC MINERALS U.S.A. INC

1395 GREG ST., STE 107
SPARKS, NEVADA
89431

A9117710

Comments: ATTN: TIM KUHL

CERTIFICATE A9117710

LAC MINERALS U.S.A. INC

Project: ROSEBUD
P.O. # :

Samples submitted to our lab in Sparks, NV.
This report was printed on 12-JUL-91.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	4	Assay ring to approx 150 mesh
294	4	Crush and split (0-10 pounds)

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
998	4	Au oz/T: 1 assay ton	FA-AAS	0.001	20.00

KM3

Chemex Labs Inc.

Analytical Chemists * Geochemists * Registered Assayers
994 West Glendale Ave., Suite 7, Sparks,
Nevada, U.S.A. 89431
PHONE: 702-356-5395

To: LAC MINERALS U.S.A. INC

1395 GREG ST., STE 107
SPARKS, NEVADA
89431

Project : ROSEBUD
Comments: ATTN: TIM KUHL

Certificate Date: 12-JUL-91
Invoice No. : I9117710
P.O. Number :

CERTIFICATE OF ANALYSIS A9117710

SAMPLE DESCRIPTION	PREP CODE		Au oz/T									
KM3C 645-650	208	294	0.002									
KM3C 738-743	208	294	0.011									
KM3C 788-793	208	294	0.002									
KM3C 838-843	208	294	0.003									

CERTIFICATION: Sandra M Adams

Chemex Labs Inc.

Analytical Chemists * Geochemists * Registered Assayers
994 West Glendale Ave., Suite 7, Sparks,
Nevada, U.S.A. 89431
PHONE: 702-356-5395

To: LAC MINERALS U.S.A. INC

1395 GREG ST., STE 107
SPARKS, NEVADA
89431

Project : ROSEBUD
Comments: ATTN: TIM KUHL

Certificate Date: 19-JUL-91
Invoice No. : I9118106
P.O. Number :

CERTIFICATE OF ANALYSIS A9118106

SAMPLE DESCRIPTION	PREP CODE		Au oz/T									
KM3C 902.2-914	208	294	0.004	LAC								
KM3C 958-963	208	294	0.001									
RL200C 621-626	208	294	0.072									
RL200C 668.5-673	208	294	0.025	RL200C Equinox								
RL200C 769-774	208	294	0.002									

CERTIFICATION: Sandra M Adam

Bondar-Clegg, Inc.
625 Spice Island Dr.
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702 (359-9330)

KM3
600-868

BONDAR-CLEGG

Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

JUL 17 1991

REPORT: R91-11266.4 (COMPLETE)

REFERENCE INFO: KM-3, 600-664, 708-868

CLIENT: LAC MINERALS (USA) INC.
PROJECT: ROSEBUD

SUBMITTED BY: KENNER
DATE PRINTED: 15-JUL-91

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au Gold	47	0.002 OPT		Fire Assay
2	Au DUP Gold Duplicate	13	0.002 OPT		Fire Assay
3	AU Dup Gold Duplicate	3	0.002 OPT		Fire Assay
4	Ag Silver	47	0.02 OPT	MULT ACID TOT DIG	Atomic Absorption
5	AG DUP AG DUPLICATE	4	0.02 OPT		Fire Assay

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
D DRILL CORE	45	2 -150	45	CRUSH,PULVERIZE -150	45
P PREPARED PULP	2	4 AS REC'D	2	AS RECEIVED, NO SP	2

REPORT COPIES TO: MR. TIM KUHI
MR. TIM KUHI
MS. KRISTIN KENNER

INVOICE TO: MR. TIM KUHI

Nicole Written

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A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 15-JUL-91

REPORT: R91-11266.4 (COMPLETE)

