60001390

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. RL-163
AUTHOR	B. Ferrel; P. Graff
DATE OF DOC(S)	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; Eklund Drilling Lac Minerals (USA), Inc
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 600' handwritten notes; directional survey 17p.

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 5/20/08
Initials Date
DB: Mah
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

DRILL LOGS RL-163
Rosebud

60001390 4010

60001390

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

DRILL LOG SUMMARY SHEET

PROJECT ROSEBUD

HOLE NUMBER RL-163 TOTAL DEPTH 600' LOGGED BY DAM

H_2O
460' = 10gpm
560' = 15gpm

Date started 11-9-90

Date completed 11-10-90

Initial bearing S55E

Initial inclination -60°

Elevation 5312.4

Collar coordinates:

N 2,203,723

E 482,599.2

Contractor: EKLUND

Drill Type: MPD-1000

Hole Size: 4 3/4"

Drilling Conditions: GOOD - LOTS OF CLAY

Footage: Wet / Dry 290' DRY, HAMMER TO 600'

Comments:

DOWN HOLE SURVEY INFORMATION

FROM	TO	SURVEY POINT	INCLI-NATION	BEARING	X (Northing)	Y (Easting)	Z (Elevation)
0	25		-60	S 55 E			
25	75		-59.5	S 50.7 E			
75	125		-61.4	S 50.3 E			
125	175		-63.3	S 49.8 E			
175	225		-65	S 51.2 E			
225	275		-66.7	S 50.2 E			
275	325		-68.4	S 50.4 E			
325	375		-70.0	S 47.4 E			
375	425		-71.1	S 47.3 E			
425	475		-72.1	S 45.8 E			
475	525		-72.8	S 46.8 E			
525	562.5		-73.9	S 45.6 E			
562.5	600		-74.2	S 45 E			

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

FINE-GRAINED TUFF
LITHIC LAPILLI TUFF

ARGILLIC
XX SILICIFICATION
OX OXIDIZED
XXXXXX DRUZY QUARTZ
XC CHALCEDONIC QUARTZ
XK STOCKWORK QUARTZ
P P P PROPYLITIZATION
Ca CALCITE

DRILL HOLE RL-163

Page 1 of 6

LOGGED BY DAM

	LITH.	ALT.	% ARG. ALT. W	M	S	% SIL'N W	M	S	COLOR	% FeOx W	M	S	% SULF.	COMMENTS	Au	Ag	CHECK	% WASH RECOV.
									BRN					QAF - 0-30' OVERBURDEN	.001	<		
05																		
10																		
15																		
20																		
25																		
30		~OX							LT YELLOW					30-550 FINE GRAIN TUFF	.002			
35									+ ORG BRN + WHT					30-115 STRGLY CLAY ALTERED MOD. OXIDATION 90% FINES (OXIDES + CLAY)	.003	.17		
40															.006	.19		
45																		
50															.003	<		
55															.003			
60															.001	.15		
65															.001	.17		
70															.001	.18		
75															.006	<		
80									YELLOW BRN + WHT						.014	.24		
85															.003	<		
90															.002	.14		
95															.002	.22		
100															.002	<		

LAC MINERALS (U.S.A.) INC.
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LITHIC LAPILLI TUFF

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XC CHALCEDONIC QUARTZ
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Ca CALCITE

DRILL HOLE RL-163

Page 2 of 6

LOGGED BY DAM

	LITH.	ALT.	% ARG. ALT. W	M	S	% SIL'N W	M	S	COLOR	% FeOx W	M	S	% SULF.	COMMENTS	Au	Ag	CHECK	% WASH RECOV.
		~ OX							RUST						.002	.10		
105															.001	.22		
110															.006	.19		
115		~ XK W MARC							GREY				1-4%	115-535 STRG CLAY ALTERED (70-90% CLAY) OXIDIZED	<	.27		
120														Qtz MARCASITE VEINS COMMON & LOCAL	<	.25		
125														ABUNDANT DRUZY QTZ. & BACKGROUND FINE SULFIDES, MINOR KAOLINITE VEINING?	.001	.22		
130															.003	<		
135															.004			
140															.003			
145															.002			
150															.005			
155															.002			
160															.003			
165															.002			
170															.002			
175															.017			
180															.006			
185															.007			
190															.005			
195															.001			
200																		

LAC MINERALS (U.S.A.) INC.
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LITHIC LAPILLI TUFF

