60001962

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	1999 – Rosebud Exploration
AUTHOR	Allen K; Clayton R; Cameron D; Ferneyhough B; Graves D; Jackson R; Langstaff G; Liste R; Massingill G; Morris R; Phillips N; Rogowski P; Vance P; Mitchell P
DATE OF DOC(S)	1999
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Mutherlode; White Alps; North Equinox; School Bus Canyon; Deep Dreamland; Gator; Degerstrom; Valley; Lucky Boy; Chance; Brown Palace North Zone; Far East; Shark Fin; South Kamma; Vertex; Short Shot South Ridge; Barrell Springs; Newmont Gold Co.
COMMODITY If not obvious	gold; silver
NOTES	Project review documents; handwritten notes; correspondence; geology; project assignments NOTE: Scan notes on inside of folder and front of folder 42p.

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 9/11/08
Initials Date

DB: _____
Initials Date

SCANNED: _____
Initials Date

Revised: 1/22/08

1999 - ROSEBUD EXPLORATION

60001962

Y010

	Au	Ag
K -	0.904	0.906
C -	0.882	0.881
A -	0.998	0.999
B -	0.991	0.995

– 6.9 vs 0.7, 5.5 - 0.69

4650
4646
4'

4648.0 BACK
14.3
4633.7 FLOOR

46
32
14.3'

4600' Elevation 1.571 opt Au
482708 E
2203751 N

BACK Esperanza = 4649.871
FLOOR ?
ED-605
BACK 4646.223
FL 4631.92

S67°E, -21°

4010

6600962

Rosebud Mine Targets
1999 Underground Exploration Program

10-Feb-99

Rank	Target	Location	Drill Hole	UG Station	Azimuth	Inclin.	Length, feet	Phase 2	Section No.	Comment
1	2b	North Zone feeders	a - ALS	N. Zone	S55E	-14	600		1475	
		#24	b- ALS	N. Zone	S55E	-5	600		1700	
			c - Td	N. Zone	S55E	+13	720		1700	Hit 24 Structure at 660'
			d - ALS	N. Zone	S55E	-45	1000		1450	Hit 24 Structure at 800'
			e - ALS	N. Zone		-90		1500		Hit basement at 250'
2	5	Far East RL220	a	Stope 41 m. bay	S75E	+45	650		1500	or 450' hole from surface
		RL273	b	Stope 41 m. bay	S85E	+35	400		1500	
		RL214	c	Stope 41 m. bay	N85E	-50	400		1500	
		Sharkfin	d	Stope 41 m. bay	S05E	~~+30~~ -30	700			added to test Sharkfin
3	4	South Zone feeders	a - Td	2300 access?	N40W	-28		600	900	fine-tune hole placement
			c - ALS	2300 access?	N50W	-40	1500		900	fine-tune hole placement
			d - ALS	2300 access?	N50W	-30		1200	900	fine-tune hole placement
4	6	NE of Mine (1B)	a	N. Zone	N___W	+____	1500			HW of SRF
5	1a	SE of South Zone	a	2300 access	due S	+39	1200		900	extend to test Sharkfin
6	3	356 Intercept	a - Td	N. Zone	N55W	-26	1000		1500	
		basement	b - ALS	N. Zone	N55W	-38	1150		1500	ALS at 350-400'
7	2a	Vent Raise Intercept	a	E.Z. drift	140?	-15	200		1300	
		(97-379c)	b	E.Z. drift	?	-45	250		1300	
			c	E.Z. drift	?	-30?	350		?	
Totals							**12220**	**3300**		
						Budgeted	8700			

Rosebud Mine Targets
1999 Underground Exploration Program

10-Feb-99

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		#24	b- ALS	N. Zone	S55E	-5	600		1700	
			c - Td	N. Zone	S55E	+13	720		1700	Hit 24 Structure at 660'
			d - ALS	N. Zone	S55E	-45	1000		1450	Hit 24 Structure at 800'
			e - ALS	N. Zone		-90		1500		Hit basement at 250'
2	5	Far East RL220	a	Stope 41 m. bay	S75E	+45	650		1500	or 450' hole from surface
		RL273	b	Stope 41 m. bay	S85E	+35	400		1500	
		RL214	c	Stope 41 m. bay	N85E	-50	400		1500	
		Sharkfin	d	Stope 41 m. bay	S05E	~~+09?~~ -30°	700			added to test Sharkfin
3	4	South Zone feeders	a - Td	2300 access?	N40W	-28		600	900	fine-tune hole placement
			c - ALS	2300 access?	N50W	-40	1500		900	fine-tune hole placement
			d - ALS	2300 access?	N50W	-30		1200	900	fine-tune hole placement
4	6	NE of Mine (1B)	a	N. Zone	N___W	+_____	1500			HW of SRF
5	1a	SE of South Zone	a	2300 access	due S	+39	1200		900	extend to test Sharkfin
6	3	356 Intercept	a - Td	N. Zone	N55W	-26	1000		1500	
		basement	b - ALS	N. Zone	N55W	-38	1150		1500	ALS at 350-400'
7	2a	Vent Raise Intercept	a	E.Z. drift	140?	-15	200		1300	
		(97-379c)	b	E.Z. drift	?	-45	250		1300	
			c	E.Z. drift	?	-30?	350		?	
Totals							**12220**	**3300**		
						Budgeted	8700			

TABLE 1. Prospect Classification, Ranking and Priority Rating.

		ADVANCED				NEEDS MORE WORK	
NEAR MINE	1.	2b – North Zone Feeders	*Priority*	DISTRICT	1.	School Bus Canyon	*Priority*
	2.	Far East			2.	Deep Dreamland	
	3.	South Zone Feeders			3.	Degerstrom	
	4.	1b – Northeast of Mine			4.	Valley	
	5.	1a – Southeast of South Zone			5.	Lucky Boy	
	6.	3 – 96 – 356 Intercepts			6.	Chance	
	7.	Shark Fin			7.	Gator	*May Not Work*
	8.	2a – Vent Raise			8.	Brown Palace	
DISTRICT	9.	Mother Lode			9.	Wild Rose	*Defer*
	10.	White Alps			10.	Oscar	
	11.	North Equinox			11.	Short Shot	
	12.	South Kamma	*Defer*		12.	South Ridge	
	13.	Vertex			13.	Barrel Springs	

Note: Target 2b – North Zone Feeders includes #24 fault; Target 1a – Southeast of South Zone includes Shark Fin extension; Mother Lode includes the Cave Fault East, Mother Lode, Gold Hill, and East Dreamland areas; Valley includes Cave Fault West.

The first 11 *Advanced* prospects were assigned priority work status, and exploration was deferred on the two ranking the lowest. In the *Needs More Work* category, the top 6 were assigned priority work status, the next two were placed in a *may be deferred* category, and exploration was deferred on the five lowest ranking prospects. Summaries of each of the prospects are given in the section "Prospect Descriptions."

Following the reviews, rating and ranking of the prospects, Newmont geologists were assigned specific prospects to evaluate, and the time required to bring the prospects to a decision point was estimated (Table 2). Completion deadlines also were established for the prospects (Table 3).

TABLE 2. Target evaluation time, personnel assignments, and prospect accessibility.

