

Mining District File Summary Sheet

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COMMODITY If not obvious	gold; silver
NOTES	Exploration program summaries; assays; geology; project map Note: Scan dividers 56p.

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)

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THE ROSEBUD MINING COMPANY, LLC.

**2000 EXPLORATION REPORT
PERSHING AND HUMBOLDT COUNTIES, NEVADA**

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September 12, 2000

ROSEBUD MINING COMPANY LLC 2000 EXPLORATION REPORT

Rosebud Mine
Pershing, County NV

EXECUTIVE SUMMARY

Hecla Mining Company assumed the manager of exploration duties during the Rosebud 2000 exploration program, completing a total of 45 drill holes (28 surface and 17 underground) consisting of 52,682 feet (39,345 feet surface RVC, 3,056 surface core, and 10,281 underground core drilling). The exploration program was completed during the first 8 months of the year for a total cost of \$1,298,000.

Underground

The Northwest Corridor target encompasses an area approximately 1,500 feet wide by in excess of 10,000 feet long. The zone begins at the Rosebud deposit and is oriented lengthways along a N55° to 61° W strike. This Target zone was defined as the result of drill hole re-logging and systematic geologic cross-section creation program during 1999. The 2000 underground drilling program was completed from a new drift (St. Louis) driven in order to delineate high-grade gold mineralization more perpendicular to its low angle structural zone host. Prior to the 2000 underground-drilling program, three drill holes intersected high-grade mineralization in two areas separated by approximately 400 feet. Hole 96-356 contained a 10' interval containing 0.357 Au oz/ton. Near hole 96-356, hole RS-D345-99 contained 3.8' of 0.249 Au oz/ton, 5' of 0.311 Au oz/ton, 12.5' of 0.169 Au oz/ton, 3.1' of 0.635 Au oz/ton, 5.6' of 0.888 Au oz/ton, 7' of 0.334 Au oz/ton, and 12' of 0.522 Au oz/ton between 601.2' and 802' down the hole (Target 3 of Rogowski). Located 400' west-southwest from these two intercepts is hole RS-D365-99 which contains 16' of 0.446 Au oz/ton and 9' of 0.522 Au oz/ton within the same low angle structural zone as the intercepts in holes 96-356 and RS-D345-99.

Geologic and assay results from the 17 core holes drilled during the 2000 underground exploration program, sufficiently restricted high-grade gold mineralization to very narrow, pod like (non-continuous), mineralized bodies associated with dilation zones produced between the main shear of the South Ridge fault and one of its spays. Potential within this area is limited and requires no further work.

Surface

Wildrose: The Wildrose target area was sampled and mapped by Craig Byington in the spring of 1999 and by Newmont geologists during the summer of 1999. Byington recommended four drill holes and Newmont recommended six drill holes based on different structural concepts. During the 2000 exploration program, Hecla modified the

target locations and completed 7 reverse circulation drill holes testing the target thoroughly. Assay results from the 7 drill holes were disappointing and no further work is recommended in the Wildrose target area.

Gator: The Gator target area was sampled and mapped several times in the past by Lac, Hecla, and finally by Pete Rogowski for Newmont in May of 1999. Six reverse circulation drill holes were completed in the Gator target area during the 2000-exploration program, bringing the total number of drill holes to 15. Hole RS- 498 intersected 35 feet of 6.62 Ag oz/ton with one five foot interval containing 33 Ag oz/ton within the GZY low-angle structural zone.

The Gator target area continues to contain potential for Rosebud type high-grade orebodies and larger tonnage lower grade stockwork or disseminated bodies associated with the GZY low-angle structural zone. We recommend that future exploration consist of continued detailed mapping and sampling in and surrounding the Gator area in order to: 1) define the location of the GZY structure north of Juniper Canyon; 2) define the location of the Cave and South Ridge faults east and southeast of the Gator area; and 3) define drillable targets down-dip along the GZY low -angle structural zone to the west. The best potential for a new deposit discovery will be down dip along the GZY structural zone, however, increasing depths to over 3,000 feet, will make targeting difficult and drilling expensive.

North Equinox: The North Equinox target area was sampled and mapped by Lac, Newmont, and Hecla. This target area contains a total of 13 drill holes of which Hecla drilled 6 during the 2000-exploration program. Results of this drilling were encouraging in which drill hole RS-489 contained an intercept consisting of 20 feet of 14.93 Ag oz/ton, which includes a five-foot interval containing 54.20 Ag oz/ton. Like drill hole RS-498 in the Gator target area, the intercept in RS-489 is hosted within the GZY low-angle structural zone.

The North Equinox target area also continues to contain potential for Rosebud type high-grade orebodies along the GZY low-angle structural zone. The North Equinox and Gator target areas contain the same target potential and are connected by the dominant GZY low-angle structural zone, which contains strong alteration everywhere it is intersected. It is recommended that future exploration continue to define and drill test structural intersection along the GZY fault zone through detailed mapping and sampling. As in the Gator target area, increasing depths to over 3,000 feet will make targeting difficult and drilling expensive.

Northwest Corridor-East Dreamland: The Dreamland target area is located approximately 2,500 feet northwest of the Rosebud mine. The area contains numerous adits and stopes from previous production and drill holes from Lac, Santa Fe, Newmont, and Hecla. Hole RS-425 drilled in the East Dreamland target area, near the northeastern boundary of the Northwest Corridor target, during the 1997-exploration program by Newmont intercepted 5.9 feet containing 0.819 Au oz/ton within a hydrothermal breccia. During the 2000 exploration program, three reverse circulation drill holes were drilled in

this area. Hole RS-501 was drilled to test the GZY structure near managers knob. Holes RS-502 and RS-503 were drilled to test the up-dip and down-dip extension of the high-grade intercept in RS-425. Assay results from this drilling contained no significant intercepts, which greatly reduced the potential size of an ore body in this area. No further work in this area is recommended at this time.

Northwest Corridor-Degerstrom: The Degerstrom target area contains 11 holes drilled prior to the 2000 exploration program. During the 2000 exploration program, Craig Byington spent time re-mapping the target area, identifying a drill target consisting of the structural intersection between the Cave fault and the north-northeast striking steeply east-southeast dipping Saddle fault within the LBT Formation. One drill hole, RS-493 was drilled to test this structural intersection, but crossed the Cave fault into basement rocks prior to intersecting the Saddle fault.