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K_v = KAOLINITE VEINING

DRILL HOLE RL-163

Page 3 of 6

LOGGED BY DAN

	LITH.	ALT.	% ARG. ALT. W	M	S	% SIL'N W	M	S	COLOR	% FeOx W	M	S	% SULF.	COMMENTS	Au	Ag	CHECK	% WASH RECOV
		~ Q_{MAEL}							LT GREY				1-4%		.002	<		
205															.002	<		
210															.002	<		
215															.003	<		
220															.004	.17		
225															.005	.28		
230															.004	.16		
235															.002	.15		
240		XX													.002	.11		
245		K_v												KAOLINITE VEINS ?	.003	.11		
250															.003	.24		
255															.004	.20		
260															.005	<		
265		XX													.005	.12		
270		XX K_v												KAOLINITE VEINS	.003	.12		
275		K_v							+ BEIGE						.028	.21		
280															.004	.19		
285															.013	.20		
290		XX													.007	.17		
295		XX													.003	.13		
300																		

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

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XXXXXX DRUZY QUARTZ
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Ca CALCITE

DRILL HOLE RL-163

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LOGGED BY DAM

	LITH.	ALT.	% ARG. ALT. W	M	S	% SIL'N W	M	S	COLOR	% FeOx W	M	S	% SULF.	COMMENTS	Au	Ag	CHECK	% WASH RECOV.
		~XK XX + MARC							GREY + TAN				1-4%	STRG CLAY ALTERED, DRUZY QT MARCASITE HGT CONT.	.016	.16		
305															.007	.22		
310															.006	<		
315															.005			
320															.004			
325															.003			
330															.004			
335															.009			
340															.009			
345															.012			
350															.009			
355															.048			
360															.025			
365															.009			
370															.006			
375															.020	.71		
380															.004	<		
385															.006	<		
390															.005	<		
395															.008	.15		
400																		

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DRILL HOLE RL-163

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LOGGED BY DAM

	LITH.	ALT.	% ARG. ALT. W	M	S	% SIL'N W	M	S	COLOR	% FeOx W	M	S	% SULF.	COMMENTS	Au	Ag	CHECK	% WASH RECOV.
		~Qm XXX							GREY TAN				2%	(STILL 70-90% CLAY)	.002	<		
405																		
410															.003	.12		
415															.002	<		
420															.004	.16		
425															.002	<		
430															.011	<		
435															.007	<		
440															.009	.17		
445															.004	.13		
450															.004	<		
455														455-465 DRUZY Q INCREASE	.006	<		
460														TO 30-50%	.003	<		
465														50% DRUZY Q Qpocket H2O = 10gpm	.002	<		
470															.004	.15		
475															.005	.14		
480															.003	<		
485															.005	<		
490									GREY						.006	<		
495															.005	.12		
500															.013	.14		

LAC MINERALS (U.S.A.) INC.
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DRILL HOLE RL-163