STATUS	STAGE	RANK	PROSPECT	TIME NEEDED	ASSIGNMENT	ACCESS
Advanced	*Priority*	9.	Mother Lode	2 months	Mitchell (1), Rogowski (1)	Yes
		10.	White Alps	3 months	Vance (2), Mitchell (1)	Maybe
		11.	North Equinox	None	Langstaff , Peer Review	No
District		1.	School Bus Canyon	0.2 months	S.W.A.T. Team	Yes
		2.	Deep Dreamland	3 months	Langstaff	Yes
		3.	Degerstrom	3 months	Langstaff	No
		4.	Valley	3 months	Rogowski (2), Mitchell (1)	Yes
		5.	Lucky Boy	2 months	Mitchell	Yes
		6.	Chance	2 months	Vance	No
	May Not Work	7.	Gator	1 month	Mitchell	No
		8.	Brown Palace	2 months	Vance	Yes

Note: Target evaluation time is the *time needed* to gain sufficient encouragement to continue exploration.

TABLE 1. Prospect Classification, Ranking and Priority Rating.

		ADVANCED				NEEDS MORE WORK	
NEAR MINE	1.	2b – North Zone Feeders	*Priority*	DISTRICT	1.	School Bus Canyon	Sec. *Priority*
	2.	Far East			2.	Deep Dreamland * 1	
	3.	South Zone Feeders			3.	Degerstrom	
	4.	1b – Northeast of Mine			4.	Valley *	
	5.	1a – Southeast of South Zone			5.	Lucky Boy	
	6.	3 – 96 – 356 Intercepts			6.	Chance	
	7.	Shark Fin			7.	Gator # 2.	*May Not Work*
	8.	2a – Vent Raise			8.	Brown Palace	
DISTRICT	9.	Mother Lode * 2-3 holes			9.	Wild Rose	*Defer*
	10.	White Alps * 1	Sec		10.	Oscar	
	11.	North Equinox			11.	Short Shot	
	12.	South Kamma	*Defer*		12.	South Ridge	
	13.	Vertex			13.	Barrel Springs	

Note: Target 2b – North Zone Feeders includes #24 fault; Target 1a – Southeast of South Zone includes Shark Fin extension; Mother Lode includes the Cave Fault East, Mother Lode, Gold Hill, and East Dreamland areas; Valley includes Cave Fault West.

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District		1.	School Bus Canyon	0.2 months	S.W.A.T. Team	Yes
		2.	Deep Dreamland	3 months	Langstaff	Yes
		3.	Degerstrom	3 months	Langstaff	No
		4.	Valley	3 months	Rogowski (2), Mitchell (1)	Yes
		5.	Lucky Boy	2 months	Mitchell	Yes
		6.	Chance	2 months	Vance	No
	May Not Work	7.	Gator	1 month	Mitchell	No
		8.	Brown Palace	2 months	Vance	Yes

Note: Target evaluation time is the *time needed* to gain sufficient encouragement to continue exploration.

NEWMONT GOLD COMPANY
Winnemucca Exploration Office

861 West 6th Street, Winnemucca, NV 89445
Tel: (775) 625-5615, Fax: (775) 625-5655
E-mail: pmit1@corp.newmont.com

MEMORANDUM

DRAFT

January 25, 1999

To: K. Allen, R. Clayton, D. CameronB. Ferneyhough, D. Groves, R. Jackson, G. Langstaff, R. Lisle, G. Massingill, B. Morris, N. Phillips, P. Rogowski, R. Vance

From: P. Mitchell

Subject: **Rosebud Project Review**
Prospect Summaries and Ranking Results

TABLE 1. Prospect Classification, Ranking and Priority Rating.

ADVANCED				NEEDS MORE WORK			
NEAR MINE	1.	2b – North Zone Feeders	*Priority*	DISTRICT	1.	School Bus Canyon	*Priority*
	2.	Far East			2.	Deep Dreamland	
	3.	South Zone Feeders			3.	Degerstrom	
	4.	1b – Northeast of Mine			4.	Valley	
	5.	1a – Southeast of South Zone			5.	Lucky Boy	
	6.	3 – 96 - 356 Intercepts			6.	Chance	
	7.	Shark Fin			7.	Gator	*May Not Work*
	8.	2a – Vent Raise			8.	Brown Palace	
DISTRICT	9.	Mother Lode			9.	Wild Rose	*Defer*
	10.	White Alps			10.	Oscar	
	11.	North Equinox			11.	Short Shot	
	12.	South Kamma	*Defer*		12.	South Ridge	
	13.	Vertex			13.	Barrel Springs	

Note: Target 2b – North Zone Feeders includes #24 fault; Target 1a – Southeast of South Zone includes Shark Fin extension; Mother Lode includes the Cave Fault East, Mother Lode, Gold Hill, and East Dreamland areas; Valley includes Cave Fault West.

~~Best~~.

Objectives

1. Rate + rank targets + present to Rating + Ranking Meeting.

NWRA 0076 - 00 ~~80~~ 79

	Time Sink		
Cave Flt/M.Lode/G.Hill	Med	2	PM
White Alps	Lg	3	RBV 2, PM 1
N. EQ	Small-	1	Peer Review
Schoolbus Cnyn	Small-	1	SWAT
Deep Dreamland	Lg	3	GL
Degerstrom	Lg	3	GL
Cave Flt/Valley	Lg	3	PR
Lucky Boy	Med	2	PM
Chance	Med	2	RBV
Gator	Small	1	
B.P.	Med	2	
		23	

In Next two WEEKS

Refine Rogowski work. Sections. Talk w/ Kurt about mine sequence.

Ron - Kurt involved.

Kurt

Spend some time w/ Kurt discussing mine sequence.

Full	GL	6
2/3	RV	4
Full	PM	6
½ Time	PR	3
		19

DRILLSTA.CR5 02/09/99 07:40:57

Point	Northing	Easting	Elevation	Description
1	2,204,098.3600	481,791.4130	4,455.15	N11FS
2	2,204,120.9820	481,815.8620	4,451.18	N12BS
3	2,204,084.4410	481,782.0851	4,450.74	MP1
4	2,204,078.8386	481,767.9559	4,452.41	MP2
5	2,204,075.9572	481,751.0454	4,454.28	MP3
6	2,204,088.4561	481,748.4984	4,452.42	MP4
7	2,204,093.2980	481,765.5567	4,449.92	MP5
8	2,204,099.6749	481,778.6489	4,447.79	MP6

NW FACING Offset Sections @ 1"=100' & 1"=200'

Complete Set of NE FACING SECTIONS @ 1"=100' & 1"=200'

Set of select SECTION @ 1"=40'? FOR EAKE Proposed Drill Hole.

Structural Contour of SRF @ 1"=100'

* Include GRADE THICKNESS of Gold and Silver IN fault

Ron C.
Randy V.
Kurt A.

Exploration Meeting 2/17/99

Randy - 1) Geomodel - putting in data (EAS

⊛ Cindy ⇒ Give Randy South Zone Geology & Gold samples
North Zone Geology & Gold samples.

√⊛ Send Rand Pete Rogowski's digetized surface trace of the South Ridge fault.

Peer Review - March 3rd = North Equinox

⊛ Get list of Plan Elevations to Randy

Randy †) will talk to gerald w/ regards to Nick splitting core

2) - Take a few spot samples in unaltered Rx

3) - ICP -
- AAL 1/2 w/o Selen. for
- 30 g FA w/ AA finish Au w/ 0.050 grad Repeat
D-210 w/ Ag
- Return Pulps to Exploration trailer.
- Invoices

2 Hard Copy of Assay Certificates.

4) use out of Mud supplies on trailer

5) Film ⇒ Get double prints.