Potential for a Rosebud sized deposit still exists in this target area and it is recommended that further exploration consist of a least two drill holes testing the Cave fault – Saddle fault intersection within the favorable LBT Formation.

Northwest Corridor-Mother Lode: The Mother Lode target area contains a high-angle vein which is exposed on the surface and contains a Lac drill hole that intersected high-grade silver mineralization consisting of 15 feet of 7.34 Ag oz/ton. Future drilling by Newmont was unable to intersect the vein. During the 2000 exploration program, a low angle fault was interpreted to have fed the vein, terminating the vein at depth, explaining why Newmont's holes were unable to intersect the vein. Three shallow vertical drill holes were drilled to test this target. A low angle fault was not intersected in this drilling nor were any significant assay results received from it. No further work in this area is recommended at this time.

South Ridge Fault Footwall: The South Ridge Fault Footwall target is along the line of intersection between the LBT host rocks for the Rosebud Mine and a low angle fault (Chocolate fault) mapped in Rosebud canyon. Alteration and highly anomalous gold and silver rock samples are exposed in several prospect pits and one short adit in Rosebud canyon in the hanging wall of the Chocolate fault. During the 2000 exploration program, hole RS-505, was drilled to test the intersection between the LBT Formation and the Chocolate fault. The hole crossed the fault at a depth of 1100 feet with BUD-like clastics in the hanging wall (not the anticipated LBT Formation).

Potential for a Rosebud type of ore zone exists in the target area. The geology is very similar to that at Rosebud and the surface expressions are encouraging. It is recommended that a more detailed surface geologic map of the Chocolate mountain and vicinity be completed and after the necessary geologic information is obtained, design a follow up drilling program to test the area thoroughly.

South Ridge Fault Northeast: The South Ridge Fault Northeast target consists of the area of the South Ridge fault east of the mine continuing to the northeast along its projection where it is covered by recent alluvium and talus. The South Ridge fault is

interpreted to curve around to the north from its surface exposure at the Shark Fin outcrops. One drill hole, RS-504, was completed during the 2000 exploration program in this area targeting the structural intersection between the South Ridge and Cave faults. Drill hole RS-504 intersected the South Ridge fault within the Auld Lang Syne Formation and contained 145 feet of stockwork like veinlets with drusy quartz, marcasite, and anomalous gold.

Potential for a Rosebud type of ore zones developed along the South Ridge fault, a known ore controlling structure at Rosebud exists in the target area. It is recommended that detailed mapping and sampling along the eastern margin of the Kamma mountains from the Shark Fin outcrop north be completed. One hole should also be drilled between RS-451 and RS-504 testing the South Ridge fault in an area interpreted to have a large mullion.

INTRODUCTION

The Rosebud deposit is a volcanic-hosted, low sulfidation, epithermal, gold-silver deposit, located within the Rosebud Mining District in northwest Pershing County, Nevada. The deposit and surrounding area is controlled and operated by The Rosebud Mining Company, LLC., a joint-venture between Hecla Mining Company (50%) and Newmont Gold Corporation (50%). Hecla Mining Company is the manager of mining and exploration and Newmont Gold is manager of milling. The deposit consists of three ore bodies currently depleted that were mined underground, predominantly by cut-and-fill methods. The ore was transported to Newmont Gold's Twin Creeks Pinon Mill for processing. Pre-production development began in October of 1996 with production beginning in February 1997. Rosebud production through August 2000 consists of 953,119 tons at an average grade of 0.416 Au oz/ton and 2.42 Ag oz/ton containing 396,026 gold ounces and 2,307,643 silver ounces. Mining on the Rosebud deposit was completed on July 31, 2000 and milling was completed on August 20, 2000.

2000 EXPLORATION PROGRAM

Manpower

Kurt Allen (Hecla Mining Company), Pete Rogowski (Geologic consultant, full time), and Don MacKerrow (Geologic consultant, full time) staffed the 2000 exploration program. Contract geologists Craig Byington (32 days) and John Proffett (4 days) were used for target review and target generation during the first two months of the year. Pete Rogowski, Craig Byington, and John Proffett concentrated on surface exploration, whereas Don MacKerrow concentrated on underground exploration.

Drilling Summary

The 2000 exploration target and drill hole locations are shown in Figure 1. During the 2000 exploration program, a total of 28 surface exploration drill holes consisting of

39,345 feet of reverse circulation drilling and 3,056 feet of core drilling and 17 underground drill holes consisting of 10,281 feet of core drilling were completed. Drilling was completed in nine target areas consisting of the Wildrose, Gator, North Equinox, South Ridge, and various Northwest Corridor target areas. Eklund Drilling was the drilling contractor completing the surface reverse circulation drilling averaging 260 feet per shift over 151 shifts. Boart Longyear was the drilling contractor completing the surface core drilling averaging 35 feet per shift over 88 shifts. Action Drilling was the drilling contractor completing the underground core drilling averaging 84 feet per shift over 123 shifts. The following table summarized the number of holes and footage drilled in each target:

TABLE 1.

SURFACE TARGET AREA	NUMBER OF HOLES	RVC FOOTAGE	CORE FOOTAGE	TOTAL FOOTAGE
Wildrose	7	9,530	0	9,530
Gator	6	8,360	0	8,360
North Equinox	6	9,205	1,496	10,701
Northwest Corridor Degerstrom	1	1,140	1,560	2,700
Northwest Corridor Dreamland	3	6,285	0	6,285
Northwest Corridor Mother load	3	1,835	0	1,835
South Ridge Fault	2	2,990	0	2,990
TOTAL	28	39,345	3,056	42,401
UNDERGROUND TARGET AREA	NUMBER OF HOLES	RVC FOOTAGE	CORE FOOTAGE	TOTAL FOOTAGE
Northwest Corridor 99-365 Area	8	0	4,598	4,598
Northwest Corridor 96-356 Area	9	0	5,683	5,683
TOTAL	17	0	10,281	10,281

Budget vs. Actual

The 2000 Rosebud exploration program and budget discussed herein are in 100% Hecla Mining Company dollars. The approved 2000 Rosebud exploration budget totaled \$1,264,000. The actual dollars spent total \$1,298,067.10. The actual dollars spent are

2.7% over the approved 2000 Rosebud exploration budget. Management and geologic labor totals 10.45% of dollars spent during 2000 with the remaining 89.55 % being spent "in the ground". The following table is a summary of costs by cost center and percentage of total budget:

TABLE 2.