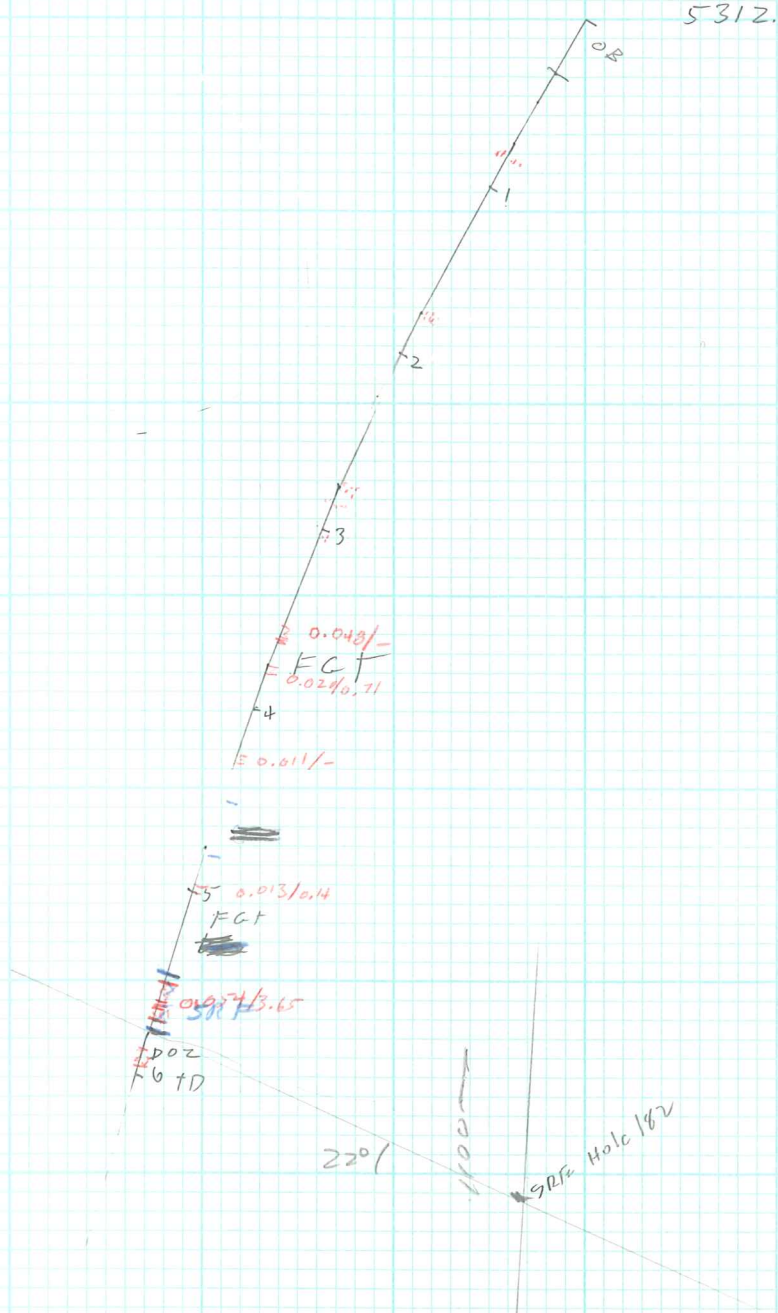
Page 6 of 6

LOGGED BY DAM

	LITH.	ALT.	% ARG. ALT. W	M	S	% SIL'N W	M	S	COLOR	% FeOx W	M	S	% SULF.	COMMENTS	Au	Ag	CHECK	% WASH RECOV.
		~ Qmag XXL							TAN + GREY						.004	<		
505																		
510															.009	.15		
515															.003	<		
520															.007	.26		
525															.011	.82		
530															.010	.74		
535		XX							GRN						.006	.30		
540															.009	.22		
545															.005	.21		
550														545 – 570 FAULT ZONE INTENSE CALLEDONIC	.006	.65		
555	FAULT ZONE								LT GRN ?					SILICIFICATION w/ PYRITE VEINS SOME	.012	1.99		
560									GREY					DRUZY Qtz. H_2O =	.033	3.27		
565														(SOUTH RIDGE FAULT) Qbucket = 15gpm	.054	3.65		
570															.013	0.84		
575	D.T.								LT GREEN					570-600 LT GREEN FINE GRAIN TUFF (DOZER)	.008	.91		
580															.006	.32		
585															.008	<		
590															.013	<		
595															.037	<		
600															.004	<		
														600' = T.D. 15gpm H_2O				

2,203,723 N
482,599 E

5312.



ROSEBUD
RL-163
1" = 100'

In plane of hole

NEVADA GSI, INC.

GEOCHEMICAL ANALYSIS REPORT

Job No.: LOAS8797

No.	Sample Id			Au opt	Ag opt
101	RL-165	175	180	0.0020	-0.1000
102	R-58			0.0540	-0.1000
103	RL-165	180	185	0.0030	-0.1000
104	RL-165	185	190	0.0080	-0.1000
105	RL-165	190	195	0.0050	-0.1000
106	RL-165	195	200	0.0020	-0.1000
107	RL-165	200	205	0.0010	-0.1000
108	RL-165	205	210	0.0010	-0.1000
109	RL-165	210	215	0.0010	0.1300
110	RL-165	215	220	0.0010	-0.1000
111	RL-165	220	225	0.0010	-0.1000
112	RL-165	225	230	0.0020	-0.1000
113	RL-165	230	235	0.0010	-0.1000
114	RL-165	235	240	0.0010	0.1300
115	RL-165	240	245	0.0030	-0.1000
116	RL-165	245	250	0.0020	-0.1000
117	RL-165	250	255	0.0010	-0.1000
118	RL-165	255	260	0.0020	-0.1000
119	RL-165	260	265	0.0020	-0.1000
120	RL-165	265	270	0.0010	-0.1000
121	RL-165	270	275	0.0020	-0.1000
122	R-59			0.0330	-0.1000
123	RL-165	275	280	0.0060	-0.1000
124	RL-165	280	285	0.0020	-0.1000
125	RL-165	285	290	0.0010	-0.1000
126	RL-165	290	295	-0.0010	-0.1000
127	RL-165	295	300	-0.0010	-0.1000
128	RL-162	365	370	-0.0010	-0.1000
129	RL-162	370	375	0.0020	0.2500
130	RL-162	375	380	0.0010	-0.1000
131	RL-162	380	385	0.0010	-0.1000
132	RL-162	385	390	0.0010	-0.1000
133	RL-162	390	395	0.0050	-0.1000
134	RL-162	395	400	0.0040	-0.1000
135	RL-162	400	405	0.0050	-0.1000
136	RL-162	405	410	0.0010	-0.1000
137	RL-162	410	415	0.0020	-0.1000
138	RL-162	415	420	0.0040	-0.1000
139	RL-162	420	425	0.0050	-0.1000
140	RL-162	425	430	0.0090	0.2100
141	RL-162	430	435	0.0010	-0.1000
142	R-60			0.0300	0.1500
143	RL-162	435	440	0.0020	-0.1000
144	RL-162	440	445	0.0010	-0.1000
145	RL-163	0	5	0.0010	-0.1000
146	RL-163	5	10	0.0010	-0.1000
147	RL-163	10	15	0.0010	-0.1000
148	RL-163	15	20	0.0010	-0.1000
149	RL-163	20	25	0.0010	-0.1000
150	RL-163	25	30	0.0010	-0.1000

