60001878

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud Reserve
AUTHOR	Tschauder, R; Russel D. Stahlbush F; Noyes R
DATE OF DOC(S)	1993
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; South Zone; Hecla Mining Co.; Lac Minerals (USA) Inc. Equinox
COMMODITY If not obvious	gold, silver
NOTES	Resource; assays; correspondence; handwritten notes 36p

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 8/1/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

ROSEBUD RESERVE - TSCHAUDER (1993)

6000178

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK T. (RUSSELL RESERVE)

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12,569	0.169	38,674	6,536
RL41C	*	1	17	9,613	0.171	12,571	2,150
RL66	*	1	13	9,342	0.136	9,342	1,271
RL129C	*	1	31	7,010	0.243	16,716	4,062
RL209C	*	1	16	9,404	0.154	11,574	1,782
RL247	*	1	40	9,230	0.142	28,400	4,033
RL3	*	2	25	12,500	0.224	24,038	5,385
RL35	*	2	15	8,340	0.117	9,623	1,126
RL40C	*	2	23	2,737	0.094	4,842	455
RL41C	*	2	17	4,800	0.511	6,277	3,208
RL55C	*	2	29	10,732	0.325	23,941	7,781
RL57	*	2	30	10,671	0.778	24,625	19,159
RL60	*	2	22	5,822	0.164	9,853	1,616
RL75C	*	2	19	29,827	0.229	43,593	9,983
RL104C	*	2	107	19,630	0.619	161,570	100,012
RL123C	*	2	35	9,330	0.422	25,119	10,600
RL125C	*	2	41	10,463	0.334	32,999	11,022
RL130C	*	2	39	10,708	0.403	32,124	12,946
RL159C	*	2	169	4,905	0.807	63,765	51,458
RL171	*	2	70	3,116	0.203	16,778	3,406
RL192C	*	2	45	5,709	0.260	19,762	5,138
RL193C	*	2	172	8,873	0.695	117,397	81,591
RL195C	*	2	63	7,032	0.155	34,078	5,282
RL208C	*	2	70.5	8,009	0.131	43,433	5,690
RL209C	*	2	43	11,020	0.130	36,451	4,739
RL289	*	2	119	4,917	0.791	45,009	35,602
RL41C	*	3	35	11,404	0.171	30,703	5,250
RL171	*	3	60	1,802	0.566	8,317	4,707
RL192C	*	3	20	4,419	0.325	6,798	2,210
RL82C	*	5	42	11,749	0.450	37,958	17,081
RL88C	*	5	64	12,573	0.179	61,898	11,080

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK T. (RUSSELL RESERVE)

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
RL82C	*	6	18.8	9,965	0.315	14,411	4,539
RL89C	*	6	42	8,068	0.396	26,066	10,322
RL93C	*	6	91	16,730	0.225	117,110	26,350
RL102	*	6	28.5	9,010	0.180	19,753	3,555
RL145	*	6	26	15,881	0.264	31,762	8,385
RL159C	*	6	31	7,116	0.119	16,969	2,019
RL168	*	6	45	9,282	2.115	32,130	67,955
RL169	*	6	25	17,138	0.137	32,958	4,515
RL170	*	6	55	13,508	0.121	57,149	6,915
RL186	*	6	105	15,642	0.183	126,339	23,120
RL187	*	6	55	7,405	0.598	31,329	18,735
RL191C	*	6	110	15,686	0.196	132,728	26,015
RL194C	*	6	30	10,536	0.108	24,314	2,626
RL198C	*	6	80	7,597	0.724	46,751	33,848
RL201C	*	6	48	14,856	0.415	54,853	22,764
RL261	*	6	60	10,198	0.179	47,068	8,425
RL289C	*	6	51	3,001	0.162	11,773	1,907
RL94C	*	7	17	15,587	0.205	20,383	4,179
RL131C	*	7	15	17,104	0.564	19,735	11,131
RL206C	*	7	20	17,528	0.127	26,966	3,425

SUMMARY FOR ORIGINAL "RUSSELL" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.485	775,279	376,197
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	ERR	0	0
UNIT 5	0.282	99,856	28,161
UNIT 6	0.330	823,461	271,996
UNIT 7	0.279	67,085	18,734
UNIT 8	ERR	0	0
TOTALS	0.377	1,928,776	727,088
MINING RESERVE WITH 15% DILUTION	0.328	2,218,093	727,088

0.0 grade

SUMMARY FOR ORIGINAL "RUSSELL" RESERVE			
	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.485	775,279	376,197
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	ERR	0	0
UNIT 5	0.282	99,856	28,161
UNIT 6	0.330	823,461	271,996
UNIT 7	0.279	67,085	18,734
UNIT 8	ERR	0	0
TOTALS	0.377	1,928,776	727,088
MINING RESERVE WITH 15% DILUTION	0.328	2,218,093	727,088

SUMMARY FOR 2,500 SQUARE FT MAXIMUM (50' BY 50')			
	GRADE	TONS	OZ AU
UNIT 1	0.173	30,192	5,214
UNIT 2	0.494	221,827	109,595
(CHIMNEY)	0.761	88,462	67,318
UNIT 3	0.376	18,894	7,108
UNIT 4	ERR	0	0
UNIT 5	0.286	20,385	5,838
UNIT 6	0.375	173,327	64,945
UNIT 7	0.279	10,000	2,786
UNIT 8	ERR	0	0
TOTALS	0.412	474,625	195,486
MINING RESERVE WITH 15% DILUTION	0.358	545,818	195,486

SUMMARY FOR 10,000 SQUARE FT MAXIMUM (100' BY 100')			
	GRADE	TONS	OZ AU
UNIT 1	0.169	109,372	18,497
UNIT 2	0.484	652,091	315,903
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.274	42,038	11,521
UNIT 4	ERR	0	0
UNIT 5	0.286	81,538	23,351
UNIT 6	0.368	622,258	229,107
UNIT 7	0.279	40,000	11,142
UNIT 8	ERR	0	0
TOTALS	0.394	1,547,299	609,521
MINING RESERVE WITH 15% DILUTION	0.343	1,779,393	609,521

SUMMARY FOR 5,625 SQUARE FT MAXIMUM (75' BY 75')			
	GRADE	TONS	OZ AU
UNIT 1	0.173	67,933	11,731
UNIT 2	0.496	463,571	230,135
(CHIMNEY)	0.758	183,198	138,785
UNIT 3	0.314	30,260	9,507
UNIT 4	ERR	0	0
UNIT 5	0.286	45,865	13,135
UNIT 6	0.380	379,691	144,459
UNIT 7	0.279	22,500	6,268
UNIT 8	ERR	0	0
TOTALS	0.411	1,009,820	415,234
MINING RESERVE WITH 15% DILUTION	0.358	1,161,293	415,234

Rosebud Project – Preliminary Resource Estimate

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12569	0.169	38674	6536
RL41C	*	1	17	9613	0.171	12571	2150
RL66	*	1	13	9342	0.136	9342	1271
RL129C	*	1	31	7010	0.243	16716	4062
RL209C	*	1	16	9404	0.154	11574	1782
RL247	*	1	40	9230	0.142	28400	4033
RL3	*	2	25	12500	0.224	24038	5385
RL5	*	2	98	3805	0.206	28684	5909
RL22	*	2	30	3754	0.251	8663	2174
RL25	*	2	25	20602	0.105	39619	4160
RL35	*	2	15	8340	0.117	9623	1126
RL40C	*	2	23	2737	0.094	4842	455
RL41C	*	2	17	4800	0.511	6277	3208
RL52C	*	2	29	5816	0.151	12974	1959
RL55C	*	2	29	10732	0.325	23941	7781
RL57	*	2	30	10671	0.778	24625	19159
RL60	*	2	22	5822	0.164	9853	1616
RL71C	*	2	37	13918	0.152	39613	6021
RL75C	*	2	19	29827	0.229	43593	9983
RL89C	*	2	34	4442	0.119	11618	1382
RL104C	*	2	107	19630	0.619	161570	100012
RL108C	*	2	35	4420	0.121	11900	1440
RL123C	*	2	35	9330	0.422	25119	10600
RL125C	*	2	41	10463	0.334	32999	11022
RL130C	*	2	39	10708	0.403	32124	12946
RL159C	*	2	169	4905	0.807	63765	51458
RL171	*	2	70	3116	0.203	16778	3406
RL192C	*	2	45	5709	0.26	19762	5138
RL193C	*	2	172	8873	0.695	117397	81591
RL195C	*	2	63	7032	0.155	34078	5282
RL208C	*	2	70.5	8009	0.131	43433	5690
RL209C	*	2	43	11020	0.13	36451	4739
RL210C	*	2	20	3652	0.127	5618	714
RL220	*	2	30	11789	0.497	27205	13521
RL247	*	2	35	6725	0.153	18106	2770
RL289	*	2	119	4917	0.791	45009	35602
RL41C	*	3	35	11404	0.171	30703	5250
RL171	*	3	60	1802	0.566	8317	4707
RL192C	*	3	20	4419	0.325	6798	2210
RL257	*	4	20	12573	0.151	19343	2921
RL272	*	4	26	11749	0.201	23498	4723
RL82C	*	5	42	11749	0.45	37958	17081
RL88C	*	5	64	12573	0.179	61898	11080
RL82C	*	6	18.8	9965	0.315	14411	4539
RL89C	*	6	42	8068	0.396	26066	10322
RL93C	*	6	91	16730	0.225	117110	26350

RL94C	*	6	30	23778	0.097	54872	5323
RL102	*	6	28.5	9010	0.18	19753	3555
RL106C	*	6	11	20869	0.104	17658	1836
RL109C	*	6	19	7560	0.147	11049	1624
RL145	*	6	26	15881	0.264	31762	8385
RL159C	*	6	31	7116	0.119	16969	2019
RL168	*	6	45	9282	2.115	32130	67955
RL169	*	6	25	17138	0.137	32958	4515
RL170	*	6	55	13508	0.121	57149	6915
RL185	*	6	20	13141	0.103	20217	2082
RL186	*	6	105	15642	0.183	126339	23120
RL187	*	6	55	7405	0.598	31329	18735
RL188	*	6	25	21930	0.1	42173	4217
RL191C	*	6	110	15686	0.196	132728	26015
RL194C	*	6	30	10536	0.108	24314	2626
RL198C	*	6	80	7597	0.724	46751	33848
RL201C	*	6	48	14856	0.415	54853	22764
RL206C	*	6	17	16460	0.092	21525	1980
RL213	*	6	25	20520	0.159	39462	6274 OK-0
RL217	*	6	40	20719	0.098	63751	6248 OK-0
RL261	*	6	60	10198	0.179	47068	8425
RL273	*	6	75	10778	0.154	62181	9576 OK-0
RL289C	*	6	51	3001	0.162	11773	1907
RL94C	*	7	17	15587	0.205	20383	4179
RL131C	*	7	15	17104	0.564	19735	11131
RL206C	*	7	20	17528	0.127	26966	3425
RL217	*	7	35	21681	0.16	58372	9340
RL214	*	8	25	8910	0.207	17135	3547