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MEMORANDUM

January 25, 1999

To: K. Allen, R. Clayton, D. CameronB. Ferneyhough, D. Groves, R. Jackson, G. Langstaff, R. Lisle, B. Morris, N. Phillips, P. Rogowski, R. Vance

From: P. Mitchell

Subject: **Agenda**
Rosebud Prospect Rating and Ranking Meeting
February 3rd and 4th, 1999

The Rosebud Prospect Rating and Ranking meeting will be held on February 3rd and 4th. If you are speaking at the meeting, please check the agenda for the time your presentation(s). It is important that presentations do not exceed that time allotted. If you think the assigned time is insufficient to adequately discuss the prospect, please contact Randy Vance or me as soon as possible so that we can discuss the changes.

Wednesday, February 3, 1999

TIME	PROSPECT / AREA	PERSON PRESENTING
8:30 – 9:00	***Coffee***	
9:00 – 9:10	Opening Remarks	R. Vance
9:10 – 9:30	Mine Geology and Ore Reserve Update	K. Allen
9:30 – 9:45	Exploration Geochemistry Overview	R. Jackson
9:45 – 10:00	***Coffee Break***	
10:00 – 10:30	Near Mine Exploration	P. Rogowski, R. Vance
10:30 – 11:00	Rosebud Mine, Target 24	K. Allen, D. Cameron
11:00 – 11:30	Sharkfin-Far East	G. Langstaff
11:30 – 12:00	North Dozer	P. Rogowski, R. Vance
12:00 – 12:30	***Lunch***	
12:30 – 1:00	Cave Fault	P. Rogowski, R. Vance
1:00 – 1:20	Valley	G. Langstaff
1:20 – 1:40	South Ridge	P. Mitchell
1:40 – 2:10	Mother Lode-Gold Hill-East Dreamland	P. Rogowski, R. Vance, P. Mitchell
2:10 – 2: 30	***Coffee Break***	
2:30 – 2:50	Degerstrom	R. Vance
2:50 – 3:30	Dreamland	G. Langstaff, P. Mitchell
3:30 – 4:10	White Alps	R. Vance, P. Mitchell

Thursday, February 4, 1999

TIME	PROSPECT / AREA	PERSON PRESENTING
7:00 – 7:20	***Coffee***	
7:20 – 7: 30	Opening Remarks	R. Vance
7:30 – 7:50	Brown Palace	R. Vance, P. Mitchell
7:50 – 8:10	Lucky Boy	R. Vance, P. Mitchell
8: 10 – 8:30	North Equinox-Rosebud Peak	G. Langstaff
8:30 – 8:50	Gator	P. Rogowski
8:50 – 9:20	Wildrose	P. Mitchell
9:20 – 9:50	Chance	G. Langstaff
9:50 – 10:10	***Coffee Break***	
10:10 – 10:30	Short Shot	R. Vance, P. Mitchell
10:30 – 10:50	Schoolbus Canyon	R. Vance
10:50 – 11:10	Vertex	P. Rogowski
11:10 – 11:40	Oscar	R. Vance
11:40 – 12:00	South Kamma	P. Mitchell
12:00 – 12:20	Barrel Springs	P. Mitchell
12:20 – 1:30	***Lunch***	
1:30 – 4:30	Prospect Ranking	Group Discussion
4:30 – 5:00	Closing Remarks	R. Vance

ROSEBUD PROSPECT COMPILATION

Heading Outline for Project Summaries

1. COMMENT
2. TARGET CONCETP
   - A. Potential Target Size
   - B. Grade Potential
   - C. Summary Overlay (Base Map)
3. GEOLOGY
   - A. Lithology
   - B. Rock Structure
4. HYDROTHERMAL ALTERATION
   - A. Type and Intensity
   - B. Areal Extent
5. GEOCHEMISTRY
   - A. Surface Geochemistry
     - *1. Rock*
     - *2. Soil*
   - B. Drill Hole Geochemistry
6. GOLD MINERALIZATION
   - A. Past Production
   - B. Distance from the Rosebud Mine
7. GEOPHYSICS
   - A. Induced Polarization
   - B. Resistivity
   - C. Magnetics
     - *1. Airborne*
     - *2. Ground*
   - D. Radiometrics
     - *1. Potassium*
     - *2. Thorium*
     - *3. Uranium*
     - *4. Total Counts*

PROSPECTIVITY RATING

Worksheet Definitions

The objective of *rating* the prospects within the Rosebud district is to develop a relatively uniform basis for their comparison and internal *ranking*. The prospects are rated by assigning a very favorable (++), favorable (+), neutral (0) or unfavorable (-) rating to the most important attributes of the prospect. This process is clearly qualitative, but adherence to a standard questionnaire ensures that comparable data are compiled for each prospect, and that ranking process is as quantitative as possible. Because the databases used for the prospects are at different stages of completion, and it is not possible to evaluate all of the rating categories for each area, and because the significance of the various attributes varies, the final ranking may not necessarily reflect the mathematical sum of the ratings. Ranking is a collective effort made by simultaneously comparing the ratings data for all of the prospects. The position of a prospect within the priority seriatim reflects the groups "belief" that there is a higher probability that economic gold will be discovered at the prospect than at the those positioned below it.

TARGET CONCEPT

Explain the target concept in two to three sentences.

Potential Target Size

The resource tonnage potential, in million short tons, given the current understanding of the target style and geometry, and assuming underground gold grades.

\+ >1.0 million tons
0 0.2 to 1.0 million tons
\- <0.2 million tons

Grade Potential

The ore grade potential in ounces per short ton Au equivalent, for the deposit style and geometry modeled.

++ >1.0 ounce per ton
\+ 0.5 to 1.0 ounce per ton
0 0.25 to 0.4 ounce per ton
\- <0.25 ounce per ton

Summary Overlay

Base map overlay illustrating the significant characteristics of the target. Use 1:2400 scale maps when available.

GEOLOGY

Lithology

Briefly describe the geologic setting of the prospect. Include descriptions of the units which are suspected to host ore.

+ Favorable setting with significant thickness of favorable host rocks
0 Permissive setting and\or limited thickness of favorable host rocks
- Unfavorable setting and\or host rocks

Rock Structure

Briefly describe the structural setting of the prospect. Emphasize the structural features that control, or may control hydrothermal alteration and mineralization, ie. bedding, joints, faults and folds.

+ Structural setting is highly favorable for hosting a large ore deposit
0 Unknown or permissive structural setting for hosting a large ore deposit
- Unfavorable structural setting for hosting a large ore deposit

HYDROTHERMAL ALTERATION

Describe the type, intensity and arial extent of hydrothermal alteration exposed at the surface and identified core or cuttings. Note whether or not the alteration type associated with the target is associated with ore elsewhere in the district, and if there is quantitative (XRD, PIMA) confirmation of the clay minerals present.

+ Large areas of strong hydrothermal alteration of a type favorable for hosting ore
0 Unknown type of hydrothermal alteration, moderate extent of hydrothermal alteration of a type that is favorable for hosting ore, or hydrothermal alteration of a type that is only permissive for hosting ore
- Unaltered, or limited extent of weak hydrothermal alteration

GEOCHEMISTRY

The geochemical ranges that should be used during prospect ranking and to prepare the prospect compilation worksheets are: ore-grade gold , Au ≥0.18 opt; strongly anomalous, Au ≥ 500 ppb, Ag ≥0.25 opt, Se ≥5 ppm, As ≥50 ppm, Sb ≥10 ppm, Mo ≥5 ppm.

Surface Geochemistry

Briefly discuss the annalyzed elements, detection limits and laboratories (if more than one), areal extent of the survey(s), sample intervals, and results of both surface rock-chip and soil sampling programs.