SURFACE EXPLORATION ACTIVITY	APPROXIMATE COST PER FOOT OF DRILLING	TOTAL	PERCENTAGE OF TOTAL SPENT
RVC Drilling (39,345')	\$13.31/FT	\$ 523,614.18	40.3%
Core Drilling (3,056')	\$40.14/FT	\$ 122,666.73	9.4%
Down-Hole Surveying	\$ 0.40/FT	\$ 17,055.00	1.3%
Drilling Additives	\$ 0.87/FT	\$ 36,831.25	2.8%
Assaying RVC Samples	\$ 2.51/FT	\$ 98,789.70	7.6%
Assaying Core Samples	\$ 1.67/FT	\$ 5,089.89	0.4%
Drill Site Preparation	\$ 0.77/FT	\$ 32,601.68	2.5%
Management and Logging Labor	\$ 2.77/FT	\$ 117,280.79	9.0%
Supplies and Misc.	\$ 1.03/FT	\$ 43,647.52	3.4%
Reclamation	\$ 0.58/FT	\$ 24,688.24	1.9%
TOTAL SURFACE	\$24.11/FT	\$1,022,264.98	78.8%
UNDERGROUND EXPLORATION ACTIVITY	COST PER FOOT OF DRILLING	TOTAL	PERCENTAGE OF TOTAL
Core Drilling	\$21.71/FT	\$ 223,230.11	17.2%
Drilling Additives	\$ 1.78/FT	\$ 18,257.48	1.4%
Assaying	\$ 1.31/FT	\$ 13,428.68	1.0%
Management and Logging Labor	\$ 1.78/FT	\$ 18,320.64	1.4%
Supplies and Misc.	\$ 0.25/FT	\$ 2,565.21	0.2%
TOTAL UNDERGROUND	\$26.83/FT	\$ 275,802.12	21.2%
TOTAL COMBINED SURFACE AND UNDERGROUND	\$24.64/FT	\$1,298,067.10	100%

Geology

The Rosebud deposit is generally hosted within a series of Tertiary (late Oligocene-age) volcanics and volcanoclastics, primarily rhyolitic to latitic in composition. The volcanic package unconformably overlies the Jurassic/Triassic-age metasediment basement, which is also host to precious metal mineralization. Ore-grade mineralization at the Rosebud deposit has been divided into three ore zones: the South, East, and North ore zones, although lower-grade 'halo' mineralization generally transcends the spatial boundaries separating these zones.

The structural setting in the Rosebud deposit area is dominated by the northeast trending Cave fault and the east-west trending South Ridge fault. The Cave fault is a regional structure that strikes from N50°E to N60°E and dips between 25° to 30° to the northwest. Stratigraphic offset across the Cave fault displays up to 2,000 feet of apparent normal displacement. The Cave and South Ridge faults were generated from the same deformation event in which the Cave fault represents the main shear and the South Ridge fault represents the conjugate shear. The South Ridge fault is a mineralized, arcuate-striking, sinistral normal fault that generally strikes east-west and dips between 30° and 60° to the north that acted as a conduit for mineralizing fluids during the formation of the Rosebud Deposit. This fault is the footwall boundary to approximately two-thirds of the ore-grade mineralization in the deposit (South + North ore zones) and is the hanging wall boundary to the remaining ore-grade mineralization (East ± North ore zone). Inflections of the South Ridge fault occur and are one of the main controls to the mineralization at Rosebud. These inflections create open and fractured areas during the early sinistral and later dextral movement of the fault. South Ridge fault inflections have been identified in all three of the ore zones.

Structure and stratigraphy control precious-metal mineralization in the Rosebud Deposit. In the South ore zone, gold and silver mineralization occurs on the hanging wall of the South Ridge Fault: 1) in northeast trending (N60°E ±) extension fractures to the sinistral normal movement of the South Ridge Fault; 2) in east-west trending high-angle structures; 3) along flow/bedding planes, and 4) disseminated into specific rhyolitic to latitic volcanic/volcanoclastic facies, where there is a distinct clay-rich, silica-poor association with precious metals. In contrast, mineralization in the East ore zone is characterized by pervasive silica-replacement, silica + illite + nacrite + marcasite +/- pyrite stockwork within the Dozer Formation and Bud Marker Bed "type" of porphyritic rhyolitic dike. East ore zone mineralization is contained within, and in the footwall, of the South Ridge fault and along high-angle structural zones, where during the reverse dextral movement, a transpressional crush zone was created. The North ore zone displays mineralizing styles and controls that are a combination of those seen in both the South and East ore zones.

2000 Results and Conclusions

The following sections of this report contain detailed results and conclusions from the 2000 exploration program. All geologic related maps and cross-sections are located within the individual targets flat file in the exploration trailer.

NWC-UG

2000 UNDERGROUND DRILLING PROGRAM

Rosebud Mine
Pershing, County, NV

SUMMARY

In June of 1998, J.P. Rogowski completed a near mine exploration target identification project as part of the Newmont directed exploration program. One of the potential target areas was northwest of the present mine development. This target was centered around drill hole 96-356 and the down dip extension of the South Ridge fault. Drill hole 96-356 contained 10' of 0.357 Au opt.

Early in the 1999 underground exploration program, RS-D345-99 was drilled from the North Zone cross-cut into the targeted area. RS-D345-99 intercepted mineralization consisting of, 3.8' of 0.249 Au opt, 5' of 0.311 Au opt, 12.5' of 0.169 Au opt, 3.1' of 0.635 Au opt, 5.6' of 0.888 Au opt, 7' of 0.334 Au opt, and 12' of 0.522 Au opt between 601.2' and 802' down the hole. Mineralization is in highly argillized and sheared Dozer formation, and Bud Marker Bed "type" Porphyry. White clays and marcasite are common. Subsequent drilling to offset the RS-D345-99 mineralization was ineffective from the underground stations available. The orientation of the existing underground drill stations relative to the target area only allowed the drilling to be down dip and parallel to the South Ridge fault, cutting both the mineralization and fault at a shallow angle. This limited sample recovery in the target area.