PROJECT: ROSEBUD

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	Au DUP OPT	AU Dup OPT	Ag OPT	AG DUP OPT
D2 KM3C 600 605		<0.002			0.06	
D2 KM3C 605 610		0.002			0.08	
D2 KM3C 610 615		<0.002			0.08	
D2 KM3C 615 620		<0.002			0.08	
D2 KM3C 620 625		<0.002			0.07	
D2 KM3C 625 630		0.004			0.06	
D2 KM3C 630 635		0.002	<0.002		0.06	0.06
D2 KM3C 635 640		0.007	0.012		0.06	
D2 KM3C 640 645		<0.002	0.003		0.05	
D2 KM3C 645 650		<0.002	<0.002		0.05	
D2 KM3C 650 655		0.004			0.04	
D2 KM3C 655 660		<0.002			0.06	
D2 KM3C 660 664		0.002			0.08	
D2 KM3C 708 713		0.015	0.017	0.088	0.03	
D2 KM3C 713 718		<0.002			0.03	
D2 KM3C 718 723		<0.002			0.06	
D2 KM3C 723 728		<0.002	<0.002		0.08	
D2 KM3C 728 733		<0.002			0.11	
D2 KM3C 733 738		0.109	0.060	0.086	0.24	
D2 KM3C 738 743		0.011			0.07	
P4 BA 74		0.030	0.028		0.23	
D2 KM3C 743 748		<0.002			0.06	
D2 KM3C 748 753		<0.002			0.33	
D2 KM3C 753 758		<0.002			2.33	
D2 KM3C 758 763		0.005			0.50	0.47
D2 KM3C 763 768		0.007			0.21	
D2 KM3C 768 773		0.029			0.05	
D2 KM3C 773 778		<0.002			0.04	
D2 KM3C 778 783		<0.002	<0.002		0.07	
D2 KM3C 783 788		0.014			0.12	
D2 KM3C 788 793		<0.002			0.12	
D2 KM3C 793 798		<0.002			0.04	
D2 KM3C 798 803		0.004			0.08	0.09
D2 KM3C 803 808		0.002			0.09	
D2 KM3C 808 813		<0.002			0.06	
D2 KM3C 813 818		<0.002			0.04	
D2 KM3C 818 823		0.033			0.05	
D2 KM3C 823 828		0.008			0.07	
D2 KM3C 828 833		<0.002	<0.002		0.07	
D2 KM3C 833 838		<0.002			<0.02	

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BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 15-JUL-91

REPORT: R91-11266.4 (COMPLETE)

PROJECT: ROSEBUD

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	Au DUP OPT	AU Dup OPT	Ag OPT	AG DUP OPT
D2 KM3C 838 843		0.008	0.018		0.06	
P4 BA 75		<0.002			<0.02	
D2 KM3C 843 848		0.029	0.050		0.14	0.12
D2 KM3C 848 853		0.031			0.14	
D2 KM3C 853 858		0.048	0.063	0.066	0.25	
D2 KM3C 858 863		0.014			0.12	
D2 KM3C 863 868		0.028			0.11	

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BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 15-JUL-91

REPORT: R91-11266.4 (COMPLETE)

PROJECT: ROSEBUD

STANDARD NAME	ELEMENT UNITS	Au OPT	Au DUP OPT	AU Dup OPT	Ag OPT	AG DUP OPT
AU ASSAY STD		0.018	-	-	-	-
AU ASSAY STD		0.015	-	-	-	-
Number of Analyses		2	-	-	-	-
Mean Value		0.0165	-	-	-	-
Standard Deviation		0.00212	-	-	-	-
Accepted Value		0.015	-	-	-	-
ANALYTICAL BLANK		<0.002	-	-	-	-
Number of Analyses		1	-	-	-	-
Mean Value		0.0010	-	-	-	-
Standard Deviation		-	-	-	-	-
Accepted Value		0.002	-	-	-	-
GEO TRACE STD1(1989)		-	-	-	0.92	-
GEO TRACE STD1(1989)		-	-	-	0.94	-
Number of Analyses		-	-	-	2	-
Mean Value		-	-	-	0.931	-
Standard Deviation		-	-	-	0.0139	-
Accepted Value		-	-	-	1.05	-
AG ASSAY		-	-	-	3.00	-
AG ASSAY		-	-	-	2.94	-
Number of Analyses		-	-	-	2	-
Mean Value		-	-	-	2.971	-
Standard Deviation		-	-	-	0.0416	-
Accepted Value		-	-	-	3.03	-

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BONDAR-CLEGG

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

DATE PRINTED: 15-JUL-91

REPORT: R91-11266.4 (COMPLETE)

PROJECT: ROSEBUD

SAMPLE NUMBER	ELEMENT UNITS	Au OPT	Au DUP OPT	AU Dup OPT	Ag OPT	AG DUP OPT
KM3C 630 635		0.002	<0.002		0.06	0.06
Duplicate		0.002			0.06	
KM3C 723 728		<0.002	<0.002		0.08	
Duplicate		<0.002				
KM3C 758 763		0.005			0.50	0.47
Duplicate					0.47	
KM3C 778 783		<0.002	<0.002		0.07	
Duplicate		<0.002				
KM3C 798 803		0.004			0.08	0.09
Prep Duplicate		<0.002			0.09	
KM3C 828 833		<0.002	<0.002		0.07	
Duplicate		<0.002				
KM3C 843 848		0.029	0.050		0.14	0.12
Prep Duplicate		0.050	0.032	0.024	0.11	
Duplicate					0.12	