++ Multiple ore-grade Au assays within a discrete area of strongly anomalous multielement geochemistry
+ Strongly anomalous Au, Ag, Se and As ± Sb and Mo within a discrete area
0 Detectable Au, Se and As ± Ag, Sb and Mo
- Gold assays <5ppb associated with weakly anomalous Ag, As, Se, Sb and Mo values that do not form a coherent spatial pattern

Drill Hole Geochemistry

Summarize the drilling results for the prospect, emphasizing significant gold and/or silver grade-thickness intervals. Briefly discuss intensity and extent of significant isolated intervals or continuous zones (multiple drill hole intercepts) of anomalous Au, Ag, Se, As, Sb and Mo in both reverse circulation rotary cuttings and/or diamond drill core.

++ Drill holes which intersected extensive intervals of strong hydrothermal alteration with multiple ore-grade gold and/or silver intercepts
+ Drill holes which intersected extensive intervals of strong hydrothermal alteration with detectable Au and Ag
0 Undrilled or varied drilling results
- Dominantly negative drilling results

GOLD MINERALIZATION

Past Production

Describe the type and extent of prospecting and/or past production within the prospect area.

++ Past production, abundant ore-grade surface rock-chip values, or significant ore-grade intercepts in multiple drill holes
+ Extensive prospect pits and/or short adits and shallow shafts, scattered ore-grade Au values in surface rock-chip samples, or significant intervals of strongly anomalous Au in multiple drill holes
0 Sparse and/or small prospect pits, detectable Au in surface rock-chip samples, no significant drilling results
- No obvious prospecting activity

Distance from the Rosebud Mine

Is it possible to access the proposed deposit from the existing underground workings?

+ The proposed deposit is within 4000 feet of the existing mine workings
0 The proposed deposit is between 4000 and 6000 feet of the existing workings
- The proposed deposit is >6000 feet from the existing mine workings

GEOPHYSICS

Induced Polarization

Describe the intensity, extent and significance of all chargeability anomalies.

+ The modeled chargeability data supports the target concept
0 No data, or the modeled chargeability data does not alter the target concept
- The modeled chargeability data does not support the target concept

Resistivity

Describe the intensity, extent and significance of all resistivity anomalies.

+ The modeled resistivity data supports the target concept
0 No data, or the modeled resistivity data does not alter the target concept
- The modeled resistivity data does not support the target concept

Magnetics

Describe the ground and airborne magnetic signature of the prospect area.

+ The modeled magnetic data supports the target concept
0 No data, or the modeled magnetic data does not alter the target concept
- The modeled magnetic data and the target concept

Radiometrics

Describe the intensity, extent and significance of any radiometric anomaly (K, Th, U, total counts.

+ The modeled radiometric data supports the target concept
0 No data, or the radiometric data does not alter the target concept
- The modeled radiometric data does not support the target concept

Gravity

Describe the gravity signature of the prospect area

+ The modeled gravity data supports the target concept
0 No data, or the modeled gravity data does not alter the target concept
- The modeled gravity data does not support the target concept

Thematic Mapper

Describe the type (mineral) and extent of the alteration anomaly.

+ Strong, spatially extensive anomaly that supports the target concept
0 Weak, moderately extensive anomaly that does not alter the target concept
- No alteration anomaly

DRILL HOLES

Briefly summarize the extent to which the prospect has been drilled, and amount of area that remains "untested." If drilling has occurred on the prospect, include a table showing the number, type and depth of all drill holes.

+ Very limited or no drilling
0 Moderately drilling
- Extensively drilled

ACCESSIBILITY

Summarize the difficulty in accessing the prospect due to terrain and weather constraints.

+ Easily accessible from existing roads with a minimal amount of surface disturbance and permitting
0 Not accessible from existing roads, but requires only modest surface disturbance and permitting
- Difficult accessibility requiring extensive surface disturbance and permitting

LAND STATUS

Ownership

Give the names of the people or organization that controls the property if the prospect is outside the boundaries of the Rosebud joint venture agreement.

+ The property is open for claim staking
0 The property status is unknown, or the property may be acquired through a relatively simple and inexpensive agreement
- The property is not available for acquisition, or may be acquired only through a complex and expensive agreement

Royalties

Describe any royalty agreement, other than Euro-Nevada's 4% net smelter return, that may adversely effect profitability if the joint venture company were to produce from the conceptual deposit.

+ No royalty
0 Combined royalty payments are <5% of the net smelter return
- Combined royalty payments are ≥5% of the net smelter return

RECOMMENDATION

What should be done with the prospect? If it is recommended to continue exploration on the property, describe in detail how to proceed to the "first decision point."

COST TO FIRST DECISION POINT

Define the "first decision point." What information is needed and how much it will cost (in dollars) to gain sufficient encouragement to continue exploring for the conceptual target. Cost estimates are to be itemized under the following headings: geology (number of man days needed for mapping), geochemistry (number of samples, estimated cost per sample), geophysics (technique(s) and their estimated costs), and drilling (road construction and reclamation, reverse circulation rotary footage, core footage, assay costs).

++ <$50,000
+ $50,000 to $100,000
0 $100,000 to $200,000
- >$200,000

REFERENCES

Any material cited in the text should be listed at the end of the prospect summary sheet. Ultimately, this section should include all published reports that pertain to the property, unpublished reports and memoranda, geochemical and geophysical surveys, all databases, maps, and cross sections.

Please follow the reference format used in the Geological Society of America Bulletin.

PROSPECT RATING WORKSHEET

PROSPECT	Barrel Springs	Brown Palace	Cave Fault	Chance	Deger-strom	Dream-land	E. Dream-land	Gator	Lucky Boy	Near Mine
TARGET CONCEPT										
POTENTIAL TARGET SIZE										
GRADE POTENTIAL										
GEOLOGY										
LITHOLOGY										
ROCK STRUCTURE										
HYDROTHERMAL ALTERATION										
GEOCHEMISTRY										
SURFACE GEOCHEMISTRY										
DRILL HOLE GEOCHEMISTRY										
GOLD MINERALIZATION										
PAST PRODUCTION										
DISTANCE FROM ROSEBUD MINE										
GEOPHYSICS										
INDUCED POLARIZATION										
RESISTIVITY										
MAGNETICS										
RADIOMETRICS										
GRAVITY										
THEMATIC MAPPER										
DRILL HOLES										
ACCESSABILITY										
ROYALTIES										
COST TO FIRST DECISION POINT										

PROSPECT RATING WORKSHEET

Responsibilities for prospect data compilation and presentation are:

K. Allen:	Rosebud Mine;
G. Langstaff:	Chance, Dreamland, North Equinox, Rosebud Peak, Sharkfin, and Valley;
P. Mitchell:	Barrel Springs, East Dreamland, Gold Hill, South Kamma, South Ridge, Wildrose;
P. Rogowski:	Cave Fault, Gator, Mine Exploration, Mother Lode, North Dozer, Vertex
R. Vance:	Brown Palace, Degerstrom, Lucky Boy, Oscar, Schoolbus Canyon, Short Shot, White Alps

Data presentations for the Mother Lode-Gold Hill, North Eqinox -Rosebud Peak, and Sharkfin-Far East prospect areas will be combined.

NEWMONT GOLD COMPANY
Winnemucca Exploration Office

861 West 6th Street, Winnemucca, NV 89445
Tel: (775) 625-5615, Fax: (775) 625-5655
E-mail: pmit1@corp.newmont.com

MEMORANDUM

January 15, 1999

To: R. VANCE, K. ALLEN, B. FERNEYHOUGH, N. PHILLIPS, P. ROGOWSKI

From: P. MITCHELL

Subject: ***Rosebud Prospect Compilation, Rating and Ranking***

The following pages contain (1) definitions and rating guidelines for the Rosebud prospect compilation worksheets, (2) example worksheets, and (3) sample worksheet pages from the 1998 Global Evaluation meeting. The 1998 examples illustrate how the worksheets were used in the past.