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

NEVADA GSI, INC.

GEOCHEMICAL ANALYSIS REPORT

Job No.: LOAS8797

No.	Sample Id			Au opt	Ag opt
151	RL-163	30	35	0.0020	-0.1000
152	RL-163	35	40	0.0030	-0.1000
153	RL-163	40	45	0.0060	0.1700
154	RL-163	45	50	0.0030	0.1900
155	RL-163	50	55	0.0030	-0.1000
156	RL-163	55	60	0.0010	0.1500
157	RL-163	60	65	0.0010	0.1700
158	RL-163	65	70	0.0010	0.1800
159	RL-163	70	75	0.0060	-0.1000
160	RL-163	75	80	0.0140	0.2400
161	RL-163	80	85	0.0030	-0.1000
162	R-61			0.0940	-0.1000
163	RL-163	85	90	0.0020	0.1400
164	RL-163	90	95	0.0020	0.2200
165	RL-163	95	100	0.0020	-0.1000
166	RL-163	100	105	0.0020	0.1000
167	RL-163	105	110	0.0010	0.2200
168	RL-163	110	115	0.0060	0.1900
169	RL-163	115	120	-0.0010	0.2700
170	RL-163	120	125	-0.0010	0.2500
171	RL-163	125	130	0.0010	0.2200
172	RL-163	130	135	0.0030	-0.1000
173	RL-163	135	140	0.0040	-0.1000
174	RL-163	140	145	0.0030	-0.1000
175	RL-163	145	150	0.0020	-0.1000
176	RL-163	150	155	0.0050	-0.1000
177	RL-163	155	160	0.0020	-0.1000
178	RL-163	160	165	0.0030	-0.1000
179	RL-163	165	170	0.0020	-0.1000
180	RL-163	170	175	0.0020	-0.1000
181	RL-163	175	180	0.0170	-0.1000
182	R-62			0.0790	-0.1000
183	RL-163	180	185	0.0060	-0.1000
184	RL-163	185	190	0.0070	-0.1000
185	RL-163	190	195	0.0050	-0.1000
186	RL-163	195	200	0.0010	-0.1000
187	RL-163	200	205	0.0020	-0.1000
188	RL-163	205	210	0.0020	-0.1000
189	RL-163	210	215	0.0020	-0.1000
190	RL-163	215	220	0.0030	-0.1000
191	RL-163	220	225	0.0040	0.1700
192	RL-163	225	230	0.0050	0.2800
193	RL-163	230	235	0.0040	0.1600
194	RL-163	235	240	0.0020	0.1500
195	RL-163	240	245	0.0020	0.1100
196	RL-163	245	250	0.0030	0.1100
197	RL-163	250	255	0.0030	0.2400
198	RL-163	255	260	0.0040	0.2000
199	RL-163	260	265	0.0050	-0.1000
200	RL-163	265	270	0.0050	0.1200