SUMMARY

UNIT 1	0.169	117277	19833
UNIT 2	0.425	979279	416248
(CHIMNEY)	0.746	226171	168651
UNIT 3	0.266	45818	12167
UNIT 4	0.178	42841	7644
UNIT 5	0.282	99856	28161
UNIT 6	0.269	1156349	311157
UNIT 7	0.224	125456	28073
UNIT 8	0.207	17135	3547
	0.320	2584012	826830

"Rick Tschaunder"
ESTIMATE in July - Aug
of 1993

Rosebud Project – Preliminary Resource Estimate

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12569	0.169	38674	6536
RL41C	*	1	17	9613	0.171	12571	2150
RL66	*	1	13	9342	0.136	9342	1271
RL129C	*	1	31	7010	0.243	16716	4062
RL209C	*	1	16	9404	0.154	11574	1782
RL247	*	1	40	9230	0.142	28400	4033
RL3	*	2	25	12500	0.224	24038	5385
RL35	*	2	15	8340	0.117	9623	1126
RL40C	*	2	23	2737	0.094	4842	455
RL41C	*	2	17	4800	0.511	6277	3208
RL55C	*	2	29	10732	0.325	23941	7781
RL57	*	2	30	10671	0.778	24625	19159
RL60	*	2	22	5822	0.164	9853	1616
RL75C	*	2	19	29827	0.229	43593	9983
RL104C	*	2	107	19630	0.619	161570	100012
RL123C	*	2	35	9330	0.422	25119	10600
RL125C	*	2	41	10463	0.334	32999	11022
RL130C	*	2	39	10708	0.403	32124	12946
RL159C	*	2	169	4905	0.807	63765	51458
RL171	*	2	70	3116	0.203	16778	3406
RL192C	*	2	45	5709	0.26	19762	5138
RL193C	*	2	172	8873	0.695	117397	81591
RL195C	*	2	63	7032	0.155	34078	5282
RL208C	*	2	70.5	8009	0.131	43433	5690
RL209C	*	2	43	11020	0.13	36451	4739
RL289	*	2	119	4917	0.791	45009	35602
RL41C	*	3	35	11404	0.171	30703	5250
RL171	*	3	60	1802	0.566	8317	4707
RL192C	*	3	20	4419	0.325	6798	2210
RL82C	*	5	42	11749	0.45	37958	17081
RL88C	*	5	64	12573	0.179	61898	11080
RL82C	*	6	18.8	9965	0.315	14411	4539
RL89C	*	6	42	8068	0.396	26066	10322
RL93C	*	6	91	16730	0.225	117110	26350

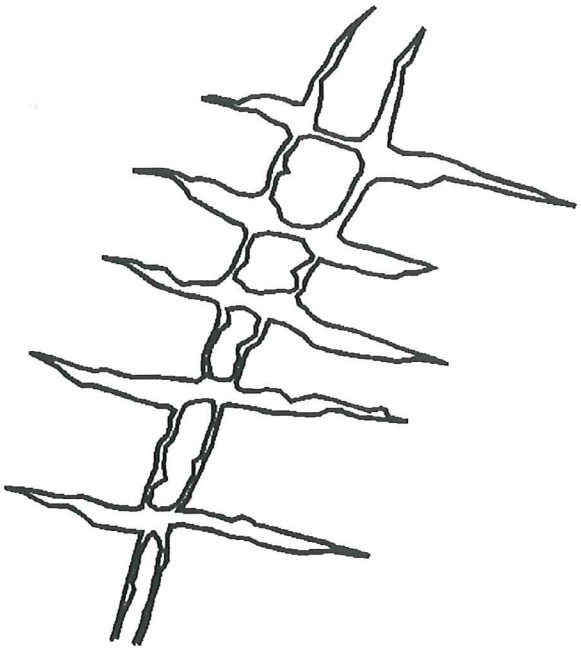
RL102	*	6	28.5	9010	0.18	19753	3555
RL145	*	6	26	15881	0.264	31762	8385
RL159C	*	6	31	7116	0.119	16969	2019
RL168	*	6	45	9282	2.115	32130	67955
RL169	*	6	25	17138	0.137	32958	4515
RL170	*	6	55	13508	0.121	57149	6915
RL186	*	6	105	15642	0.183	126339	23120
RL187	*	6	55	7405	0.598	31329	18735
RL191C	*	6	110	15686	0.196	132728	26015
RL194C	*	6	30	10536	0.108	24314	2626
RL198C	*	6	80	7597	0.724	46751	33848
RL201C	*	6	48	14856	0.415	54853	22764
RL261	*	6	60	10198	0.179	47068	8425
RL289C	*	6	51	3001	0.162	11773	1907
RL94C	*	7	17	15587	0.205	20383	4179
RL131C	*	7	15	17104	0.564	19735	11131
RL206C	*	7	20	17528	0.127	26966	3425

SUMMARY

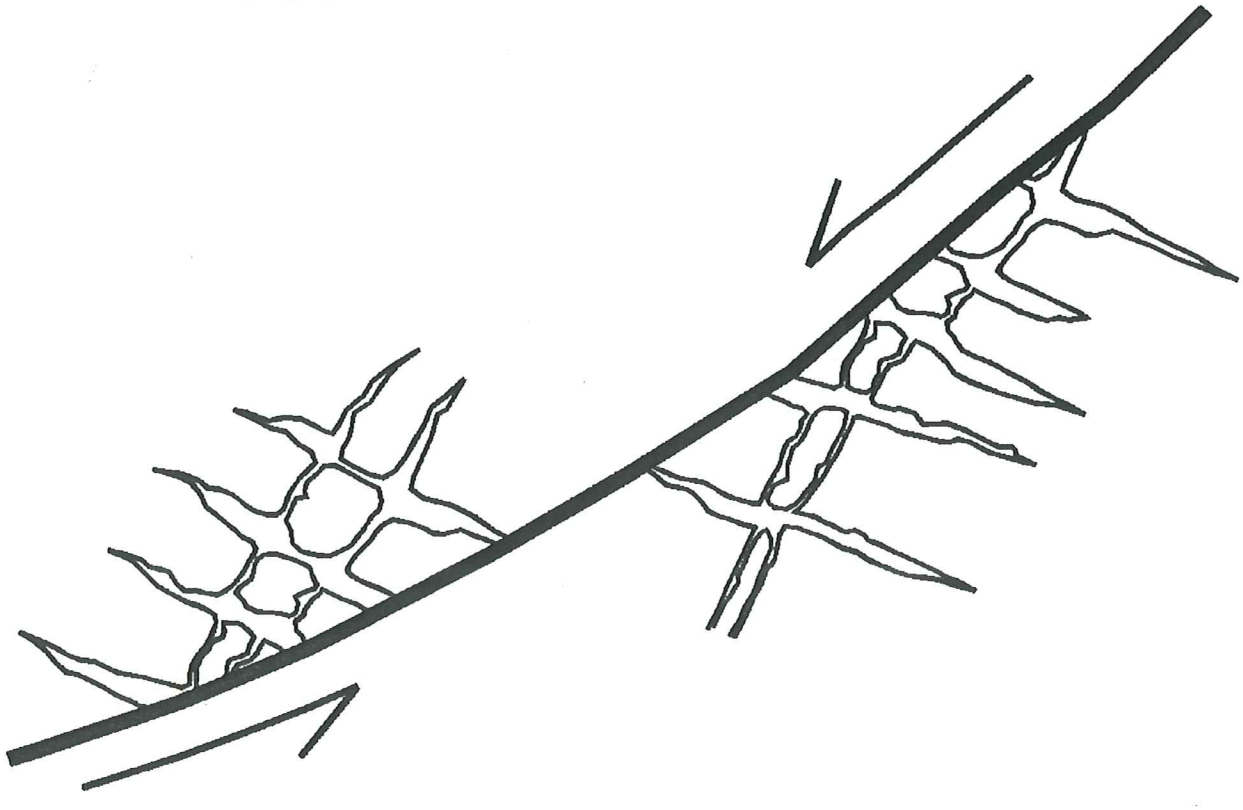
UNIT 1	0.169	117,277	19,833
UNIT 2	0.485	775,279	376,197
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	ERR	0	0
UNIT 5	0.282	99,856	28,161
UNIT 6	0.330	823,461	271,996
UNIT 7	0.279	67,085	18,734
UNIT 8	ERR	0	0
	0.377	1,928,776	727,088
mining reserve with 15% dilution	0.328	2,218,093	727,088

"Dave Russel" esemate on July/Aug 1993

SHAPE OF TYPICAL
CARLIN OR BATTLE MOUNTAIN
TREND DEPOSIT



POST FAULT SHAPE OF DEPOSIT



1/2

Hecla
MINING COMPANY
Centennial
1891 - 1991

Technical Services

Fax: (208) 769-4122

Date: 11/22/93

To: RICK TSCHAUDER
W/ Hecla MINING COMPANY

From: FRED STAHLBUSH
Hecla Mining Company

Transmitting: 2 Pages
(Including Cover)

Operator: _____

Rick,
Call me for Explanation!!

Later
Fred

6500 Mineral Drive • Box C-8000 • Coeur d'Alene, Idaho 83814-1931 • 208/769-4100 • FAX 208/769-4107

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE			
	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6	0.269	1,156,349	311,157
UNIT 7	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

SUMMARY FOR 2,500 SQUARE FT MAXIMUM (50' BY 50')			
	GRADE	TONS	OZ AU
UNIT 1	0.173	30,192	5,214
UNIT 2	0.420	293,558	123,332
(CHIMNEY)	0.761	88,462	67,318
UNIT 3	0.376	18,894	7,108
UNIT 4	0.179	8,846	1,586
UNIT 5	0.286	20,385	5,838
UNIT 6	0.318	223,712	71,179
UNIT 7	0.231	16,731	3,863
UNIT 8	0.207	4,808	995
TOTALS	0.355	617,125	219,114

SUMMARY FOR 10,000 SQUARE FT MAXIMUM (100' BY 100')			
	GRADE	TONS	OZ AU
UNIT 1	0.169	109,372	18,497
UNIT 2	0.427	820,423	350,066
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.274	42,038	11,521
UNIT 4	0.179	35,385	6,343
UNIT 5	0.286	81,538	23,351
UNIT 6	0.309	820,230	253,518
UNIT 7	0.231	66,923	15,450
UNIT 8	0.207	17,135	3,547
TOTALS	0.342	1,993,045	682,293

SUMMARY FOR 5,625 SQUARE FT MAXIMUM (75' BY 75')			
	GRADE	TONS	OZ AU
UNIT 1	0.173	67,933	11,731
UNIT 2	0.428	597,554	255,987
(CHIMNEY)	0.758	183,198	138,785
UNIT 3	0.314	30,260	9,507
UNIT 4	0.179	19,904	3,568
UNIT 5	0.286	45,865	13,135
UNIT 6	0.321	493,057	158,485
UNIT 7	0.231	37,644	8,691
UNIT 8	0.207	10,817	2,239
TOTALS	0.356	1,303,034	463,342