The Rosebud prospect rating and ranking meeting is scheduled for Wednesday and Thursday, February 3rd and 4th. Please have your project summaries completed by Sunday, January 31st so that they can be bound and distributed on Monday, February 1st.

PROSPECT ASSIGNMENTS

R. Vance: Brown Palace, Degerstrom, Lucky Boy, Oscar, School Bus Canyon, Short Shot, White Alps

K. Allen: Rosebud Mine

G. Langestaff: Chance, Dreamland, North Equinox, Petal (Lantern), Rosebud Peak, Shark Fin, Valley

P. Rogowski: Cave Fault, Gator, Mine Exploration, Mother Lode, North Dozer, Vertex

P. Mitchell: Barrel Springs, East Dreamland, Gold Hill, South Kamma, South Ridge, Wildrose

ROSEBUD PROSPECT COMPILATION

Heading Outline for Project Summaries
January 15, 1999

1. **CONCEPTUAL TARGET**
   - ***A. Potential Target Size***
   - ***B. Grade Potential***
   - ***C. Data Summary (Map Overlay)***
2. **GEOLOGY**
   - ***A. Lithology***
   - ***B. Structure***
3. **ALTERATION**
   - ***A. Type and Intensity***
   - ***B. Areal Extent***
4. **GEOCHEMISTRY**
   - ***A. Surface Data***
     1. Rock
     2. Soil
   - ***B. Downhole Data***
5. **GEOPHYSICS**
   - ***A. Induced Polarization***
   - ***B. Resistivity***
   - ***C. Magnetics***
     1. Airborne
     2. Ground
   - ***D. Radiometrics***
     1. Potassium
     2. Thorium
     3. Uranium
     4. Total Counts
   - ***E. Gravity***
   - ***F. Thematic Mapper***
6. **PREVIOUS DRILLING**
7. **ACCESSIBILITY**
8. **COST TO FIRST DECISION POINT**
9. **REFERENCES**

PROSPECTIVITY RATING

Worksheet Definitions

The objective of *rating* the prospects within the Rosebud district is to develop a relatively uniform basis for their comparison and internal *ranking*. The prospects are rated by assigning a very favorable (++), favorable (+), neutral (0) or unfavorable (-) rating to the most important attributes of the prospect. This process is clearly qualitative, but adherence to a standard questionnaire ensures that comparable data are compiled for each prospect, and that ranking process is as quantitative as possible. Because the databases used for the prospects are at different stages of completion, and it is not possible to evaluate all of the rating categories for each area, and because the significance of the various attributes varies, the final ranking may not necessarily reflect the mathematical sum of the ratings. Ranking is a collective effort made by simultaneously comparing the ratings data for all of the prospects. The position of a prospect within the priority seriatim reflects the groups "belief" that there is a higher probability that economic gold will be discovered at the prospect than at the those positioned below it.

CONCEPTUAL TARGET

Explain the target concept in two to three sentences.

Potential Target Size

The resource tonnage potential in million short tons, given the current understanding of the deposit style and geometry.

+ >2.5 million tons
0 1.0 to 2.5 million tons
- <1.0 million tons

Grade Potential (Gold equivalent)

The ore grade potential in ounces per short ton Au equivalent, for the deposit style and geometry modeled.

+ >0.5 ounce per ton
0 0.25 to 0.5 ounce per ton
- <0.25 ounce per ton

Summary Overlay

Base map overlay illustrating the significant characteristics of the target. Use 1:2400 scale maps when available.

GEOLOGY

Lithology

Briefly describe the geologic setting and any lithologic unit that hosts ore elsewhere in the district.

+ Dominantly lithologies which host ore elsewhere in the district
0 Mixed or unknown lithologies
- Dominantly lithologies which are not good ore hosts

Rock Structure

Briefly describe the structural setting of the prospect, emphasizing any feature (bedding, joints, faults, folds) that controls, or may control, hydrothermal alteration and mineralization. Note if there is quantitative (XRD or PIMA) confirmation of clay mineral identification.

+ Very strong structural control on the distribution of hydrothermal alteration and gold mineralization
0 Rock structures are only locally associated with hydrothermal alteration with or without gold gold minerlization
- Major geologic structures not associated significant hydrothermal alteration

HYDROTHERMAL ALTERATION

Describe the type(s), intensity and areal extent of hydrothermal alteration exposed at the surface and identified from drill core or reverse circulation rotary cuttings.

++ Fracture-contorlled illite, kaolinite or dickite with ore-grade Au locally present
+ Extensive argillization and/or silicification with detectable Au, Ag, Se, and As
0 Argillizatin and/or silicification with restricted distribution and detectable Au, Ag, Se and As
- Weak agrillic or propylitic alteration and minor limonite without detectable Au, Ag, Se or As

GEOCHEMISTRY

The geochemical ranges that should be used during prospect ranking and to prepare the prospect compilation worksheets are: ore-grade gold , Au ≥0.15 opt; strongly anomalous, Au ≥ 500 ppb, Ag ≥0.25 opt, Se ≥5 ppm, As ≥50 ppm, Sb ≥10 ppm, Mo ≥5 ppm.

Surface Geochemistry

Briefly discuss the annalyzed elements, detection limits and laboratories (if more than one), areal extent of the survey(s), sample intervals, and results of both surface rock-chip and soil sampling programs.

++ Multiple ore-grade gold assays within a discrete area of strongly anomalous multielement geochemistry
+ Strongly anomalous Au, Ag, Se and As ± Sb and Mo within a discrete area
0 Detectable Au, Se and As ± Ag, Sb and Mo
- Background trace element geochemistry

Drill Hole Geochemistry

Summarize the drilling results for the prospect, emphasizing significant gold and/or silver grade-thickness intervals. Briefly discuss intensity and extent of significant isolated intervals or continuous zones (multiple drill hole intercepts) of anomalous Au, Ag, Se, As, Sb and Mo in both reverse circulation rotary cuttings and/or diamond drill core.

++ Limited drilling with drill holes intersecting extensive intervals of strong hydrothermal alteration with multiple ore-grade gold and/or silver intercepts
+ Limited drilling with drill holes intersecting extensive intervals of strong hydrothermal alteration with detectable Au and Ag
0 Moderate drilling with varied results
- Extensive drilling with dominantly negative results

GOLD MINERALIZATION

Describe the type and extent of prospecting and/or past production within the prospect area.

++ Past production
+ Extensive prospect pits and/or short adits or shallow shafts
0 Sparse and/or small prospect pits
- No obvious prospecting activity

GEOPHYSICS

Induced Polarization

Describe the intensity, extent and significance of all chargeability anomalies.

+ Direct relationship between the modeled chargeability data and the target concept
0 No data or an indirect relationship between the modeled chargeability data and the target concept
- No relationship between the modeled chargeability data and the target concept

Resistivity

Describe the intensity, extent and significance of all resistivity anomalies.

+ Direct relationship between the modeled resistivity data and the target concept
0 No data or an indirect relationship between the modeled resistivity data and the target concept
- No relationship between the modeled resistivity data and the target concept

Magnetics

Describe the ground and airborne magnetic signature of the prospect area.

+ Direct relationship between the modeled magnetic data and the target concept
0 No data or an indirect relationship between the modeled magnetic data and the target concept
- No relationship between the modeled magnetic data and the target concept

Radiometrics

Describe the intensity, extent and significance of any radiometric anomaly (K, Th, U, total counts.