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Job No.: LOAS8797

No.	Sample Id			Au opt	Ag opt
201	RL-163	270	275	0.0030	0.1200
202	R-63			-0.0010	-0.1000
203	RL-163	275	280	0.0280	0.2100
204	RL-163	280	285	0.0040	0.1900
205	RL-163	285	290	0.0130	0.2000
206	RL-163	290	295	0.0070	0.1700
207	RL-163	295	300	0.0030	0.1300
208	RL-163	300	305	0.0160	0.1600
209	RL-163	305	310	0.0070	0.2200
210	RL-163	310	315	0.0060	-0.1000
211	RL-163	315	320	0.0050	-0.1000
212	RL-163	320	325	0.0040	-0.1000
213	RL-163	325	330	0.0030	-0.1000
214	RL-163	330	335	0.0040	-0.1000
215	RL-163	335	340	0.0090	-0.1000
216	RL-163	340	345	0.0090	-0.1000
217	RL-163	345	350	0.0120	-0.1000
218	RL-163	350	355	0.0040	-0.1000
219	RL-163	355	360	0.0480	-0.1000
220	RL-163	360	365	0.0250	-0.1000
221	RL-163	365	370	0.0090	-0.1000
222	R-63			0.0310	-0.1000
223	RL-163	370	375	0.0060	-0.1000
224	RL-163	375	380	0.0200	0.7100
225	RL-163	380	385	0.0040	-0.1000
226	RL-163	385	390	0.0060	-0.1000
227	RL-163	390	395	0.0050	-0.1000
228	RL-163	395	400	0.0080	0.1500
229	RL-163	400	405	0.0020	-0.1000
230	RL-163	405	410	0.0030	0.1200
231	RL-163	410	415	0.0020	-0.1000
232	RL-163	415	420	0.0040	0.1600
233	RL-163	420	425	0.0020	-0.1000
234	RL-163	425	430	0.0110	-0.1000
235	RL-163	430	435	0.0070	-0.1000
236	RL-163	435	440	0.0090	0.1700
237	RL-163	440	445	0.0040	0.1300
238	RL-163	445	450	0.0040	-0.1000
239	RL-163	450	455	0.0060	-0.1000
240	RL-163	455	460	0.0030	-0.1000
241	RL-163	460	465	0.0020	-0.1000
242	R-65			0.0810	-0.1000
243	RL-163	465	470	0.0040	0.1500
244	RL-163	470	475	0.0050	0.1400
245	RL-163	475	480	0.0030	-0.1000
246	RL-163	480	485	0.0050	-0.1000
247	RL-163	485	490	0.0060	-0.1000
248	RL-163	490	495	0.0050	0.1200
249	RL-163	495	500	0.0130	0.1400
250	RL-163	500	505	0.0040	-0.1000

NEVADA GSI, INC.

GEOCHEMICAL ANALYSIS REPORT

Job No.: LOAS8797

No.	Sample Id			Au opt	Ag opt
251	RL-163	505	510	0.0050	0.1500
252	RL-163	510	515	0.0030	-0.1000
253	RL-163	515	520	0.0070	0.2600
254	RL-163	520	525	0.0110	0.8200
255	RL-163	525	530	0.0100	0.7400
256	RL-163	530	535	0.0060	0.3000
257	RL-163	535	540	0.0040	0.2200
258	RL-163	540	545	0.0050	0.2100
259	RL-163	545	550	0.0060	0.6500
260	RL-163	550	555	0.0120	1.9900
261	RL-163	555	560	0.0330	3.2700
262	R-66			0.0310	0.2300
263	RL-163	560	565	0.0540	3.6500
264	RL-163	565	570	0.0130	0.8400
265	RL-163	570	575	0.0080	0.4100
266	RL-163	575	580	0.0060	0.3200
267	RL-163	580	585	0.0080	-0.1000
268	RL-163	585	590	0.0130	-0.1000
269	RL-163	590	595	0.0370	-0.1000
270	RL-163	595	600	0.0040	-0.1000
271	RL-164	0	5	0.0010	-0.1000
272	RL-164	5	10	-0.0010	-0.1000
273	RL-164	10	15	-0.0010	-0.1000
274	RL-164	15	20	-0.0010	-0.1000
275	RL-164	20	25	-0.0010	-0.1000
276	RL-164	25	30	-0.0010	-0.1000
277	RL-164	30	35	-0.0010	-0.1000
278	RL-164	35	40	-0.0010	-0.1000
279	RL-164	40	45	-0.0010	-0.1000
280	RL-164	45	50	-0.0010	-0.1000
281	RL-164	50	55	-0.0010	-0.1000
282	R-67			0.0540	-0.1000
283	RL-164	55	60	-0.0010	-0.1000
284	RL-164	60	65	-0.0010	-0.1000
285	RL-164	65	70	-0.0010	-0.1000
286	RL-164	70	75	0.0010	-0.1000
287	RL-164	75	80	-0.0010	-0.1000
288	RL-164	80	85	-0.0010	-0.1000
289	RL-164	85	90	-0.0010	-0.1000
290	RL-164	90	95	-0.0010	-0.1000
291	RL-164	95	100	-0.0010	-0.1000
292	RL-164	100	105	-0.0010	-0.1000
293	RL-164	105	110	-0.0010	-0.1000
294	RL-164	110	115	-0.0010	-0.1000
295	RL-164	115	120	-0.0010	-0.1000
296	RL-164	120	125	-0.0010	-0.1000
297	RL-164	125	130	0.0010	-0.1000
298	RL-164	130	135	-0.0010	-0.1000
299	RL-164	135	140	-0.0010	-0.1000
300	RL-164	140	145	-0.0010	-0.1000

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

NEVADA GSI, INC.