While the 1999 underground exploration program was in progress, K. Allen and C. Muerhoff identified the direction of fluid migration within the South Ridge fault for the Rosebud orebodies. A northwest trending mineralizing corridor was defined as being bounded by the intersection between the Cave fault and the South Ridge fault on the southwest. The rake of the intersection is oriented N55° W; 27°. The northeastern boundary of this corridor is a line defined by the northeast margins of the North and East ore zones. This line is also oriented N55°W.

In the fall of 1999 a program of four surface drill holes, RS-475 through RS-478 were completed in the northwest corridor. Two underground exploration drill holes were also completed to test the northwest corridor. Mineralization was intercepted in the underground drill hole RS-D365-99 consisting of 16' of 0.446 Au opt and 9' of 0.522 Au opt. This hole was offset by RS-D366-99 and RS-D367-99, which contained weaker intercepts (Table 3).

The results of the 1999 underground exploration program and the northwest corridor drilling led to the decision to complete the Saint Louis development drift to facilitate testing of the 96-356 and northwest corridor exploration targets. The Saint Louis drift was completed in February 2000. The Saint Louis drift contained two drilling stations that allowed the preferred near perpendicular orientation to the targeted areas to aid in drilling and recovery.

Seventeen core holes were drilled to test the potential for future mine development on the mineralization encountered in the 1999 drilling programs (Table 4). The drill holes were also planned to give the best opportunity of intercepting a mineralized conduit in the northwest corridor and test the mineralization associated with RS-D345-99. A total of 10,281 feet of core was completed in the year 2000 program. The first phase of the drilling program consisted of eight core holes split between mineralized intercepts in RS-D345-99 and RS-D365-99. This initial phase of drilling was intended to further define target areas approximately two hundred feet from the intercepts and to test the continuity and distribution of potential mineralization over a wide area.

The results of this first phase of drilling did not reproduce the high values and interval lengths of the original samples. Drilling also concluded that mineralization was not continuous between the drill holes. Total hole GT (Table 3) in this drill program never approached the values obtained in 1999. The best mineralization appears restricted near the intercepts in RS-D345-99 and RS-D365-99.

The second phase of the drilling consisted of the remaining nine holes of the program. These holes were used to test the possibility of a more restricted mineralized area. The second phase of drilling helped refine the geologic model for the area but did not succeed in increasing the volume of mineralization within the target zone. The mineralization was modeled to occur within a splay of the South Ridge fault and the dilation zone produced between the two planes of the fault. The results of the 2000 drilling program confirm that the potential of the target area is sufficiently restricted and this serves to reduce the viability of future mine development.

PROGRAM OBJECTIVE

The 2000 underground exploration drilling program was centered on the area identified as the probable corridor of the fluid migration along the South Ridge fault that fed the Rosebud orebodies. The center of the corridor is along a line of intersection created by the flexure of the South Ridge fault between the North and South orebodies. The rake of the intersection is N58°W;34°.

Within the proposed fluid corridor, isolated mineralized intercepts had been encountered during previous drilling but left unexplained. These intercepts were identified by J.P. Rogowski in his "Near Mine Exploration Targets" report. An example of this mineralization would be drill hole 96-356, which contained ten feet of gold mineralization that averaged 0.360 Au opt at 1340-1350 feet. This intercept was tested early in 1999 before the recognition of the mineralizing fluid pathway. Drill hole RS-D345-99 was drilled to intersect the 96-356 area and produced encouraging results (Table 3). Additional underground drilling to offset RS-D345-99 met with limited success in reaching the target and intercepting mineralization. With the identification of the mineralizing fluid corridor four surface and four underground exploration core holes were completed into the target area. The surface holes tested the down dip potential of the South Ridge fault and the fluid corridor target. The underground exploration drilling

was testing for a high-grade fluid channel nearer to the mine. The results of the 1999 underground exploration indicated that there was potential for future mine development, but additional information would be required before a final development decision could be made.

The year 2000 drilling program was designed to locate the area within the mineralizing fluid corridor of maximum flow and define the previously drilled mineralization. The program was planned in two phases. The first would target areas approximately two hundred feet from known mineralization. The second phase planned to refine the new information and to allow a final development decision to be made as soon as possible.

GEOLOGY

Lithology

Three formations were tested during the 2000 drilling program. The drilled stratigraphic column consists of the Dozer Formation (Td), the basal Tertiary sediments of the Oscar Sequence (Tcs), and the underlying Auld Lang Syne (ALS) Formation (JTra). Two intrusive types were drilled during the program and consist of Bud Marker Bed "type" Porphyry in the Dozer, and the fine to porphyritic textured intrusive rocks of the ALS. The Bud Marker Bed "type" Porphyry is locally associated with the mineralization.

The Dozer Formation consists of aphyric rhyolite flows. Flow laminations and monolithic autobreccia textures are also present in the Dozer Formation. All holes were collared in the Dozer Formation and the average thickness encountered in this unit was approximately five hundred feet.

The Bud Marker Bed "type" Porphyry is a rhyolite flow that is alkali in composition in the mine area. Calcite, pyrite, white clay, or chlorite replaces most phenocrysts within the porphyry. This unit is associated with the highest grades of gold mineralization.

The Tcs is a sedimentary package consisting of claystone, sandstone and fine-grained conglomerate derived from andesitic volcanic rocks and the ALS. The Tcs is generally found as faulted slivers or blocks in the South Ridge fault system. The thickness of the Tcs varies from zero to approximately twenty feet, and can be in either depositional or fault contact with the Dozer and ALS Formations.

The ALS Formation consists of interbedded phyllitic shale and fine-grained siltstone, cut by generally concordant fine-grained felsic intrusives, occurring as boudins in the disrupted bedding. Metamorphic quartz masses and graphitic character are indicative of the metamorphism of the ALS.

Structure

Mineralization in the 96-356 was originally proposed to be associated with extension fractures related to the South Ridge fault. With the identification of the fluid migration corridor a second explanation was possible. The results of this year's program indicate that the South Ridge fault is anastomosing in the target area and mineralization is directly associated with planes of the South Ridge fault. The drilling program did not identify a favored conduit for the migration of mineralizing fluids within the planes of the South Ridge fault.