1/3

Hecla
MINING COMPANY
Centennial
1891 - 1991

Technical Services

Fax: (208) 769-4122

Date: 11/22/93

To: Rick Tschauder
W/HECLA

From: FRED STAHLBUSH
Hecla Mining Company

Transmitting: 3 Pages
(Including Cover)

Operator: _____

BACK-UP FOR INFORMATION
FAXED EARLIER

ORIGINAL DATA BASE

Later
Fred

6500 Mineral Drive • Box C-8000 • Coeur d'Alene, Idaho 83814-1931 • 208/769-4100 • FAX 208/769-4107

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12,569	0.169	38,674	6,536
RL41C	*	1	17	9,613	0.171	12,571	2,150
RL66	*	1	13	9,342	0.136	9,342	1,271
RL129C	*	1	31	7,010	0.243	16,716	4,062
RL209C	*	1	16	9,404	0.154	11,574	1,782
RL247	*	1	40	9,230	0.142	28,400	4,033
RL3	*	2	25	12,500	0.224	24,038	5,385
RL5	*	2	98	3,805	0.206	28,684	5,909
RL22	*	2	30	3,754	0.251	8,663	2,174
RL25	*	2	25	20,602	0.105	39,619	4,160
RL35	*	2	15	8,340	0.117	9,623	1,126
RL40C	*	2	23	2,737	0.094	4,842	455
RL41C	*	2	17	4,800	0.511	6,277	3,208
RL52C	*	2	29	5,816	0.151	12,974	1,959
RL55C	*	2	29	10,732	0.325	23,941	7,781
RL57	*	2	30	10,671	0.778	24,625	19,159
RL60	*	2	22	5,822	0.164	9,853	1,616
RL71C	*	2	37	13,918	0.152	39,613	6,021
RL75C	*	2	19	29,827	0.229	43,593	9,983
RL89C	*	2	34	4,442	0.119	11,618	1,382
RL104C	*	2	107	19,630	0.619	161,570	100,012
RL108C	*	2	35	4,420	0.121	11,900	1,440
RL123C	*	2	35	9,330	0.422	25,119	10,600
RL125C	*	2	41	10,463	0.334	32,999	11,022
RL130C	*	2	39	10,708	0.403	32,124	12,946
RL159C	*	2	169	4,905	0.807	63,765	51,458
RL171	*	2	70	3,116	0.203	16,778	3,406
RL192C	*	2	45	5,709	0.260	19,762	5,138
RL193C	*	2	172	8,873	0.695	117,397	81,591
RL195C	*	2	63	7,032	0.155	34,078	5,282
RL208C	*	2	70.5	8,009	0.131	43,433	5,690
RL209C	*	2	43	11,020	0.130	36,451	4,739
RL210C	*	2	20	3,652	0.127	5,618	714
RL220	*	2	30	11,789	0.497	27,205	13,521
RL247	*	2	35	6,725	0.153	18,106	2,770
RL289	*	2	119	4,917	0.791	45,009	35,602
RL41C	*	3	35	11,404	0.171	30,703	5,250
RL171	*	3	60	1,802	0.566	8,317	4,707
RL192C	*	3	20	4,419	0.325	6,798	2,210
RL257	*	4	20	12,573	0.151	19,343	2,921
RL272	*	4	26	11,749	0.201	23,498	4,723
RL82C	*	5	42	11,749	0.450	37,958	17,081
RL88C	*	5	64	12,573	0.179	61,898	11,080

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
RL82C	*	6	18.8	9,965	0.315	14,411	4,539
RL89C	*	6	42	8,068	0.396	26,066	10,322
RL93C	*	6	91	16,730	0.225	117,110	26,350
RL94C	*	6	30	23,778	0.097	54,872	5,323
RL102	*	6	28.5	9,010	0.180	19,753	3,555
RL106C	*	6	11	20,869	0.104	17,658	1,836
RL109C	*	6	19	7,560	0.147	11,049	1,624
RL145	*	6	26	15,881	0.264	31,762	8,385
RL159C	*	6	31	7,116	0.119	16,969	2,019
RL168	*	6	45	9,282	2.115	32,130	67,955
RL169	*	6	25	17,138	0.137	32,958	4,515
RL170	*	6	55	13,508	0.121	57,149	6,915
RL185	*	6	20	13,141	0.103	20,217	2,082
RL186	*	6	105	15,642	0.183	126,339	23,120
RL187	*	6	55	7,405	0.598	31,329	18,735
RL188	*	6	25	21,930	0.100	42,173	4,217
RL191C	*	6	110	15,686	0.196	132,728	26,015
RL194C	*	6	30	10,536	0.108	24,314	2,626
RL198C	*	6	80	7,597	0.724	46,751	33,848
RL201C	*	6	48	14,856	0.415	54,853	22,764
RL206C	*	6	17	16,460	0.092	21,525	1,980
RL213	*	6	25	20,520	0.159	39,462	6,274
RL217	*	6	40	20,719	0.098	63,751	6,248
RL261	*	6	60	10,198	0.179	47,068	8,425
RL273	*	6	75	10,778	0.154	62,181	9,576
RL289C	*	6	51	3,001	0.162	11,773	1,907
RL94C	*	7	17	15,587	0.205	20,383	4,179
RL131C	*	7	15	17,104	0.564	19,735	11,131
RL206C	*	7	20	17,528	0.127	26,966	3,425
RL217	*	7	35	21,681	0.160	58,372	9,340
RL214	*	8	25	8,910	0.207	17,135	3,547

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6	0.269	1,156,349	311,157
UNIT 7	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

HECLA MINING COMPANY

November 29, 1993

MEMORANDUM TO: Ralph Noyes

FROM: Rick Tschauder Rick

SUBJECT: **Rosebud Reserves - Additional Information**

This memo expands on the discussion of the difference between the Hecla and the Equinox reserve estimates, and reveals some new points which we did not make in the memo of November 16.

Bob Weicker, Equinox's Chief Mine Geologist built a set of northwest facing sections on which he calculated his reserve estimate. The mineralized zones appear very continuous in this long section, as they do in plan. In examining the two reserves, it is evident that they are not directly comparable. Weicker picked different intercepts that Hecla did, in that Hecla included more internal dilution than the Equinox reserve. Hecla also did not include some narrow intercepts on the fringes of the deposits. Therefore, we could not do a polygon by polygon comparison. Included is a sketch of a polygon by polygon comparison from zone 6 that demonstrates how difficult it is to compare the reserves. The three Hecla polygons compare to two Equinox polygons. In section, two holes plot in the same place, while in plan, they are separated by enough distance to construct two separate polygons.

Weicker was more conservative with his polygons as discussed below. There are a number of reasons why his estimate is overly conservative. The two most important are because of the projection plane he used (which affects polygon size), and because of instructions from his Chief Operating Officer. Other techniques which we consider overly conservative include his assay cutting techniques and not considering external dilution.

Differences due to different polygon sizes.

The practice of using variograms to establish area of influence parameters and to determine drill spacing is at least 15 years old. So long as the variogram range is about 2/3 the drill hole spacing, drilling is tight enough to calculate a drill-indicated resource estimate. Unfortunately, variogram analysis is usually after the fact. The variogram analyses we performed with Larry Allen of Mine Reserves Associates[1] supports the decision to use larger polygons in that the

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[1] Mine Reserves Associates provides consulting services to the mineral industry in the areas of geostatistical analysis, ore reserve estimation, and mine planning. The company has worked on several gold deposits in Nevada including Alligator Ridge, Candelaria, Getchell, Gold Bar, Gold Pick, Gold Ridge, Ivanhoe, Mt. Hamilton, Rawhide, Relief Canyon, and Round Mountain. They have a world-wide client list, and are well-respected in the industry. Larry Allen is a Principal Mining Engineer of the firm, and has over ten years experience with geostatistical ore reserve estimation. He has worked on several Hecla projects, including the blanket ore at Republic, Yellowpine, Green's Creek, and evaluation of Mount Hamilton.

search radius for grade in zones 2 and 6 exceeded 200 feet for all indicators while the drill hole spacing is about 100 feet. We used a technique called indicator kriging which breaks up the deposit into a series of grade or thickness populations, then handles each population separately, finally assigning a weighted grade or thickness to each block based on the grade of the indicators and on the influence each indicator has on the block, thus the range for every indicator must be considered. If the high grade indicator had a lower range, we would have had to reduce the maximum size for the high grade polygons. The larger polygons (up to 31,400 ft^2) are justified statistically for a drill-indicated reserve estimate. Ten polygons exceeded (15,000 ft^2; only one exceeded (20,000 ft^2). That one polygon was large (29,827 ft^2) but low grade (0.229 opt). Weicker took a conservative 100 by 100 (equivalent) maximum polygon size, as directed by management and dictated by his cross section spacing and drill hole projection problems.

The attached graph and the table below shows what happens if we reduce polygon size in the Hecla reserve. If the size of the Hecla polygons are cut to Weicker's maximum polygon size, then the difference in tons shrinks to 111,000 and the ounces to 61,000. However, as evident from the table and graph, the extra ounces are carried in just a few polygons, most of which are of marginal grade (but still ore). Note that at the larger polygon sizes, as the maximum size of the polygons decreases, the average reserve grade remained steady, while tons and ounces decreased only slightly. At a maximum size of 12,500 ft^2 the reserve grade and the reserve tons decrease markedly while the reserve ounces decrease at a much slower rate. What this demonstrates is that the high grade (and therefore higher margin) intercepts are contained within the smaller polygons that are not affected by cutting the maximum polygon size. There is a 117,200 contained ounces difference is due to the difference in maximum polygon sizes used (727,500 - 610,300), but 2/3 of these ounces are in lower grade polygons.

Poly. Size	Tons	Grade	Ounces
10,000	1,779,000	0.343	610,300
12,500	1,974,000	0.332	655,400
15,000	2,108,000	0.328	691,400
20,000	2,202,000	0.329	724,300
25,000	2,210,000	0.328	724,900
30,000	2,218,000	0.328	727,500

Differences due to Dilution.

The Hecla resource estimate added five feet above and below the ore zone at reported grade for mining dilution in the vertical dimension. The Equinox estimate did not. I did not calculate a weighted grade for this material, but the deposit is surrounded in the vertical dimension by low grade material. If we assume that this low grade material is half the cutoff grade used for the reserve estimate (i.e., 0.05 opt), then we would add 20,400 ounces to the Hecla estimate that would not appear in the Equinox estimate.

In addition, we added a 15% lateral and internal dilution at no grade. The grade assumption introduces some conservatism to the resource estimate, as lateral dilution will be about the same grade as vertical dilution.

Differences due to Assay cutting.

Lac assayed the higher grade intervals at least twice and as many as nine times. The grade that both Hecla and Equinox used for the reserve estimate is the average of these assays or, in some cases, a "referee" assay (i.e., the average would not include an outlier). I felt that I could use these numbers without further cutting of assay values, as it appears obvious that there are parts of the deposit, particularly in the chimney, that will exceed 1 opt. Equinox cut all assays to 2 opt. This had the effect of discounting the high grade assays twice. In comparing the Equinox polygon grade estimate to the average of the assays that make up the composite ore interval, I noted that the block grade was, approximately 0.10 opt lower than the average of the assays in the composite.