GEOCHEMICAL ANALYSIS REPORT

Job No.: LOAS8797
SUPRESSED ASSAYS

			Au Opt	Ag Opt
201	RL-163	270-275	0.0040	0.1200
202	R-63		-0.0010	-0.1000
203	RL-163	275-280	0.0300	0.2100

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NEVADA GSI, INC.

Supressed Assay Report

Dear customer:

The following results were suppressed off the original report GSI job # LOAS8797 due to a refire which took place on 11-26-90. The original assays are as follows:

	Sample Id	Au ppm - oz/t	Ag ppm - oz/t
RL-163	270-275	0.0040	0.1200
	R-63	- 0.0010	- 0.1000
RL-163	275-280	0.0300	0.2100

If you have any questions, please do not hesitate to call me 702/359-6600.

Sincerely,

Becky Ferrel

Becky Ferrel

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

BOYLES-WELNAV
RENO, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* LAC MINERALS USA INC. *
****

JOB NUMBER: 029-0313-12CCGY

WELL NAME: RL-163

LOCATION: ROSEBUD

SURVEY DATE: 11-14-90

SURVEY ENGINEER: PHIL GRAFFT

GYRO REFERENCE BEARING: S65.00E

TIE-IN COORDINATES AT: 0 M.D.
TAKEN FROM: SURFACE

****
**********DEPTH MEASURED IN FEET**********
****

COMMENTS:

****
****
****THIS DIRECTIONAL SURVEY REPORT IS*****
CORRECT TO THE BEST OF MY KNOWLEDGE*
AND IS SUPPORTED BY ACTUAL FIELD DATA!
**
**
**
COMPANY REPRESENTATIVE
**
****