The two dominant shears of the South Ridge fault exist in this area. The upper fault plane is in the Dozer Formation and is intruded by the Bud Marker Bed "type" Porphyry in many locations. The lower plane of the fault lies along the contact of the ALS with overlying units. Imbricated slivers of the Tcs were found along the lower fault plane.

Few extension fractures of the South Ridge fault are found within the program area. They are manifested as narrow, high angle fractures with associated silicification. These fracture zones are not mineralized.

Alteration

The unaltered Dozer Formation contains varying concentrations of hematite. The transition of the hematitic alteration to a zone of propylitic alteration is gradational and not a sharp boundary. The hematite is gradually overprinted and replaced. Results of drilling show argillic alteration replacing all or most of the propylitic alteration peripheral to fracture zones or target mineralization within a unit. The intensity of the argillic alteration can reach a stage where the host rock approaches complete alteration to clay. The Bud Marker Bed "type" Porphyry generally contains the highest levels of observed argillic alteration.

Silicification is also present as drusy quartz fracture filling and veining and varies significantly between drill holes along the South Ridge fault. Three drill targets on the northern edge of the mineralized area (RS-D397-00, RS-D399-00 and RS-D402-00) intersect fault planes containing significant silicification. These occurrences are similar to those seen in the mine area. There is the possibility that these holes represent the southern margin of the fluid conduit we were targeting.

Mineralization

Gold mineralization in the 1999 drill holes RS-D345-99 and RS-D365-99 had total hole grade thickness (GT) of 20.1 and 9.3, respectively. Continued drilling did not reproduce these values. The thickness of the original intercepts may have been exaggerated by drilling down-dip on the fault. With the advantage of drilling from the Saint Louis stations, a truer thickness of the intercepts was accomplished.

Thirteen of the seventeen holes drilled in the 2000 program contained no significant gold intercepts, using a grade cut off of 0.150 Au opt (Table 3). The four 2000 program drill holes containing gold mineralization produced a total hole GT less than that achieved in the 1999 drilling.

Silver mineralization was observed in several drill holes in the form of pyrargyrite. Assays did not indicate significant values for this mineralization.

Barite was present in the South Ridge fault, closely associated with zones containing the highest intensity of silicification.

RECOMMENDATION

The 2000 drilling program limited the distribution of mineralization in the target area. Insufficient gold was present for future mine development to be profitable. The program did not identify a favored channel of fluid migration within the South Ridge fault. If there is a centralized fluid conduit it would be cost prohibitive at this time to locate.

The funding available for future drilling should be used to pursue targets having greater size and grade potential. The greatest potential for success would be to continue evaluation of the remaining portions of the claim block by pursuing the current exploration program.

TABLE 3

Drill Holes	Interval	Width (ft.)	Au opt*	Total Hole GT
SL-D390-00	No significant intercept			
SL-D391-00	No significant intercept			
SL-D392-00	No significant intercept			
SL-D393-00	No significant intercept			
SL-D394-00	403.2-405	1.8	0.279	
	422-427	5	0.374	<u>2.4</u>
SL-D395-00	No significant intercept			
SL-D396-00	No significant intercept			
SL-D397-00	No significant intercept			
SL-D398-00	No significant intercept			
SL-D399-00	No significant intercept			
SL-D400-00	427.5-430.8	3.3	0.177	<u>0.6</u>
SL-D401-00	No significant intercept			
SL-D402-00	456.1-465.2	9.1	0.176	
	508-513	5	0.283	<u>3.7</u>
SL-D403-00	No significant intercept			
SL-D404-00	416.3-417	0.7	0.177	<u>0.1</u>
SL-D405-00	No significant intercept			
SL-D406-00	No significant intercept			
TARGETED MINERALIZATION				
96-356	1340-1350	10	0.360	<u>3.6</u>
RS-D345-99	601.2-60	3.8	0.249	
	620-625	5	0.311	
	668-681	12.5	0.169	
	707.9-711.0	3.1	0.635	
	723-728.6	5.6	0.888	Poor recovery
	750-757	7	0.334	
	790-802	12	0.522	<u>20.1</u>
RS-D365-99	601-617	16	0.446	
	658-667	9	0.245	<u>9.3</u>
RS-D366-99	593.2-593.6	0.4	0.280	<u>0.1</u>
RS-D367-99	713-717	4	0.716	<u>2.9</u>

*Assays 0.150 Au opt or greater

TABLE 4

2000 ROSEBUD UNDERGROUND DRILLING PROGRAM

DRILL STATION	TARGET SECTION	TARGET TESTED	TARGET RANK	DRILL HOLE #	DIP	BEARING	ESTIMATED DEPTH	TOTAL DEPTH	ZONE
Saint Louis 4346	1275	365/SRF	1	SL-D390-00	-55	S55E	800	660	NW Corridor
Saint Louis 4346	1275	365/SRF	1	SL-D391-00	-85	S55E	600	568	NW Corridor
Saint Louis 4346	975	365/SRF	1	SL-D392-00	-36	S15E	650	610	NW Corridor
Saint Louis 4346	1100	365/SRF	1	SL-D393-00	-64	S7W	500	587	NW Corridor
Saint Louis 4335	1500	96-356	2	SL-D394-00	-55	S86E	520	572	NW Corridor
Saint Louis 4335	1450	96-356	2	SL-D395-00	-68	S77E	500	542	NW Corridor
Saint Louis 4335	1375	96-356	2	SL-D396-00	-54	S54E	520	535	NW Corridor
Saint Louis 4335	1650	96-356	2	SL-D397-00	-32	E	660	756	NW Corridor
Saint Louis 4335	1500	96-356	2	SL-D398-00	-68	N9W	520	802	NW Corridor
Saint Louis 4335	1600	96-356	2	SL-D399-00	-49	N76E	600	642	NW Corridor
Saint Louis 4335	1625	96-356	3	SL-D400-00	-51	N87E	600	548	NW Corridor
Saint Louis 4335	1550	96-356	3	SL-D401-00	-69	N65E	600	593	NW Corridor
Saint Louis 4335	1650	96-356	3	SL-D402-00	-61	N61E	650	693	NW Corridor
Saint Louis 4346	1200	365/SRF	4	SL-D403-00	-51	S41E	500	577	NW Corridor
Saint Louis 4346	1175	365/SRF	4	SL-D404-00	-43	S41E	550	512	NW Corridor
Saint Louis 4346	1075	365/SRF	4	SL-D405-00	-42	S23E	550	552	NW Corridor
Saint Louis 4346	1100	365/SRF	4	SL-D406-00	-52	S17E	590	532	NW Corridor