If the high grade polygons in the Hecla estimate are reduced by 0.1 opt, then 86,800 ounces are cut from the reserve.

At the direction of the chief operating officer, Weicker only extended grade out from the hole 25 feet. Past 25 feet, he diluted the grade by averaging it with the nearest low grade hole, so that if an intercept averaged 0.45 opt gold and the nearest hole 100 feet away had an intercept that averaged 0.05 opt gold, the polygon centered 37.5 feet from the ore hole and 62.5 feet from the waste hole was given a grade of 0.25 opt gold. Weicker believes this is the single most important difference between the two reserve estimates, as the tonnage would match closely if Equinox had diluted the reserve as we did.

SUMMARY

If we were to just subtract the ounces indicated above, the Hecla reserve would be depleted by substantially more than the difference of 549,00 tons and 279,500 ounces. Because the difference in methodology is so great, there is no way to compare the numbers and say that x% of the difference is due to this factor, y% to a second factor and z% to a third.

Recently, I talked with Steve Ristorcelli of Mine Development Associates in Reno[2]. Steve completed a study of the Rosebud for a competitor during the summer. While he could not discuss the final numbers, he did confirm that projecting to plan view is the proper methodology to use in this type of deposit, and that both the earlier estimates by Lac and the estimate by Equinox are too conservative. In fact, he was very unkind to the Lac estimate, stating that it was done by an exploration geologist with no sense for what is minable and what was not and was best relegated to the paper shredder. We talked specifically about handling the high grade "chimney" ores and he agrees that that part of the deposit is real, is high grade, and needs to

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[2] Mine Development Associates is another firm very similar to Mine Reserves Associates. Their client list includes Barrick Goldstrike, Cambior, Minnova, Noranda, Pegasus Lac, FMC Gold Western Mining, and several other major companies. They are familiar with Nevada deposits based on their work at Barrick Goldstrike, Round Mountain, Getchell, El Indio/Tambo, etc.

be considered as a high grade deposit rather than as spurious high grade assays in a substantially lower grade resource.

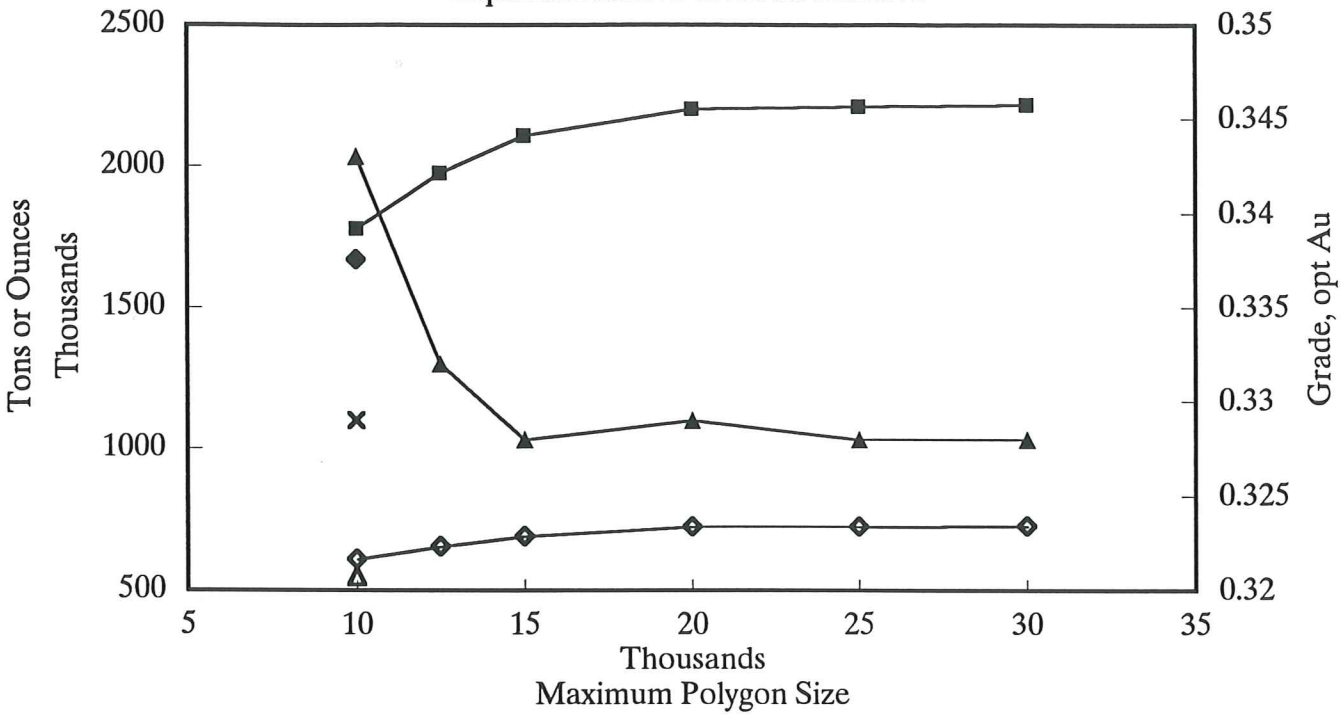
Larry Allen (see above), who is doing a reserve audit on the Rosebud for us, has also assured me that the Equinox reserve estimate is conservative, and that the techniques Hecla used to estimate reserves are acceptable and defendable. He also believes the high grade part of the deposit is real.

In addition to our in-house expertise, two well-respected ore reserve estimating firms with world-wide client lists agree that the methodology Hecla used is more appropriate than the methodology Lac or Equinox used. Our experience with the blanket ores at Republic have given us a good feeling for what dilution will be. The consensus between Hecla and two ore reserve estimators who have done an ore reserve on the Rosebud is that the high grade ores are real and should not be treated as statistical "nuggets".

Assay cutting may be an issue, but it is not good engineering. When Francois Pitard worked with us on Grouse Creek, one of the very strong points he made is that you don't cut assays. Cutting assays skews your population statistics. The entire field of indicator kriging evolved to analyze high grade populations in order to properly evaluate high grade intercepts. It all comes down to understanding the geology and geometry of the deposit and modelling it correctly. The indications we have gotten from the outside experts is that we have modelled the deposit correctly.

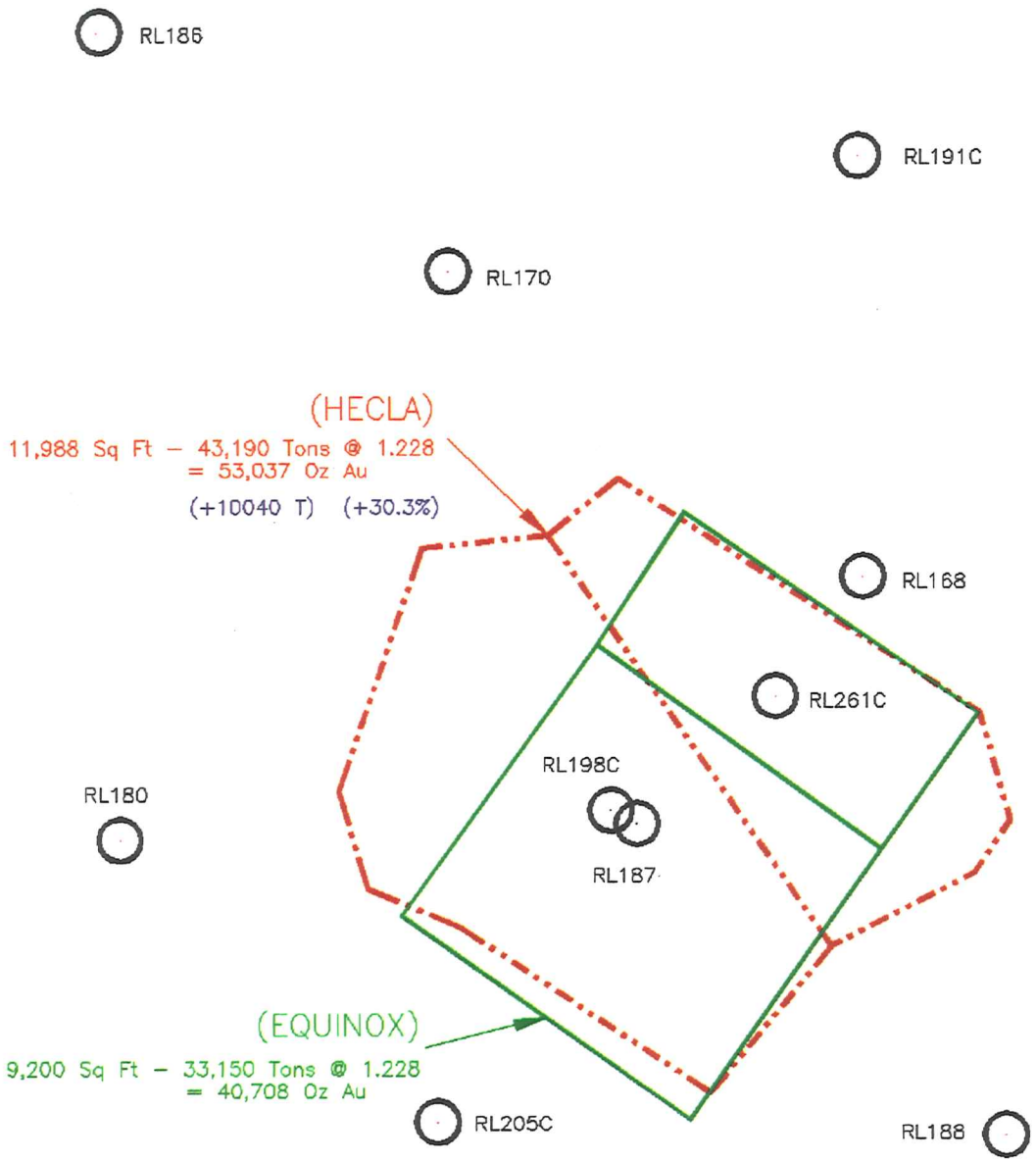
COMPARISON

Equinox Reserve to Hecla Reserve



Tons, Hecla Reserve
Tons, Equinox Reserve
Grade, Hecla Reserve
Grade, Equinox Reserve
Ounces, Hecla Reserve
Ounces, Equinox Reserve

Based on Hecla's Preliminary Resource Estimate
Revised to Reflect a Mining Reserve



COMPARISON OF EQUINOX POLYGON SIZE WITH HECLA POLYGON SIZE FOR A PORTION OF ZONE 6

Upside Potential at the Rosebud Property

The potential to find additional reserves on the Rosebud property is excellent. Potential falls into three categories: discovery of more ore within the present resource area, discovery of extensions to the known resource (either contiguous with it or offset by faulting), and discovery of satellite ore zones.