+ Direct relationship between the modeled radiometric data and the target concept
0 No data or an indirect relationship between the radiometric data and the target concept
- No relationship between the modeled radiometric data and the target concept

Gravity

Describe the gravity signature of the prospect area

+ Direct relationship between the modeled gravity data and the target concept
0 No data or an indirect relationship between the modeled gravity data and the target concept
- No relationship between the modeled gravity data and the target concept

Thematic Mapper

Describe the type (mineral) and extent of the alteration anomaly.

+ strong intensity or spatially extensive
0 weak intensity or moderate spatial extent
- unaltered

DRILL HOLES

Briefly summarize the extent to which the prospect has been drilled, and amount of area that remains "untested." Include a table showing the number, type and depth of all drill holes.

+ Very limited or no drilling
0 Moderately drilling
- Extensively drilled

ACCESSIBILITY

Summarize the difficulty in accessing the prospect due to terrain and weather constraints.

+ easily accessible from existing roads with a minimal amount of surface disturbance and permitting
0 not accessible from existing roads, but requires only modest surface disturbance and permitting
- difficult accessability requiring extensive surface disturbance and permitting

COST TO FIRST DECISION POINT

Cost estimates are to be itemized under the following headings: geology (number of man days needed for mapping), geochemistry (number of samples, estimated cost per sample), geophysics (technique(s) and their estimated costs), and drilling (road construction and reclamation, reverse circulation rotary footage, core footage, assay costs).

++ <$50,000
+ $50,000 to $100,000
0 $100,000 to $200,000
- >$200,000

REFERENCES

Any material cited in the text should be listed at the end of the prospect summary sheet. Please follow the reference format used in the Geological Society of America Bulletin.

PROSPECTIVITY RATING WORKSHEET

	Barrel Springs	Brown Palace	Cave Fault	Chance	Deger-strom	Dream-land	E. Dream-land	Gator	Gold Hill	Lucky Boy
CONCEPTUAL TARGET										
POTENTIAL TARGET SIZE										
GRADE POTENTIAL										
GEOLOGY										
LITHOLOGY										
ROCK STRUCTURE										
HYDROTHERMAL ALTERATION										
GEOCHEMISTRY										
SURFACE GEOCHEMISTRY										
DOWNHOLE GEOCHEMISTRY										
GOLD MINERALIZATION										
GEOPHYSICS										
INDUCED POLARIZATION										
RESISTIVITY										
MAGNETICS										
RADIOMETRICS										
GRAVITY										
THERMATIC MAPPER										
DRILL HOLES										
ACCESSIBILITY										
COST TO FIRST DECISION POINT										

EVALUATION P' E
GLOBAL EVALUATION PROJECT
GENERATIVE PROJECT PROSPECTIVITY - INTERMEDIARY WORKSHEET

	NORTH LUZON	NMM	KYAUKPAHTO AREA B	NNT	NMR	MOLIBAGU
'RICT TECHNICAL PROSPECTIVITY						
AVORABLE GEOLOGICAL SETTING FOR GOLD-RICH SYSTEMS	+	+	+	0	+	+
;OLD ± BASE METAL MINES ESTABLISHED - PAST PRODUCTION	+	+	0	0	+	+
ARGE DEPOSIT POTENTIAL DEMONSTRATED (> 5 MILLION OZ Au)	+	0	-	+	0	0
.BUNDANCE OF SMALL DEPOSITS AND OCCURRENCES	+	+	+	0	+	+
.BUNDANCE OF UNDER-EXPLORED FAVORABLE TERRAIN	+	0	+	0	0	0
)JECT TECHNICAL PROSPECTIVITY						
'ECHNICAL SUCCESSES	+	+	+	+	+	-
JNDER-EXPLORED/LEVEL OF EXPLORATION *	0	0	+	-	0	0
;OLD ONLY OR GOLD DOMINANT RESOURCE(S)	+	+	+	-	+	+
\BUNDANCE OF ANOMALIES	+	+	+	+	+	-
)JECT COMMERCIAL PROSPECTIVITY/INVESTMENT CLIMATE						
\CCESS AND EASE OF DEVELOPMENT	-	+	0	0	+	+
PERSONNEL SAFETY, LOCAL STABILITY AND TENEMENT SECURITY - RISK LEVEL	0	+	+	+	0	+
LEVEL OF NEWMONT EQUITY HELD OR ALLOWED (EQUITY OUNCES)	100%	80%	75%	45%	80%	100%
BUSINESS CLIMATE OF COUNTRY/AREA INVOLVED	0	+	-	+	+	+

NOTE:

+ = FAVORABLE
0 = NEUTRAL
- = UNFAVORABLE

* UNDER-EXPLORED/LEVEL OF EXPLORATION DEFINITIONS:

+ = ESSENTIALLY UN-EXPLORED
0 = LIMITED EXPLORATION
- = SYSTEMATIC FIRST PASS COMPLETED

GLOBAL EVALUATION PROJECT
APRIL 1998 REVIEW
5.2 - EARLY STAGE PROJECT RATING WORKSHEET

	NMM GENEX	NNT GENEX	NMR GENEX	LUZON CORDILLERA	
DISTRICT TECHNICAL PROSPECTIVITY					
EXPLORABILITY/EASE OF DISCOVERY	+	+	+	+	
GOLD ± BASE METAL MINES ESTABLISHED - PAST PRODUCTION	+	+	0	+	
LARGE DEPOSIT POTENTIAL DEMONSTRATED (> 5 MILLION OZ Au)	0	+	0	+	
ABUNDANCE OF SMALL DEPOSITS AND OCCURRENCES	+	0	+	+	
ABUNDANCE OF UNDER-EXPLORED FAVORABLE TERRAIN	0	+	+	+	
PROJECT TECHNICAL PROSPECTIVITY					
TECHNICAL SUCCESSES	+	+	+	+	
UNDER-EXPLORED/LEVEL OF EXPLORATION	0	0	+	+	
GOLD ONLY OR GOLD DOMINANT RESOURCE(S)	+	0	+	+	
ABUNDANCE OF ANOMALIES	0	+	+	+	
PROJECT COMMERCIAL PROSPECTIVITY/INVESTMENT CLIMATE					
ACCESS AND EASE OF DEVELOPMENT	+	+	-	0	
PERSONNEL SAFETY, LOCAL STABILITY AND TENEMENT SECURITY - RISK LEVEL	+	+	-	0	
LEVEL OF NEWMONT EQUITY HELD OR ALLOWED (EQUITY OUNCES)	80	45	80	100	
BUSINESS CLIMATE OF COUNTRY/AREA INVOLVED	0	0	0	0	

PROSPECT RANKING WORKSHEET

Rank	PROSPECT	
TOP	1.	2.
	3.	4.
	5.	6.
MIDDLE	7.	8.
	9.	10.
	11.	12.
BOTTOM	13.	14.
	15.	16.
	17.	18.
TECHNICAL INTEREST		

Definitions:

Top – Strong potential for near-term discovery of economic gold mineralization. Maximum funding and personnel dedicated to these prospects in 1999.

Middle – Moderate potential for near-term discovery of economic gold mineralization. Minimal funding and personnel dedicated to these prospects during 1999.

Bottom – Low potential for near-term discovery of economic gold mineralization. These prospects probably will not be evaluated during 1999.

Another Look at Rosebud Targets

The new East zone geologic interpretation and reserve block model suggest a genesis, and more important, exploration targets. Some of the ideas discussed here aren't new, but I believe the synthesis is helpful. The thermal and structural center of the Rosebud orebodies probably lies beneath, or just north of the North zone (Figure 1).