17 holes totalling

991010281

WILDROSE

2000 WILDROSE EXPLORATION PROGRAM

Rosebud Mine
Pershing, County, NV

SUMMARY

The Wildrose prospect was sampled and mapped by Newmont geologists during the summer of 1999 and Hecla Mining Company started a drill program in mid December 1999. Newmont recommended six holes and C. B. Byington recommended four, each based on different structural concepts. Hecla's program was designed to test both ideas. Seven holes were completed on 21 January 2000. Assay results were disappointing and the Hecla staff was satisfied that all the exploration concepts were thoroughly tested. No further work is recommended in the Wildrose area at this time.

LOCATION

The Wildrose prospect is located in the northwestern part of the Rosebud claim block. It lies in Section 1, T 34 N, R 29 E and is centered approximately 17,000 feet N-NW of the Rosebud mine and 4000 feet S-SE of the Brimstone pit. The prospect includes all of the northern part of the Rosebud claim block north from Wildrose canyon and west from the Gator area.

TARGET CONCEPT

After the completion of 1999 fieldwork by Butterfield and Mitchell several drill-holes were recommended that targeted two possible types of ore occurrence. The primary targets were structurally controlled Rosebud Mine type high-grade zones within the LBT/WR rhyolite flows. The secondary targets were large bulk mineable stockwork or disseminated ore zones also within the LBT/WR.

Potential target size and grade of ore on structures would be similar to the Rosebud mine- 300,000 to 2 million tons of 0.25 to +1.0 opt Au. Additionally, ore bodies of +/- 25 million tons of bulk mineable grade were also postulated.

GEOLOGY

The Wildrose prospect lies on the northwest flank of the Kamma Mountains in northwest Nevada. The area of interest is situated within a sequence of andesitic and rhyolitic flows, domes and pyroclastics known as the Kamma volcanics. The drill targets were all structural zones within the LBT/WR rhyolite flow sequence and the stock-like intrusive Wildrose rhyolite porphyry. (For a more detailed discussion of the geology see Mitchell et al 1999).

Lithology

From younger to older the stratigraphy is as follows:

North Andesite (Tna) – A +1000 foot sequence of andesite porphyry flows found only north of Juniper canyon. Plagioclase phenocrysts, 1 to 4mm make up from 5 to 25% and often have a parallel arrangement in a fine crystalline basalt-like matrix. This unit is found on the ridge east of the target area.

Bud-Like Units (BUD) – A series of pyroclastic/epiclastic layers that separate many of the volcanic flows in the Kamma mountains. These can range from a few inches to several hundred feet in thickness and have color varying from pale green to hematitic reddish-brown. Their composition is that of a fine ash matrix with angular volcanic clasts (+90% rhyolite) up to a foot in diameter. The matrix often has a wispy texture and usually contains broken biotites. Obsidian-like basal vitrophyres are seen on occasion.

LBT/Wildrose Rhyolites (LBT/WR) – In the north, this unit is called the Wildrose Formation but is the same unit as the LBT of the mine sequence. In the north it is +/-3000 feet thick. Compositionally it is a series of reddish brown rhyolite flows and flow breccias that are often separated by Bud-like clastics. The flows have a very fine crystalline matrix with 1 to 2% biotite and rare sanidine phenocrysts. The flow breccias could be strongly welded rhyolite tuffs. Vesicular flow tops are rare but autobrecciation is common and individual flows are often strongly flow banded.

Wildrose Rhyolite Porphyry (Twp) – This rhyolite porphyry intrusive is in the center of the target area. It is very similar to the Rosebud quartz latite and is often flow banded. Contacts with the LBT/WR are very difficult to determine in the field and in drill holes. Compositionally it has a fine crystalline pink matrix and has numerous phenocrysts of K-spar and quartz. This intrusive cuts the LBT/WR but not the other units in the area.

Structure

Newmont identified two major structural systems that can be observed on the surface in the Wildrose area, the Wildrose and Juniper canyon faults. A group of anastomosing N-NE striking shallow westerly dipping faults makes up the Wildrose structural zone. The Wildrose structure appears to be a detachment of unknown displacement but assumed to be very large. Numerous small interlinking faults and joints strike N5 to 20E and are near vertical. These appear to be tension fractures associated with the detachment. This structural zone is thought to be a major conduit for mineralization in the area.

The Juniper canyon fault zone is a series of near parallel N70E striking 50 to 65W dipping structures that in total varies from 50 to 100 feet wide. This zone is mineralized

in the same manner as the Wildrose fault. Slick striations on both of these structures strike near N55W.

C. B. Byington identified a third structure that underlies the Wildrose area, the Lizard fault. This structure is not on Newmont's maps. Newmont thought that the main mineralizing conduits and targets were the shallow westerly dipping detachment structures. Byington postulated that the main conduits were the steeply dipping structures that Newmont termed the interlinking faults. The 1999-2000 drilling program was designed to test both interpretations.

Work at the Gator and North Equinox prospects indicates that the GZY fault and probably the Cave and the South Ridge structures lie at depth below the Wildrose area. They are more than likely mineralized but one estimate of the depth to the GZY is 3500 feet.

Hydrothermal Alteration

Kaolinitic argillization, silicification and pyritization are the main alteration products found in the target area. Alunite is found as vein fillings and also as pervasive disseminations over large areas. Most of the surface Alunite is thought to be secondary but deep below the oxidation in several drill holes it occurs as veinlets up to 4mm wide. Pyrite and marcasite are in concentrations from trace to 10% and occur as very fine cubic crystals distal to the structures and as pyritohedrons in the most altered centers. Alteration products are zoned outward from many of the faults with silica being central and advanced argillic kaolinite, dickite and alunite outward for up to 25 feet. Kaolinite also forms pervasively over a 3000 by 5000-foot area. The PIMA was used on + 200 rock-chip samples taken in 1999 to map the alteration zoning.