BOYLES-WELNAV
RENO,NEVADA

JOB NUMBER: 029-0313-12CCGY

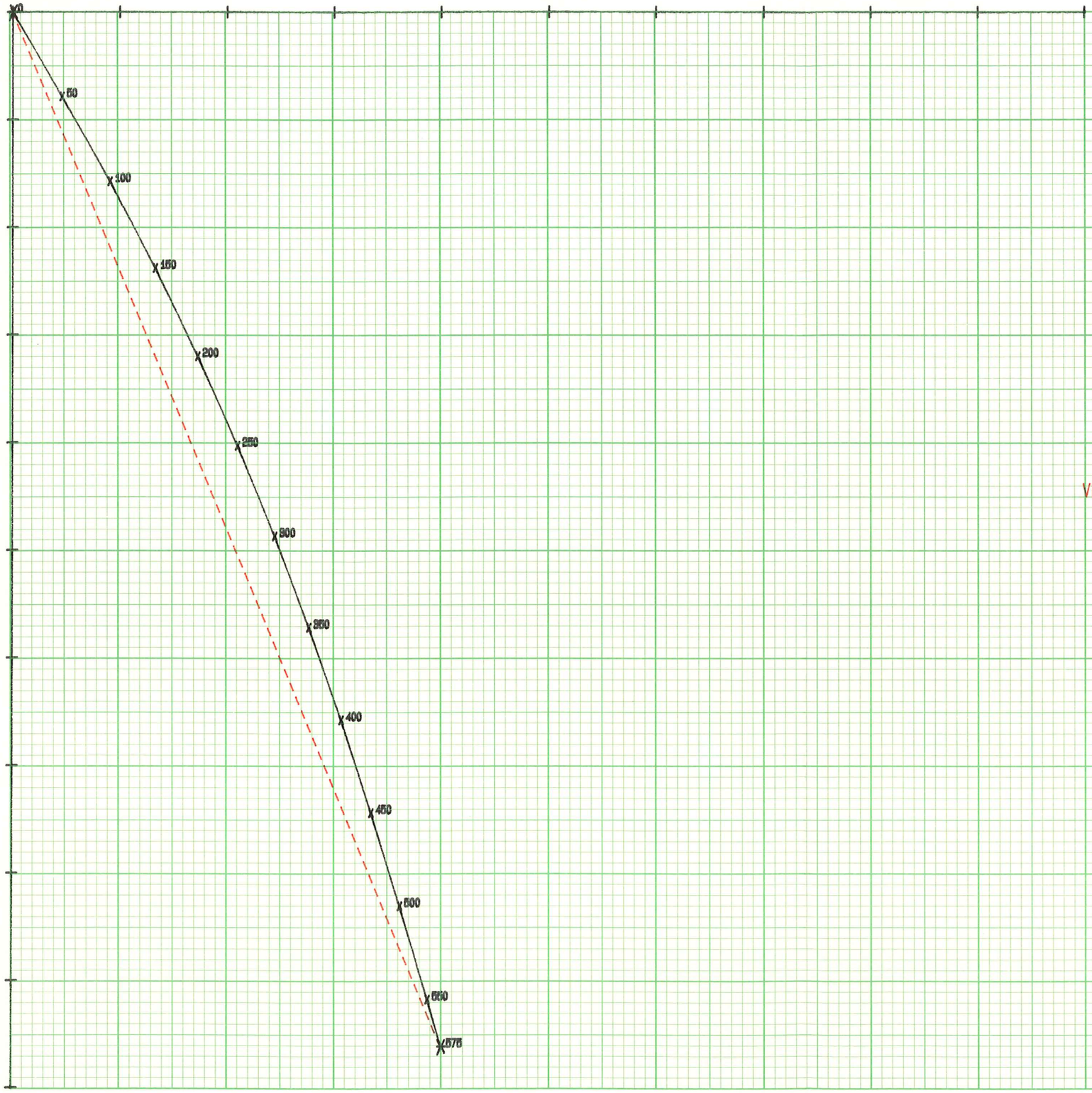
WELL NAME: RL-163

INRUN SURVEY
BY

THE MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INCL	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG PER 50	STATION DISP.	DISPLACEMENT DIRECTION
0.0	0.00	0.00	0.00	-60.00	125.00	0.00 N	0.00 E	0.00	0.00 AT	0.00 DEG
50.0	43.19	25.13	25.20	-59.48	129.25	15.20 S	20.07 E	2.20	25.18 AT	127.14 DEG
100.0	86.67	49.81	24.68	-61.35	129.72	30.90 S	39.13 E	1.88	49.85 AT	128.30 DEG
150.0	130.95	73.03	23.22	-63.32	130.17	45.80 S	56.93 E	1.98	73.06 AT	128.82 DEG
200.0	175.94	94.83	21.81	-64.95	128.78	59.67 S	73.76 E	1.74	94.87 AT	128.97 DEG
250.0	221.56	115.29	20.46	-66.73	129.83	72.63 S	89.59 E	1.83	115.33 AT	129.03 DEG
300.0	267.78	134.36	19.07	-68.42	129.63	84.82 S	104.26 E	1.69	134.41 AT	129.13 DEG
350.0	314.53	152.09	17.73	-70.03	132.62	96.47 S	117.63 E	1.93	152.13 AT	129.36 DEG
400.0	361.67	168.73	16.65	-71.07	132.68	107.75 S	129.87 E	1.03	168.75 AT	129.68 DEG
450.0	409.18	184.29	15.58	-72.62	134.20	118.46 S	141.19 E	1.62	184.30 AT	130.00 DEG
500.0	456.93	199.12	14.85	-72.82	133.20	128.72 S	151.93 E	0.36	199.13 AT	130.27 DEG
550.0	504.83	213.43	14.33	-73.88	134.38	138.63 S	162.27 E	1.12	213.43 AT	130.51 DEG
575.0	528.87	220.27	6.87	-74.23	135.02	143.46 S	167.15 E	0.78	220.27 AT	130.64 DEG