Discovery of more ore within the present resource area will have the largest impact on project economics. The best chance to find ore within the present resource is to discover more "chimney" zones. Chimney zones have thicknesses exceeding 100 feet at grades between 0.60 and 0.80 opt Au. If they are the size of the zone 2 chimney, these will contain 150,000 ounces or more. There is probably a chimney in the north part of the deposit in the vicinity of holes RL 104C (107' - 0.619) and RL 93C (91' - 0.225), another in the east part of the deposit in the vicinity of hole RL 198C (80' - 0.724), and possibly a third just east of the present resource area.

The potential to find extensions of known ore bodies is very good. Drilling has not delineated the boundaries of the mineralized beds in several areas in the north and east parts of the deposit. The deposit appears to be bound by post-mineral faulting along the long axis of the system. Drilling is concentrated in the hangingwall of a major structure called the South Ridge fault. The geometry of the deposit strongly suggests that the fault displaced the upper part of the mineralized system from the lower part, leaving an undiscovered part of the deposit in the hills to the southwest. The attached diagram illustrates how closely Rosebud would resemble a typical large Battle Mountain trend or Carlin trend deposit if this interpretation is correct.

There are 15 other drill targets on the Rosebud land package. While Lac finished some drilling away from the Rosebud deposit, none of those holes penetrated the stratigraphy containing the ore reserve.

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK T. (RUSSELL RESERVE)

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12,569	0.169	38,674	6,536
RL41C	*	1	17	9,613	0.171	12,571	2,150
RL66	*	1	13	9,342	0.136	9,342	1,271
RL129C	*	1	31	7,010	0.243	16,716	4,062
RL209C	*	1	16	9,404	0.154	11,574	1,782
RL247	*	1	40	9,230	0.142	28,400	4,033
RL3	*	2	25	12,500	0.224	24,038	5,385
RL35	*	2	15	8,340	0.117	9,623	1,126
RL40C	*	2	23	2,737	0.094	4,842	455
RL41C	*	2	17	4,800	0.511	6,277	3,208
RL55C	*	2	29	10,732	0.325	23,941	7,781
RL57	*	2	30	10,671	0.778	24,625	19,159
RL60	*	2	22	5,822	0.164	9,853	1,616
RL75C	*	2	19	29,827	0.229	43,593	9,983
RL104C	*	2	107	19,630	0.619	161,570	100,012
RL123C	*	2	35	9,330	0.422	25,119	10,600
RL125C	*	2	41	10,463	0.334	32,999	11,022
RL130C	*	2	39	10,708	0.403	32,124	12,946
RL159C	*	2	169	4,905	0.807	63,765	51,458
RL171	*	2	70	3,116	0.203	16,778	3,406
RL192C	*	2	45	5,709	0.260	19,762	5,138
RL193C	*	2	172	8,873	0.695	117,397	81,591
RL195C	*	2	63	7,032	0.155	34,078	5,282
RL208C	*	2	70.5	8,009	0.131	43,433	5,690
RL209C	*	2	43	11,020	0.130	36,451	4,739
RL289	*	2	119	4,917	0.791	45,009	35,602
RL41C	*	3	35	11,404	0.171	30,703	5,250
RL171	*	3	60	1,802	0.566	8,317	4,707
RL192C	*	3	20	4,419	0.325	6,798	2,210
RL82C	*	5	42	11,749	0.450	37,958	17,081
RL88C	*	5	64	12,573	0.179	61,898	11,080

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK T. (RUSSELL RESERVE)

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
RL82C	*	6	18.8	9,965	0.315	14,411	4,539
RL89C	*	6	42	8,068	0.396	26,066	10,322
RL93C	*	6	91	16,730	0.225	117,110	26,350
RL102	*	6	28.5	9,010	0.180	19,753	3,555
RL145	*	6	26	15,881	0.264	31,762	8,385
RL159C	*	6	31	7,116	0.119	16,969	2,019
RL168	*	6	45	9,282	2.115	32,130	67,955
RL169	*	6	25	17,138	0.137	32,958	4,515
RL170	*	6	55	13,508	0.121	57,149	6,915
RL186	*	6	105	15,642	0.183	126,339	23,120
RL187	*	6	55	7,405	0.598	31,329	18,735
RL191C	*	6	110	15,686	0.196	132,728	26,015
RL194C	*	6	30	10,536	0.108	24,314	2,626
RL198C	*	6	80	7,597	0.724	46,751	33,848
RL201C	*	6	48	14,856	0.415	54,853	22,764
RL261	*	6	60	10,198	0.179	47,068	8,425
RL289C	*	6	51	3,001	0.162	11,773	1,907
RL94C	*	7	17	15,587	0.205	20,383	4,179
RL131C	*	7	15	17,104	0.564	19,735	11,131
RL206C	*	7	20	17,528	0.127	26,966	3,425

SUMMARY FOR ORIGINAL "RUSSELL" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.485	775,279	376,197
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	ERR	0	0
UNIT 5	0.282	99,856	28,161
UNIT 6	0.330	823,461	271,996
UNIT 7	0.279	67,085	18,734
UNIT 8	ERR	0	0
TOTALS	0.377	1,928,776	727,088
MINING RESERVE WITH 15% DILUTION	0.328	2,218,093	727,088

SUMMARY FOR ORIGINAL "RUSSELL" RESERVE			
	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.485	775,279	376,197
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	ERR	0	0
UNIT 5	0.282	99,856	28,161
UNIT 6	0.330	823,461	271,996
UNIT 7	0.279	67,085	18,734
UNIT 8	ERR	0	0
TOTALS	0.377	1,928,776	727,088
MINING RESERVE WITH 15% DILUTION	0.328	2,218,093	727,088

SUMMARY FOR 2,500 SQUARE FT MAXIMUM (50' BY 50')			
	GRADE	TONS	OZ AU
UNIT 1	0.173	30,192	5,214
UNIT 2	0.494	221,827	109,595
(CHIMNEY)	0.761	88,462	67,318
UNIT 3	0.376	18,894	7,108
UNIT 4	ERR	0	0
UNIT 5	0.286	20,385	5,838
UNIT 6	0.375	173,327	64,945
UNIT 7	0.279	10,000	2,786
UNIT 8	ERR	0	0
TOTALS	0.412	474,625	195,486
MINING RESERVE WITH 15% DILUTION	0.358	545,818	195,486

SUMMARY FOR 10,000 SQUARE FT MAXIMUM (100' BY 100')			
	GRADE	TONS	OZ AU
UNIT 1	0.169	109,372	18,497
UNIT 2	0.484	652,091	315,903
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.274	42,038	11,521
UNIT 4	ERR	0	0
UNIT 5	0.286	81,538	23,351
UNIT 6	0.368	622,258	229,107
UNIT 7	0.279	40,000	11,142
UNIT 8	ERR	0	0
TOTALS	0.394	1,547,299	609,521
MINING RESERVE WITH 15% DILUTION	0.343	1,779,393	609,521

SUMMARY FOR 5,625 SQUARE FT MAXIMUM (75' BY 75')			
	GRADE	TONS	OZ AU
UNIT 1	0.173	67,933	11,731
UNIT 2	0.496	463,571	230,135
(CHIMNEY)	0.758	183,198	138,785
UNIT 3	0.314	30,260	9,507
UNIT 4	ERR	0	0
UNIT 5	0.286	45,865	13,135
UNIT 6	0.380	379,691	144,459
UNIT 7	0.279	22,500	6,268
UNIT 8	ERR	0	0
TOTALS	0.411	1,009,820	415,234
MINING RESERVE WITH 15% DILUTION	0.358	1,161,293	415,234

1/2

Hecla
MINING COMPANY
Centennial
1891 - 1991

Technical Services

Fax: (208) 769-4122

Date: 11/22/93

To: RICK TSCHAUDER
W/ Hecla MINING COMPANY

From: FRED STAHLBUSH
Hecla Mining Company

Transmitting: 2 Pages
(Including Cover)

Operator: _____

Rick,
Call me for Explanation!!

Later
Fred

6500 Mineral Drive • Box C-8000 • Coeur d'Alene, Idaho 83814-1931 • 208/769-4100 • FAX 208/769-4107

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6	0.269	1,156,349	311,157
UNIT 7	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

SUMMARY FOR 2,500 SQUARE FT MAXIMUM (50' BY 50')	GRADE	TONS	OZ AU
UNIT 1	0.173	30,192	5,214
UNIT 2	0.420	293,558	123,332
(CHIMNEY)	0.761	88,462	67,318
UNIT 3	0.376	18,894	7,108
UNIT 4	0.179	8,846	1,586
UNIT 5	0.286	20,385	5,838
UNIT 6	0.318	223,712	71,179
UNIT 7	0.231	16,731	3,863
UNIT 8	0.207	4,808	995
TOTALS	0.355	617,125	219,114

SUMMARY FOR 10,000 SQUARE FT MAXIMUM (100' BY 100')	GRADE	TONS	OZ AU
UNIT 1	0.169	109,372	18,497
UNIT 2	0.427	820,423	350,066
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.274	42,038	11,521
UNIT 4	0.179	35,385	6,343
UNIT 5	0.286	81,538	23,351
UNIT 6	0.309	820,230	253,518
UNIT 7	0.231	66,923	15,450
UNIT 8	0.207	17,135	3,547
TOTALS	0.342	1,993,045	682,293

SUMMARY FOR 5,625 SQUARE FT MAXIMUM (75' BY 75')	GRADE	TONS	OZ AU
UNIT 1	0.173	67,933	11,731
UNIT 2	0.428	597,554	255,987
(CHIMNEY)	0.758	183,198	138,785
UNIT 3	0.314	30,260	9,507
UNIT 4	0.179	19,904	3,568
UNIT 5	0.286	45,865	13,135
UNIT 6	0.321	493,057	158,485
UNIT 7	0.231	37,644	8,691
UNIT 8	0.207	10,817	2,239
TOTALS	0.356	1,303,034	463,342

1/3

Hecla
MINING COMPANY
Centennial
1891 - 1991

Technical Services

Fax: (208) 769-4122

Date: 11/22/93

To: Rick Tschauder
W/HECLA

From: FRED STAHLBUSH
Hecla Mining Company

Transmitting: 3 Pages
(Including Cover)