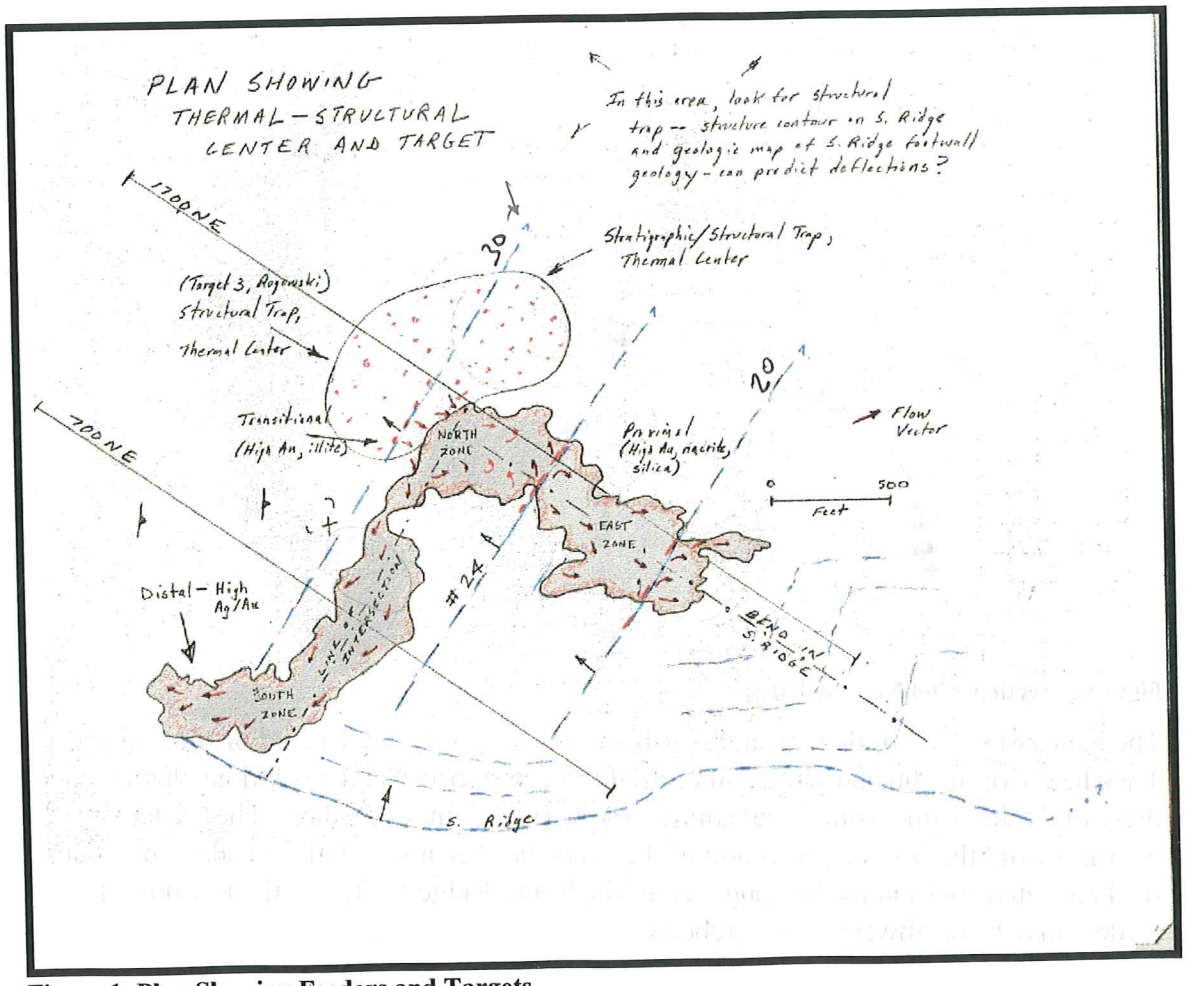

Figure 1 Plan Showing Feeders and Targets

Feeders

Without exception, epithermal gold and silver deposits are related to high angle mineralized faults. Orebodies are either in the faults, e.g., at Republic, or they spread out into structural or stratigraphic traps above, or alongside the structures (e.g., Cannon Mine). I have never accepted that the South Ridge fault is the mineralizing structure, despite its importance as a host. The important feeders must be found if they are to be followed to another favorable intersection.

vertical trend—gold increases upward in the mineralization envelope to a maximum aligned along the fault plane.

The second control is that the orebody is thickest in a kink in the South Ridge fault plane, shown schematically in Figure 1. I haven't heard an explanation for the kink. It probably occurred where the fault broke across more competent rocks. A geologic map of the footwall surface might show why. Is this where the dikes cut through the section?

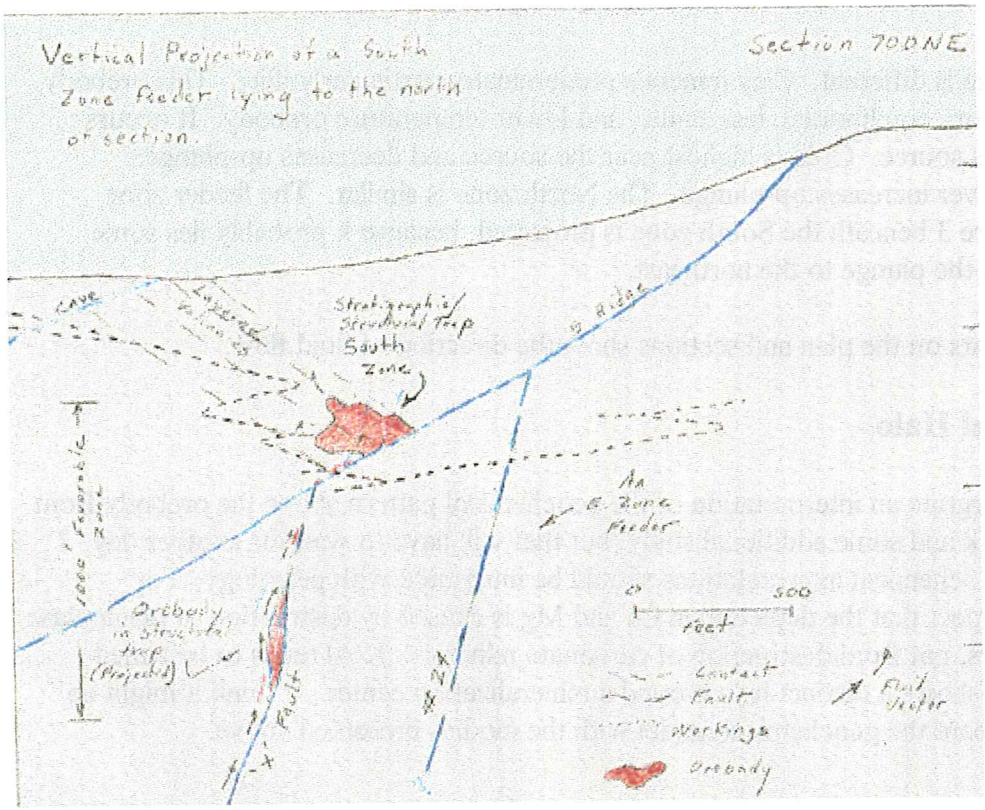

Figure 3 Section 700NE through South Zone

Stratigraphic Traps

The North and South zones lie in broken rocks in the hanging wall of the South Ridge fault. The ore preferentially mineralized certain layers, and is correctly modeled as a stratabound deposit. The orebody formed at the intersection of the favorable stratigraphy with the plane of the South Ridge fault. The strata control is probably related to favorable structural preparation rather than chemical differences. These orebodies are thus stratigraphic/structural traps.