GEOCHEMISTRY AND MINERALIZATION

Rock-Chip

Rock chip data is available from several different sources prior to 1999 and Newmont added approximately 220 samples from silicified and brecciated structures. Compilations in clear overlay maps form for all of the available trace element data are in the Wildrose flat file. For a detailed description of the statistical evaluation of the data see Mitchell and Westervelt 1999.

Anomalous gold values were found at virtually all the altered outcrops over the entire target area. Values from 50 to 500 ppb are common and individual structures were as high as 6800 ppb. Clear 1 in = 200 feet overlays are in the Newmont flat file.

Silver values were consistent over most of the Wildrose alteration zone with very few altered samples exceeding 2 ppm. A select few taken from strongly mineralized veins were as high as 798 ppm. See the alteration overlays in the Newmont flat file.

Soil

Soil geochemical data from numerous sources is also available for the Wildrose area. There are several soil anomalies with values greater than 50 ppb Au in and around the target area.

Drill Hole Geochemistry

The recent drilling program at the Wildrose prospect started in mid December and finished on January 21, 2000. Prior to 1999 Lac Minerals and Santa Fe Pacific Gold Company completed 8 holes and significant intersections are as follows:

RL-118	Lac - No assay data found,		035 AZ - 45, 640TD
RL-119	Lac - 465 to 570 - 5 ft, 0.010 opt Au, ----- Ag opt,	180 AZ - 45, 500TD	
RL-120A	Lac - 40 to 45 - 5 ft, 0.035 opt Au, 0.10 Ag opt,	020 AZ - 60, 495TD	
	- 110 to 125 - 15 ft, 0.015	0.09	
	- 155 to 175 - 20 ft, 0.015	0.06	
	- 265 to 270 - 05 ft, 0.042	0.27	
RL-120B	Lac - 125 to 135 - 10 ft, 0.010	---	? ? ?
	- 195 to 205 - 10 ft, 0.010	---	
RL-157	Lac - 225 to 235 - 10 ft, 0.010	---	020 AZ - 60, 405TD
	- 275 to 290 - 15 ft, 0.010	---	
	- 295 to 305 - 10 ft, 0.010	---	
	- 320 to 360 - 40 ft, 0.011	---	
97-388	Santa Fe- -----	---	155 AZ - 70, 920TD
97-391	Santa Fe- -----	---	180 AZ - 60, 1400TD
97-392	Santa Fe- 215 to 225 - 10ft, 0.100	---	180 AZ - 60, 1200TD

Drilling from December 1999 through February 2000 is as follows:

RS-479	Hecla - 370 to 440 - 70ft, 142ppb	1.31ppm	099 AZ - 50, 1280TD
RS-480	Hecla - 880 to 885 - 05ft, 264	-----	- 90, 1815TD
RS-481	Hecla - 080 to 180-100ft, 170	2.80	- 90, 1265TD
	- 175 to 180- 5ft, 1005	17.50	
RS-482	Hecla - 345 to 375- 30ft, 202	6.80	- 90, 805TD

RS-483 Hecla	-1260to1270- 10ft, 235	0.90	- 90, 1605TD
	-1300to1320- 20ft, 188	0.90	
RS-484 Hecla	No assays in file		133AZ – 45, 1400TD
RS-485 Hecla	- 595 to 610- 15ft, 149	17.8	133AZ – 50, 1360TD

GEOPHYSICS

Newmont Geophysicists have presented the geophysical data as interpretive overlays that are in the flat file at the Rosebud mine. No written reports are available.

Induced Polarization No induced polarization data.

Resistivity A resistivity survey was conducted by Lac Minerals in the Wildrose area. A hand contoured map shows a strong correlation between low values, positive gold anomalies and exposed or inferred faults. This map is in the flat files at Rosebud.

Magnetics An airborne magnetic survey shows a dominate set of 050 degree trending low relief structures that are coincident with anomalous rock chip geochemistry. This appears to reflect hydrothermal alteration. A combination of gravity and magnetic modeling indicates the presence of an intrusive body in the Wildrose target area (See Mitchell et. al. 1999). There are no ground magenitic surveys to date.

Radiometrics The radiometric signature at Wildrose is similar to alteration related anomalies at other localities in the Rosebud area.

Gravity A wide spacing gravity survey was conducted by Newmont which may not reflect small features at the Wildrose prospect. A written analysis of this survey is not available.

Thematic Mapper Clay alteration is indicated for most of the Wildrose area and there is also a 070 to 090 hydrothermal lineament.

PRODUCTION HISTORY

No record of past production has been found for Wildrose.

POTENTIAL AND RECOMMENDATIONS

The target areas at the Wildrose prospect have all been drill tested. An exception may be the area under alluvial cover to the west but several drill holes up dip on the Wildrose structure from this proposed target do not look promising. Nevertheless, the possibility still exists that the GZY, Cave and other low angle structures are at great depth under the Wildrose area and are almost certainly mineralized. One estimate of the depth to the GZY is +3500 feet. At this time no further work can, in good conscience, be recommended at the Wildrose prospect.

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GATOR

2000 GATOR EXPLORATION PROGRAM

Rosebud Mine
Pershing, County, NV

SUMMARY

In May of 1999 three trenches were cut, the area was mapped, and a limited number of reconnaissance rock-chip samples taken peripheral to the central alteration. Previous surveys were tied to the state plane grid. Factual geologic and alteration maps with interpretive overlays and sections were produced. A four-line IP survey was completed and previous geophysical data reinterpreted. The existing data was presented in Winnemucca on 3 June 1999 and drill sites along with seven drill holes selected. Drilling began on 8 June 1999 and nine holes were completed by 7 July 1999 for a total of 5,560 feet.