Operator: _____

BACK-UP FOR INFORMATION
FAXED EARLIER

ORIGINAL DATA BASE

Later

Fred

6500 Mineral Drive • Box C-8000 • Coeur d'Alene, Idaho 83814-1931 • 208/769-4100 • FAX 208/769-4107

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12,569	0.169	38,674	6,536
RL41C	*	1	17	9,613	0.171	12,571	2,150
RL66	*	1	13	9,342	0.136	9,342	1,271
RL129C	*	1	31	7,010	0.243	16,716	4,062
RL209C	*	1	16	9,404	0.154	11,574	1,782
RL247	*	1	40	9,230	0.142	28,400	4,033
RL3	*	2	25	12,500	0.224	24,038	5,385
RL5	*	2	98	3,805	0.206	28,684	5,909
RL22	*	2	30	3,754	0.251	8,663	2,174
RL25	*	2	25	20,602	0.105	39,619	4,160
RL35	*	2	15	8,340	0.117	9,623	1,126
RL40C	*	2	23	2,737	0.094	4,842	455
RL41C	*	2	17	4,800	0.511	6,277	3,208
RL52C	*	2	29	5,816	0.151	12,974	1,959
RL55C	*	2	29	10,732	0.325	23,941	7,781
RL57	*	2	30	10,671	0.778	24,625	19,159
RL60	*	2	22	5,822	0.164	9,853	1,616
RL71C	*	2	37	13,918	0.152	39,613	6,021
RL75C	*	2	19	29,827	0.229	43,593	9,983
RL89C	*	2	34	4,442	0.119	11,618	1,382
RL104C	*	2	107	19,630	0.619	161,570	100,012
RL108C	*	2	35	4,420	0.121	11,900	1,440
RL123C	*	2	35	9,330	0.422	25,119	10,600
RL125C	*	2	41	10,463	0.334	32,999	11,022
RL130C	*	2	39	10,708	0.403	32,124	12,946
RL159C	*	2	169	4,905	0.807	63,765	51,458
RL171	*	2	70	3,116	0.203	16,778	3,406
RL192C	*	2	45	5,709	0.260	19,762	5,138
RL193C	*	2	172	8,873	0.695	117,397	81,591
RL195C	*	2	63	7,032	0.155	34,078	5,282
RL208C	*	2	70.5	8,009	0.131	43,433	5,690
RL209C	*	2	43	11,020	0.130	36,451	4,739
RL210C	*	2	20	3,652	0.127	5,618	714
RL220	*	2	30	11,789	0.497	27,205	13,521
RL247	*	2	35	6,725	0.153	18,106	2,770
RL289	*	2	119	4,917	0.791	45,009	35,602
RL41C	*	3	35	11,404	0.171	30,703	5,250
RL171	*	3	60	1,802	0.566	8,317	4,707
RL192C	*	3	20	4,419	0.325	6,798	2,210
RL257	*	4	20	12,573	0.151	19,343	2,921
RL272	*	4	26	11,749	0.201	23,498	4,723
RL82C	*	5	42	11,749	0.450	37,958	17,081
RL88C	*	5	64	12,573	0.179	61,898	11,080

Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
RL82C	*	6	18.8	9,965	0.315	14,411	4,539
RL89C	*	6	42	8,068	0.396	26,066	10,322
RL93C	*	6	91	16,730	0.225	117,110	26,350
RL94C	*	6	30	23,778	0.097	54,872	5,323
RL102	*	6	28.5	9,010	0.180	19,753	3,555
RL106C	*	6	11	20,869	0.104	17,658	1,836
RL109C	*	6	19	7,560	0.147	11,049	1,624
RL145	*	6	26	15,881	0.264	31,762	8,385
RL159C	*	6	31	7,116	0.119	16,969	2,019
RL168	*	6	45	9,282	2.115	32,130	67,955
RL169	*	6	25	17,138	0.137	32,958	4,515
RL170	*	6	55	13,508	0.121	57,149	6,915
RL185	*	6	20	13,141	0.103	20,217	2,082
RL186	*	6	105	15,642	0.183	126,339	23,120
RL187	*	6	55	7,405	0.598	31,329	18,735
RL188	*	6	25	21,930	0.100	42,173	4,217
RL191C	*	6	110	15,686	0.196	132,728	26,015
RL194C	*	6	30	10,536	0.108	24,314	2,626
RL198C	*	6	80	7,597	0.724	46,751	33,848
RL201C	*	6	48	14,856	0.415	54,853	22,764
RL206C	*	6	17	16,460	0.092	21,525	1,980
RL213	*	6	25	20,520	0.159	39,462	6,274
RL217	*	6	40	20,719	0.098	63,751	6,248
RL261	*	6	60	10,198	0.179	47,068	8,425
RL273	*	6	75	10,778	0.154	62,181	9,576
RL289C	*	6	51	3,001	0.162	11,773	1,907
RL94C	*	7	17	15,587	0.205	20,383	4,179
RL131C	*	7	15	17,104	0.564	19,735	11,131
RL206C	*	7	20	17,528	0.127	26,966	3,425
RL217	*	7	35	21,681	0.160	58,372	9,340
RL214	*	8	25	8,910	0.207	17,135	3,547

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6	0.269	1,156,349	311,157
UNIT 7	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

Charlie
FYI

HECLA MINING COMPANY

November 29, 1993

MEMORANDUM TO: Ralph Noyes

FROM: Rick Tschauder Rick

SUBJECT: **Rosebud Reserves - Additional Information**

This memo expands on the discussion of the difference between the Hecla and the Equinox reserve estimates, and reveals some new points which we did not make in the memo of November 16.

Bob Weicker, Equinox's Chief Mine Geologist built a set of northwest facing sections on which he calculated his reserve estimate. The mineralized zones appear very continuous in this long section, as they do in plan. In examining the two reserves, it is evident that they are not directly comparable. Weicker picked different intercepts that Hecla did, in that Hecla included more internal dilution than the Equinox reserve. Hecla also did not include some narrow intercepts on the fringes of the deposits. Therefore, we could not do a polygon by polygon comparison. Included is a sketch of a polygon by polygon comparison from zone 6 that demonstrates how difficult it is to compare the reserves. The three Hecla polygons compare to two Equinox polygons. In section, two holes plot in the same place, while in plan, they are separated by enough distance to construct two separate polygons.

Weicker was more conservative with his polygons as discussed below. There are a number of reasons why his estimate is overly conservative. The two most important are because of the projection plane he used (which affects polygon size), and because of instructions from his Chief Operating Officer. Other techniques which we consider overly conservative include his assay cutting techniques and not considering external dilution.

Differences due to different polygon sizes.

The practice of using variograms to establish area of influence parameters and to determine drill spacing is at least 15 years old. So long as the variogram range is about 2/3 the drill hole spacing, drilling is tight enough to calculate a drill-indicated resource estimate. Unfortunately, variogram analysis is usually after the fact. The variogram analyses we performed with Larry Allen of Mine Reserves Associates[1] supports the decision to use larger polygons in that the

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[1] Mine Reserves Associates provides consulting services to the mineral industry in the areas of geostatistical analysis, ore reserve estimation, and mine planning. The company has worked on several gold deposits in Nevada including Alligator Ridge, Candelaria, Getchell, Gold Bar, Gold Pick, Gold Ridge, Ivanhoe, Mt. Hamilton, Rawhide, Relief Canyon, and Round Mountain. They have a world-wide client list, and are well-respected in the industry. Larry Allen is a Principal Mining Engineer of the firm, and has over ten years experience with geostatistical ore reserve estimation. He has worked on several Hecla projects, including the blanket ore at Republic, Yellowpine, Green's Creek, and evaluation of Mount Hamilton.

search radius for grade in zones 2 and 6 exceeded 200 feet for all indicators while the drill hole spacing is about 100 feet. We used a technique called indicator kriging which breaks up the deposit into a series of grade or thickness populations, then handles each population separately, finally assigning a weighted grade or thickness to each block based on the grade of the indicators and on the influence each indicator has on the block, thus the range for every indicator must be considered. If the high grade indicator had a lower range, we would have had to reduce the maximum size for the high grade polygons. The larger polygons (up to 31,400 ft^2) are justified statistically for a drill-indicated reserve estimate. Ten polygons exceeded (15,000 ft^2; only one exceeded (20,000 ft^2). That one polygon was large (29,827 ft^2) but low grade (0.229 opt). Weicker took a conservative 100 by 100 (equivalent) maximum polygon size, as directed by management and dictated by his cross section spacing and drill hole projection problems.

The attached graph and the table below shows what happens if we reduce polygon size in the Hecla reserve. If the size of the Hecla polygons are cut to Weicker's maximum polygon size, then the difference in tons shrinks to 111,000 and the ounces to 61,000. However, as evident from the table and graph, the extra ounces are carried in just a few polygons, most of which are of marginal grade (but still ore). Note that at the larger polygon sizes, as the maximum size of the polygons decreases, the average reserve grade remained steady, while tons and ounces decreased only slightly. At a maximum size of 12,500 ft^2 the reserve grade and the reserve tons decrease markedly while the reserve ounces decrease at a much slower rate. What this demonstrates is that the high grade (and therefore higher margin) intercepts are contained within the smaller polygons that are not affected by cutting the maximum polygon size. There is a 117,200 contained ounces difference is due to the difference in maximum polygon sizes used (727,500 - 610,300), but 2/3 of these ounces are in lower grade polygons.

Poly. Size	Tons	Grade	Ounces
10,000	1,779,000	0.343	610,300
12,500	1,974,000	0.332	655,400
15,000	2,108,000	0.328	691,400
20,000	2,202,000	0.329	724,300
25,000	2,210,000	0.328	724,900
30,000	2,218,000	0.328	727,500

Differences due to Dilution.

The Hecla resource estimate added five feet above and below the ore zone at reported grade for mining dilution in the vertical dimension. The Equinox estimate did not. I did not calculate a weighted grade for this material, but the deposit is surrounded in the vertical dimension by low grade material. If we assume that this low grade material is half the cutoff grade used for the reserve estimate (i.e., 0.05 opt), then we would add 20,400 ounces to the Hecla estimate that would not appear in the Equinox estimate.

In addition, we added a 15% lateral and internal dilution at no grade. The grade assumption introduces some conservatism to the resource estimate, as lateral dilution will be about the same grade as vertical dilution.

Differences due to Assay cutting.

Lac assayed the higher grade intervals at least twice and as many as nine times. The grade that both Hecla and Equinox used for the reserve estimate is the average of these assays or, in some cases, a "referee" assay (i.e., the average would not include an outlier). I felt that I could use these numbers without further cutting of assay values, as it appears obvious that there are parts of the deposit, particularly in the chimney, that will exceed 1 opt. Equinox cut all assays to 2 opt. This had the effect of discounting the high grade assays twice. In comparing the Equinox polygon grade estimate to the average of the assays that make up the composite ore interval, I noted that the block grade was, approximately 0.10 opt lower than the average of the assays in the composite.

If the high grade polygons in the Hecla estimate are reduced by 0.1 opt, then 86,800 ounces are cut from the reserve.

At the direction of the chief operating officer, Weicker only extended grade out from the hole 25 feet. Past 25 feet, he diluted the grade by averaging it with the nearest low grade hole, so that if an intercept averaged 0.45 opt gold and the nearest hole 100 feet away had an intercept that averaged 0.05 opt gold, the polygon centered 37.5 feet from the ore hole and 62.5 feet from the waste hole was given a grade of 0.25 opt gold. Weicker believes this is the single most important difference between the two reserve estimates, as the tonnage would match closely if Equinox had diluted the reserve as we did.

SUMMARY

If we were to just subtract the ounces indicated above, the Hecla reserve would be depleted by substantially more than the difference of 549,00 tons and 279,500 ounces. Because the difference in methodology is so great, there is no way to compare the numbers and say that x% of the difference is due to this factor, y% to a second factor and z% to a third.