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   575.0 FEET EQUALS    220.27    FEET AT    130.64 DEG.   *
*                          ********                         *
*************************************************************
```



BOYLES-WELNAV

RENO, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY

FOR

LAC MINERALS USA INC.

WELL NAME: RL-163

JOB NUMBER: 029-0313-12CCGY

DATE: 11-14-90

INRUN SURVEY BY MINIMUM CURVATURE

VERTICAL PROJECTION (* --- *) AT 528.87 FEET

EQUALS 572.91 FEET AT 22.61

X DENOTES EVERY 1 STATION(S)

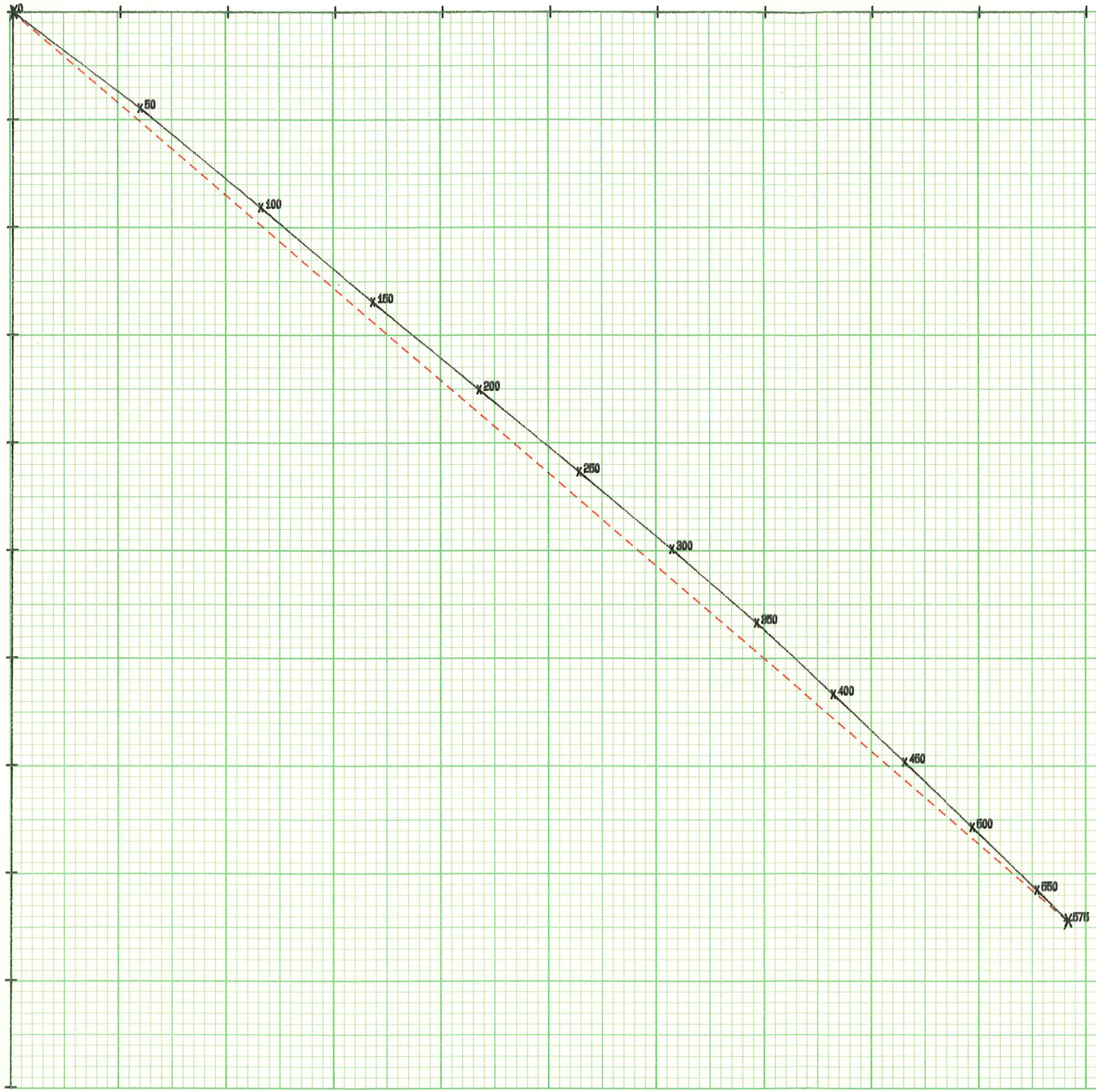
HORIZONTAL SCALE = 55 FEET/INCH

VERTICAL SCALE = 55 FEET/INCH

VERTICAL SECTION

PERPENDICULAR TO CLOSURE

HEWLETT-PACKARD 9270-1004



BOYLES-WELNAV

RENO, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY

FOR

LAC MINERALS USA INC.

WELL NAME: RL-163

JOB NUMBER: 029-0313-12CCGY

DATE: 11-14-90

INRUN SURVEY BY MINIMUM CURVATURE

HORIZONTAL DISPLACEMENT (* --- *) AT 575.0 FEET

EQUALS 220.27 FEET AT S 49.36 E

X DENOTES EVERY 1 STATION(S)

N

PLAN VIEW

SCALE = 17 FEET/INCH

HEWLETT-PACKARD 9270-1004