Feeders probably underlie these orebodies, but that is an hypothesis. Drilling and development in the footwall of the zones is sparse. A search for the feeders will involve interpretation of footwall drill intercepts and further drilling.

underground. Holes should be drilled to cut the South Ridge fault and the feeder below at various intervals along dip and strike. The favorable zone is shown in Figure 3 and applies to feeder fault #24. This is a secondary target.

Every effort should be made to detect fault deflections from current drilling information in order to assist the targeting of the holes. I think the most useful tool is the mine sections posted at 1:2400 to show the entire potential mineralized section. For starters, sections shown in the Rogowski report should be completed by posting the 1:240 reserve sections and adding details beyond their limits.

D. Cameron 1-4-99

12/22/98

UNDERGROUND TARGETS - Randy Vanke.

Exploration.

North access • Follow-up to D-331-98:

(1) down-dip of SRF; 10-12 short holes beneath + NW of Au shapes
5-6 different sections ~2000-2500'

(2) Long holes NW, beneath SRF

• From 2300 Access:

(1) hole due south as originally planned (1A-3) S, +42, 1000'

(2) holes NW of DRSU-453A, ~~35°~~ 315° apart ~~280°~~ 280°

• Target 2a (Borehole): 2A-1 S55E -15, 300'
2A-2 S55E -45, 400'

North Access • Target 2B(2): Sec 1475 S55E -14 900' ALS

Look for area to help fill in → 2B(3): Sec 1700 " 13 950' Dozer (Necessary?)

2B(4): " " -5 900' ALS

North Access • Target 3 1500 "3-1" N55W -26 1000' Td/ALS 356 INT

41 Access • Far East (from E. Zone Workings)
(Possible Muck Bay)

• Hidden fault: 2 or 3 short holes, E or SE to test the E. edge of the E. Zone for feeder structures

Geochemical Data Rosebud.

Total Digestion ICP Data 1" = 500'
around the mine area.

Au Plans 4300 – 5300' Every 100'

- Robert interested in Au zoneing to North zone
- Negative above the 0.050 opt Au boundary.

Ag - Silver data points much less than for Au
- Higher values in the stratiform ore.

⊗ Get Geology plans @ 1" = 500' overlays.

As Red 100 ppm –

Green = 70 ppm = Mimics shape of Red Au Anomally

North zone Arsenic drops off.

Se - Gren 4 ppm

Red 31 ppm

Sb - Same pattern as Ag - As - Se

* Talk about Cutting Geochemical X-sections of Geochemical Data.

Hg - High mercury values high in Holes & lower w/ Depth

Anomally is located South of Deposit

W - Tungsten
Green 5 ppm
Red - 7 ppm

Same (or similar) shape of the previous units
Anomaly though is directly over the deposit.
Drops off fast into the basement.

Ca - Depletion - ⇒ more of a transition zone than in the depleted zone.
Shows the inverse of the previous.
Orange @ 1%.

Na - Depletion - ⇒ Also in transition zone.

Everything in the Geochem to this point ⇒ indicates that the source of the system is to the south eg:

An Enrichment	Ca - Depletion
Ag "	Na - Depletion
As "	K - Depletion.
Sb "	

Fe - Shows a different pattern - Non-conclusive

Vanadium - Doesn't show much.

Zn - South zone - not much zinc

Mo - Red up to 25 ppm.

LA - LOOKING @ A LANTHINUM Depletion -

Rock CHIPS
~~Exploration~~ PLANS - @ 1"=1000' - completed in ARCVIEW = 10 Anomalies.
- Ag soils/rock chips - spotty

LINEAR MAPS -
POTASSIUM Depletion at the MINE at the surface is not as depleted as some others out the surface.

- WHITE ALPS
- LUCKY BOY
- BROWN PALACE

} ROBERT JACKSON HAS NO ANOMALY GEOCHEMICALLY HERE.

* WHERE DID ROBERT GET HIS DATA SET.

SOIL DATA - ROBERT NOT THAT HAPPY WITH THE RESULTS.

* SBSKOF

Geochemical Model for the Rosebud Deposit
and
Exploration Criteria for the Region

The Rosebud Deposit occurs in a sequence of rhyolitic to dacitic volcanics in thrust contact with Auld Lang Syne sediments. Though the volcanics are altered in the vicinity of mineralization, their precursor composition can be readily determined geochemically. Alteration consists of depletion in Ca, Mn, K, Na +/- Sr, P relative to precursor composition. This reflects decalcification, silicification, and argillization in the core of the mineral system. Elements that are enriched in the system include Au, As, Ag, Se, Sb, Hg, W, U, Cu, Mo, Te, Pb and, to a minor degree, Zn, Ni, Co, and Bi. The felsic rocks appear to be the favored host rock although volcanic rocks of all composition have been altered and mineralized.

The surface Au signature (5200 ft elevation) is that of an anomalous Au halo with a central area of background Au. The surface projection of the deposits actually falls within the area of background Au. The deposit shapes begin to form at the 5000 ft elevation and extend to the basement contact. A major element depletion zone at surface defines the center of the mineral system. This chimney shaped feature extends all the way to the contact with the basement rocks. The deposits occur on the margins of this alteration. Within the alteration zone as expressed at surface, rocks are locally anomalous in Au, Ag, Se, As, Sb, Hg, Mo, and Pb.

The mineralization appears to be localized at the intersection of a N85E structural feature (probably the Shark Fin Fault or a parallel structure) with faults of various orientations. The mineral shapes neck down below the 5000 ft level. The South-North zone is truncated at the 4600 ft level presumably by the Southridge Fault. The East zone extends to the basement contact. The alteration core is centered on the intersection of N85E and N60W anomaly trends between the East Zone and South Zone.

The following targeting favorability criteria have been defined for the region based on the Rosebud geochemical model and anomaly patterns present in the regional rock geochemistry:

1) areas of complex structural intersection involving big regional fault zones

2) areas of carbonate and potassium depletion

3) strong multi-element geochemical signatures (Au, As, Sb, Hg, Ag, Se, Cu, Mo, Pb, W, U)

4) presence of felsic volcanic host rocks in the stratigraphic section

5) proximity to the basement contact

Based on this model, 7 first priority target areas have been identified regionally using the geochemical signature expressed in rock chip data and airborne radiometric data.

R.G. Jackson
A. Sjoekri
12/15/98

Rosebud Geochemical Model

Study Objectives

Upper level expression of system

Peripheral expression of system

Elements enriched in deposit

Alteration geochemical signature

Structural controls for the system

Exploration Criteria

Rosebud Geochemical Model

Alteration Signature

Decalcification: depletion in Ca, Mn, Sr, P

Silicification: dilution of K, Ti, Al

Argillization (?): depletion in Na

Rosebud Geochemical Model

Trace Element Signature

Au, As, Sb, Hg, Ag, Se

W, U, Cu, Mo, Te, Pb — not much above detection

Zn, Ni, Co, Bi – BASEMENT ROCKS

Rosebud Geochemical Model

Upper Level Expression of Deposit

Depletion halo in Ca, Mn, K, Na, Sr, P

Enrichment halo in Au around the deposit

Depletion halo in Au over the deposit → over gold shapes

Enrichment in Sb, As, Se along Shark Fin Fault — South Ridge Fault.

Anomalous Ag over South Zone

Rosebud Geochemical Model

Exploration Criteria

Complex structural intersection of regional faults

Potassium depletion (radiometrics)

Carbonate depletion (Ca, Mn)

Anomalous
Au, As, Sb, Hg, Ag, Se, Mo, Pb, W, U, Cu

Felsic Volcanic host rocks

Proximity to basement contact