Recently, I talked with Steve Ristorcelli of Mine Development Associates in Reno[2]. Steve completed a study of the Rosebud for a competitor during the summer. While he could not discuss the final numbers, he did confirm that projecting to plan view is the proper methodology to use in this type of deposit, and that both the earlier estimates by Lac and the estimate by Equinox are too conservative. In fact, he was very unkind to the Lac estimate, stating that it was done by an exploration geologist with no sense for what is minable and what was not and was best relegated to the paper shredder. We talked specifically about handling the high grade "chimney" ores and he agrees that that part of the deposit is real, is high grade, and needs to

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[2] Mine Development Associates is another firm very similar to Mine Reserves Associates. Their client list includes Barrick Goldstrike, Cambior, Minnova, Noranda, Pegasus Lac, FMC Gold Western Mining, and several other major companies. They are familiar with Nevada deposits based on their work at Barrick Goldstrike, Round Mountain, Getchell, El Indio/Tambo, etc.

be considered as a high grade deposit rather than as spurious high grade assays in a substantially lower grade resource.

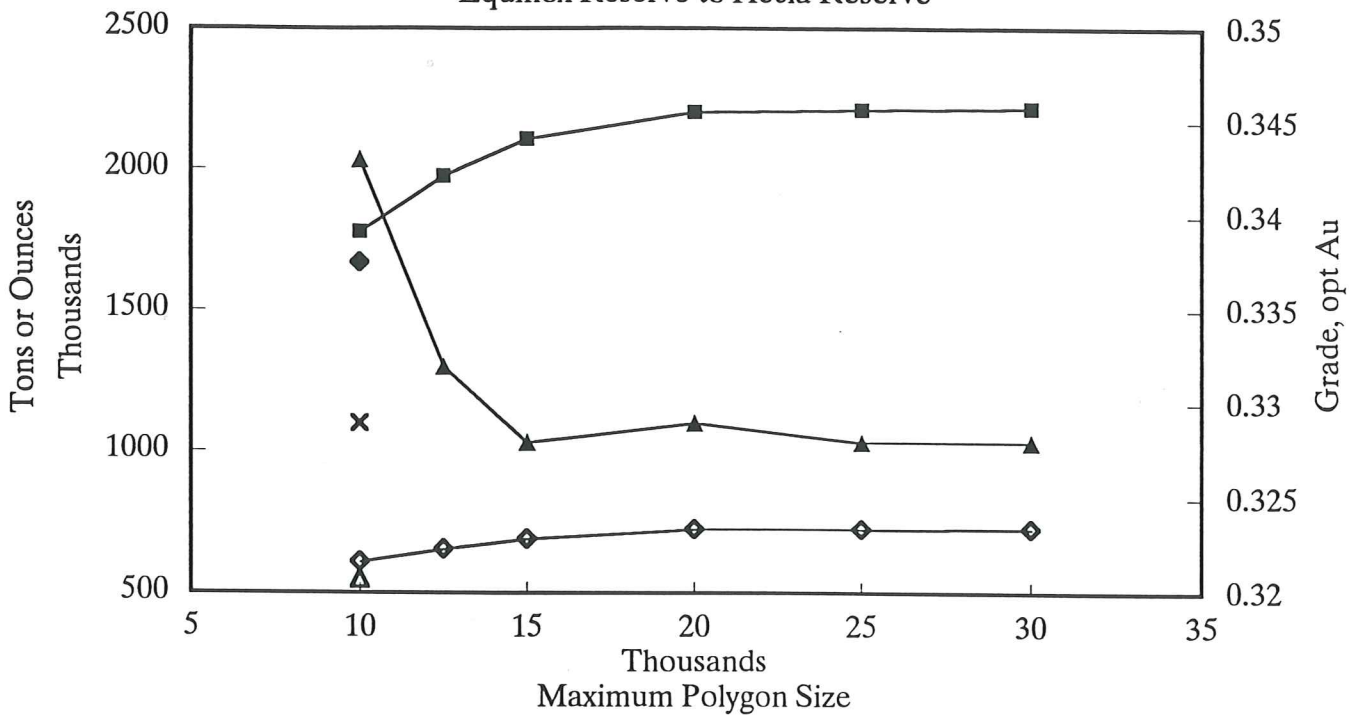
Larry Allen (see above), who is doing a reserve audit on the Rosebud for us, has also assured me that the Equinox reserve estimate is conservative, and that the techniques Hecla used to estimate reserves are acceptable and defendable. He also believes the high grade part of the deposit is real.

In addition to our in-house expertise, two well-respected ore reserve estimating firms with world-wide client lists agree that the methodology Hecla used is more appropriate than the methodology Lac or Equinox used. Our experience with the blanket ores at Republic have given us a good feeling for what dilution will be. The consensus between Hecla and two ore reserve estimators who have done an ore reserve on the Rosebud is that the high grade ores are real and should not be treated as statistical "nuggets".

Assay cutting may be an issue, but it is not good engineering. When Francois Pitard worked with us on Grouse Creek, one of the very strong points he made is that you don't cut assays. Cutting assays skews your population statistics. The entire field of indicator kriging evolved to analyze high grade populations in order to properly evaluate high grade intercepts. It all comes down to understanding the geology and geometry of the deposit and modelling it correctly. The indications we have gotten from the outside experts is that we have modelled the deposit correctly.

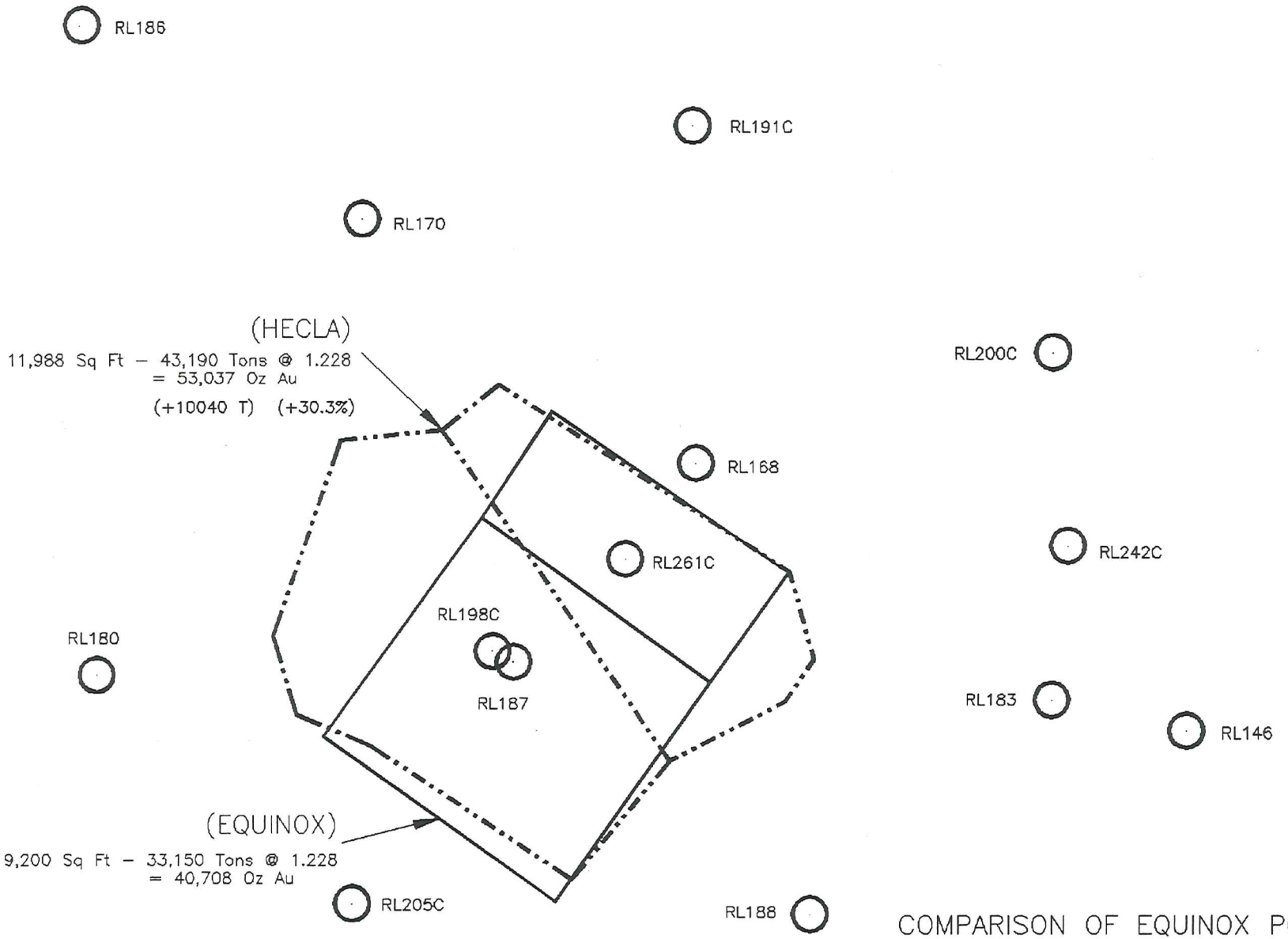
COMPARISON

Equinox Reserve to Hecla Reserve



Tons, Hecla Reserve
Tons, Equinox Reserve
Grade, Hecla Reserve
Grade, Equinox Reserve
Ounces, Hecla Reserve
Ounces, Equinox Reserve

Based on Hecla's Preliminary Resource Estimate
Revised to Reflect a Mining Reserve



COMPARISON OF EQUINOX POLYGON SIZE WITH HECLA POLYGON SIZE FOR A PORTION OF ZONE 6

2/2

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6	0.269	1,156,349	311,157
UNIT 7	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

SUMMARY FOR 2,500 SQUARE FT MAXIMUM (50' BY 50')	GRADE	TONS	OZ AU
UNIT 1	0.173	30,192	5,214
UNIT 2	0.420	293,558	123,332
(CHIMNEY)	0.761	88,462	67,318
UNIT 3	0.376	18,894	7,108
UNIT 4	0.179	8,846	1,586
UNIT 5	0.286	20,385	5,838
UNIT 6	0.318	223,712	71,179
UNIT 7	0.231	16,731	3,863
UNIT 8	0.207	4,808	995
TOTALS	0.355	617,125	219,114

SUMMARY FOR 10,000 SQUARE FT MAXIMUM (100' BY 100')	GRADE	TONS	OZ AU
UNIT 1	0.169	109,372	18,497
UNIT 2	0.427	820,423	350,066
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.274	42,038	11,521
UNIT 4	0.179	35,385	6,343
UNIT 5	0.286	81,538	23,351
UNIT 6	0.309	820,230	253,518
UNIT 7	0.231	66,923	15,450
UNIT 8	0.207	17,135	3,547
TOTALS	0.342	1,993,045	682,293

SUMMARY FOR 5,625 SQUARE FT MAXIMUM (75' BY 75')	GRADE	TONS	OZ AU
UNIT 1	0.173	67,933	11,731
UNIT 2	0.428	597,554	255,987
(CHIMNEY)	0.758	183,198	138,785
UNIT 3	0.314	30,260	9,507
UNIT 4	0.179	19,904	3,568
UNIT 5	0.286	45,865	13,135
UNIT 6	0.321	493,057	158,485
UNIT 7	0.231	37,644	8,691
UNIT 8	0.207	10,817	2,239
TOTALS	0.356	1,303,034	463,342

3/3

...sebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
RL82C	*	6	18.8	9,965	0.315	14,411	4,539
RL89C	*	6	42	8,068	0.396	26,066	10,322
RL93C	*	6	91	16,730	0.225	117,110	26,350
RL94C	*	6	30	23,778	0.097	54,872	5,323
RL102	*	6	28.5	9,010	0.180	19,753	3,555
RL106C	*	6	11	20,869	0.104	17,658	1,836
RL109C	*	6	19	7,560	0.147	11,049	1,624
RL145	*	6	26	15,881	0.264	31,762	8,385
RL159C	*	6	31	7,116	0.119	16,969	2,019
RL168	*	6	45	9,282	2.115	32,130	67,955
RL169	*	6	25	17,138	0.137	32,958	4,515
RL170	*	6	55	13,508	0.121	57,149	6,915
RL185	*	6	20	13,141	0.103	20,217	2,082
RL186	*	6	105	15,642	0.183	126,339	23,120
RL187	*	6	55	7,405	0.598	31,329	18,735
RL188	*	6	25	21,930	0.100	42,173	4,217
RL191C	*	6	110	15,686	0.196	132,728	26,015
RL194C	*	6	30	10,536	0.108	24,314	2,626
RL198C	*	6	80	7,597	0.724	46,751	33,848
RL201C	*	6	48	14,856	0.415	54,853	22,764
RL206C	*	6	17	16,460	0.092	21,525	1,980
RL213	*	6	25	20,520	0.159	39,462	6,274
RL217	*	6	40	20,719	0.098	63,751	6,248
RL261	*	6	60	10,198	0.179	47,068	8,425
RL273	*	6	75	10,778	0.154	62,181	9,576
RL289C	*	6	51	3,001	0.162	11,773	1,907
RL94C	*	7	17	15,587	0.205	20,383	4,179
RL131C	*	7	15	17,104	0.564	19,735	11,131
RL206C	*	7	20	17,528	0.127	26,966	3,425
RL217	*	7	35	21,681	0.160	58,372	9,340
RL214	*	8	25	8,910	0.207	17,135	3,547

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6	0.269	1,156,349	311,157
UNIT 7	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

Grade ?

2/3

Josebud Project – Preliminary Resource Estimate

CAUTION!!!!!—SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12,569	0.169	38,674	6,536
RL41C	*	1	17	9,613	0.171	12,571	2,150
RL66	*	1	13	9,342	0.136	9,342	1,271
RL129C	*	1	31	7,010	0.243 .265	16,716	4,062
RL209C	*	1	16	9,404	0.154	11,574	1,782
RL247	*	1	40	9,230	0.142 .145	28,400	4,033
RL3	*	2	25	12,500	0.224	24,038	5,385
RL5	*	2	98	3,805	0.206	28,684	5,909
RL22	*	2	30	3,754	0.251	8,663	2,174
RL25	*	2	25	20,602	0.105	39,619	4,160
RL35	*	2	15	8,340	0.117	9,623	1,126
RL40C	*	2	23	2,737	0.094	4,842	455
RL41C	*	2	17	4,800	0.511	6,277	3,208
RL52C	*	2	29	5,816	0.151	12,974	1,959
RL55C	*	2	29	10,732	0.325	23,941	7,781
RL57	*	2	30	10,671	0.778 ok	24,625	19,159
RL60	*	2	22	5,822	0.164	9,853	1,616
RL71C	*	2	24 37	13,918 .156	0.152 .140	39,613	6,021
RL75C	*	2	19	29,827	0.229	43,593	9,983
RL89C	*	2	34	4,442	0.119	11,618	1,382
RL104C	*	2	107	19,630	0.619	161,570	100,012
RL108C	*	2	35	4,420	0.121 .137	11,900	1,440
RL123C	*	2	35	9,330	0.422	25,119	10,600
RL125C	*	2	41 42	10,463	0.334 .320	32,999	11,022
RL130C	*	2	39	10,708	0.403	32,124	12,946
RL159C	*	2	169	4,905	0.807	63,765	51,458
RL171	*	2	70	3,116	0.203	16,778	3,406
RL192C	*	2	45	5,709	0.260	19,762	5,138
RL193C	*	2	172	8,873	0.695	117,397	81,591
RL195C	*	2	63	7,032	0.155	34,078	5,282
RL208C	*	2	70.5	8,009	0.131	43,433	5,690
RL209C	*	2	43	11,020	0.130	36,451	4,739
RL210C	*	2	20	3,652	0.127	5,618	714
RL220	*	2	30	11,789	0.497	27,205	13,521
RL247	*	2	35	6,725	0.153 .159	18,106	2,770
RL289	*	2	119	4,917	0.791	45,009	35,602
RL41C	*	3	35	11,404	0.171	30,703	5,250
RL171	*	3	60	1,802	0.566	8,317	4,707
RL192C	*	3	20	4,419	0.325	6,798	2,210
RL257	*	4	20	12,573	0.151	19,343	2,921
RL272	*	4	26	11,749	0.201	23,498	4,723
RL82C	*	5	42	11,749	0.450	37,958	17,081
RL88C	*	5	64	12,573	0.179	61,898	11,080

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Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!—SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
RL82C	*	6	18.8	9,965	0.315	14,411	4,539
RL89C	*	6	42	8,068	0.396	26,066	10,322
RL93C	*	6	91	16,730	0.225	117,110	26,350
RL94C	*	6	30	23,778	0.097	54,872	5,323
RL102	*	6	28.5	9,010	0.180	19,753	3,555
RL106C	*	6	11	20,869	0.104	17,658	1,836
RL109C	*	6	19	7,560	0.147	11,049	1,624
RL145	*	6	26	15,881	0.264	31,762	8,385
RL159C	*	6	13.0 31	7,116	0.119	16,969	2,019
RL168	*	6	45 35	9,282	2.115	32,130 24,000	67,955
RL169	*	6	13.0 25	17,138	0.137	32,958	4,515
RL170	*	6	55	13,508	0.121	57,149	6,915
RL185	*	6	20	13,141	0.103	20,217	2,082
RL186	*	6	105	15,642	0.183	126,339	23,120
RL187	*	6	55	7,405	0.598	31,329	18,735
RL188 ✓	*	6	25	21,930	0.100	42,173	4,217
RL191C	*	6	110	15,686	0.196	132,728	26,015
RL194C	*	6	30	10,536	0.108	24,314	2,626
RL198C	*	6	80	7,597	0.724	46,751	33,848
RL201C	*	6	48	14,856	0.415	54,853	22,764
RL206C	*	6	17	16,460	0.092	21,525	1,980
RL213	*	6	25	20,520	0.159	39,462	6,274
RL217 ✓	*	6	40	20,719	0.098	63,751	6,248
RL261	*	6	60	10,198	0.179	47,068	8,425
RL273	*	6	75	10,778	0.154	62,181	9,576
RL289C	*	6	51	3,001	0.162	11,773	1,907
RL94C	*	7	17	15,587	0.205	20,383	4,179
RL131C	*	7	15	17,104	0.564	19,735	11,131
RL206C	*	7	20	17,528	0.127	26,966	3,425
RL217 ✓	*	7	35	21,681	0.160	58,372	9,340
RL214 ✓	*	8	25	8,910	0.207	17,135	3,547

SUMMARY FOR ORIGINAL "TSCHAUDER" RESERVE	GRADE	TONS	OZ AU
UNIT 1	0.169	117,277	19,833
UNIT 2	0.425	979,279	416,248
(CHIMNEY)	0.746	226,171	168,651
UNIT 3	0.266	45,818	12,167
UNIT 4	0.178	42,841	7,644
UNIT 5	0.282	99,856	28,161
UNIT 6 EAST	0.269	1,156,349	311,157
UNIT 7 north	0.224	125,456	28,073
UNIT 8	0.207	17,135	3,547
TOTALS	0.320	2,584,012	826,830

.320 2584012 826.830
2.115 32130 67954.9
0.297 2551882 754875.1
1.311 24000
0.3060 2575,882

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Rosebud Project – Preliminary Resource Estimate

CAUTION!!!!!–SPECIAL RUN FOR RICK TSCHAUDER

Hole #	Pod #	Thick	Area	Grade	Tons	Ounces
SOUTH ORE ZONE						
RL27	*	1	40	12,569	0.169	38,674	6,536
RL41C	*	1	17	9,613	0.171	12,571	2,150
RL66 ✓	*	1	13	9,342	0.136	9,342	1,271
RL129C ✓	*	1	31	7,010	0.243	16,716	4,062
RL209C	*	1	16	9,404	0.154	11,574	1,782
RL247	*	1	40	9,230	0.142	28,400	4,033
RL3 ✓	*	2	25	12,500	0.224	24,038	5,385
RL5	*	2	98	3,805	0.206	28,684	5,909
RL22	*	2	30	3,754	0.251	8,663	2,174
RL25 ✓	*	2	25	20,602	0.105	39,619	4,160
RL35 ✓	*	2	15	8,340	0.117	9,623	1,126
RL40C	*	2	23	2,737	0.094	4,842	455
RL41C	*	2	17	4,800	0.511	6,277	3,208
RL52C ✓	*	2	29	5,816	0.151	12,974	1,959
RL55C	*	2	29	10,732	0.325	23,941	7,781
RL57	*	2	30	10,671	0.778 OK ✓	24,625	19,159
RL60 ✓	*	2	22	5,822	0.164 ✓	9,853	1,616
RL71C ✓	*	2	37	13,918	0.152 two	39,613	6,021
RL75C ✓	*	2	19	29,827	0.229	43,593	9,983
RL89C	*	2	34	4,442	0.119	11,618	1,382
RL104C ✓	*	2	107	19,630	0.619	161,570	100,012
RL108C	*	2	35	4,420	0.121	11,900	1,440
RL123C	*	2	35	9,330	0.422	25,119	10,600
RL125C ✓	*	2	41	10,463	0.334	32,999	11,022
RL130C	*	2	39	10,708	0.403	32,124	12,946
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RL195C	*	2	63	7,032	0.155	34,078	5,282
RL208C	*	2	70.5	8,009	0.131	43,433	5,690
RL209C	*	2	43	11,020	0.130	36,451	4,739
RL210C ✓	*	2	20	3,652	0.127	5,618	714
RL220	*	2	30	11,789	0.497	27,205	13,521
RL247 ✓	*	2	35	6,725	0.153	18,106	2,770
RL289	*	2	119	4,917	0.791	45,009	35,602
RL41C	*	3	35	11,404	0.171	30,703	5,250
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RL82C ✓	*	5	42	11,749	0.450	37,958	17,081
RL88C ✓	*	5	64	12,573	0.179	61,898	11,080

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