The geologic mapping and drill-hole data were very encouraging. The mapping revealed several strongly altered and mineralized areas that appear to be controlled by major near N-S structures. The drill holes verified the presence of gold bearing fault-controlled mineralization along the Gator structural zone. They also indicate that grades may be increasing down dip to the west and verified that the best Au samples from the surface correspond with the highest drill intercepts. The Gator fault, at present, is thought to extend from the North Equinox area through the Gator and on to the north for a total of +10,000 feet. Mapping indicated that the Gator fault is dipping to the west at 40 to 45 degrees but drill hole intercepts suggest a shallower dip, +/-35 degrees. Vertical thickness of silicification and pyritization in the Gator area ranges from 100 to 300 feet and occurs in both the footwall and hanging wall (See drill holes RS-461 through RS-469). The drill hole geochemistry reveals that the mineralizing system is very strong and zoned outward from the structure into both the hanging wall and footwall. At present there is not enough drill hole data along strike to ascertain with reasonable certainty any geochemical zoning in plan. Nevertheless, surface rock chip geochemistry on Wildrose Peak and in the Wildrose exploration area is very anomalous in Hg and related distal elements. This may indicate aerial zoning and/or the vertical expression of ore at depth along the Gator or related structures. Several drill holes have been recommended as a second pass follow-up to explore the down-dip possibilities on the Gator structure.

Changes that have occurred during the 2000 Gator exploration program are: 1) The completion of 6 additional RC holes between 15 March and 1 August 2000; 2) The renaming of the Gator fault to the GZY Structure; 3) A more detailed map of the Juniper Canyon zone was completed; 4) The realization that the exploration of this prospect has found that the area of mineral potential extends much further to the north than originally anticipated; 5) That there are additional flat faults at depth under the GZY Structure and that they are probably mineralized; and 6) The Gator porphyry and breccia are now thought to be RBQL type porphyries of the Chocolate Fm.

A six hole drilling program at Gator found that mineralization continues down dip on the GZY structure. Hole RS-498 in the center of the northwest trending Gator/Wildrose alteration zone intersected 35 feet of 6.62 opt Ag with one five foot interval of 33 opt Ag. Also, hole RS-500 drilled on the north side of the Juniper canyon structure did not reach the GZY structure but did cut a 20 foot interval averaging 877 ppb Au and 9 ppm Ag. The highest value in this hole is 1518 ppb Au. More surface geologic work is recommended before starting a future drilling program.

LOCATION

The Gator prospect is located in the western part of Section 6, T 34N, R 30E from 10,000 to 15,000 feet north of the Rosebud mine.

CONCEPTUAL TARGET

Three targets are suggested in the Gator area:

- A) Rosebud type orebodies down dip to the west and/or along strike to the north or south on the Gator or related faults.
- B) Fracture-controlled stockwork ore zones above the Gator or related faults extending upward along fractures and breccias into zones that are within the gold deposition envelope.
- C) Underlying the Gator area are the Cave and the SRF (South Ridge Fault) and these may both contain ore grade mineralization.

Potential target size With a strike length along the GZY and other structures in the Gator area of +10,000 feet and the down-dip alteration possibly extending to the west for more than 6000 feet, there could be numerous small or a few very large ore deposits.

Grade potential Unknown, but assumed to be ore grade. Epithermal deposits in this setting are commonly very high grade.

GEOLOGY

Lithology

Volcanic units exposed at the Gator prospect are LBT/Wildrose (LBT/WR), Bud-like InterLBT ignimbrites and epiclastics with obsidian layers (EpiC), LBT flow or auto breccias that may have epiclastics at their tops (LBTBx), Gator porphyry (Tgp) and Gator porphyry flow breccias (TgpBx), North Andesite flows (Tna), Andesite intrusives (Ta) and related basalt-like dikes (Tb) and an isolated occurrence of a single quartz porphyry dike (Tqp) that is very similar to the Tgp. The Badger Formation (Tbg) consists of both

volcanic flows and detrital sedimentary units. (See the attached Gator Stratigraphic Explanation for more detailed unit descriptions)

During the 2000 Gator exploration program, the Gator porphyry (Tgp) and the Gator porphyry flow breccias (TgpBx) have been reinterpreted as RBQL (Rosebud Quartz Latite) type porphyries and breccias that make up most of the Chocolate Formation.

Structure

At present, one E-W and four large to major near N-S faults have been identified in the Gator area and are described as follows:

- 1) The 4800E structure – An unexposed fault that runs almost directly up the 480,000E coordinate line. The location of this structure was determined from float contacts only. The dip observed during surface mapping was estimated to be +/-45W, but the IP survey suggests that it may be somewhat steeper –60 to 80W. The one drill hole that penetrated this structure (RS-466) was not definitive concerning dip. At present it is not thought to be mineralized and could be post-mineral. Displacement is unknown.
- 2) The GZY fault zone (formerly named the Gator fault zone) – The primary conduit for mineralization in the area is the GZY fault. This structure may be made up of one major and several near-parallel associated faults. The general trend is N5W to N10E and extends from the ZZ fault east of North Equinox through the Gator area and on to the north for a total of +10,000 feet. Additionally, there is a chance that this structure may continue south from the ZZ fault and could be the same as the YK structure. Dips mapped on the surface and in the trenches are 40 to 45 degrees west but the drill intercepts indicate +/-30W. The GZY may in fact be a listric fault, if so, the dip could flatten and extend this structure all the way to the western range front.
- 3) The 4823E fault – A near N-S structure on the 482,300E coordinate line extending from the East fault south for several thousand feet and out of the area. It appears to have normal displacement and dips +/-80 degrees east. In one location the LBT/WR is placed against the Gator porphyry (Tgp) on the east. This fault may be mineralized on the north end.
- 4) The East fault - Located at the east edge of the Gator area and may have major displacement. Strikes N10 to 15W and is near-vertical. Outcrops were not observed, but it has a strong air photo trace and could extend from well to the north, near the Sulphur pit, to south of the Gator area. In drill hole RS-469 in the vicinity of the 4823E structure it has strong alteration associated with it. It may also be strongly altered in the central part of the North Ridge sheet.
- 5) The Juniper Canyon fault – An E-W structure thought to run directly down Juniper Canyon. Located in the northwest part of the Gator quad and separates the Tna from the LBT/WR. Unknown vertical displacement but may have left-lateral movement.

Also unknown is whether or not this structure is mineralized. It appears to cut off the 4800E fault and has an air photo trace that extends to the east into the Tbg. On the south side of Juniper Canyon there are a series of northerly dipping N70E mineralized minor faults that do not cross the drainage. On the north side of the canyon there are numerous N20 to 40E mineralized structures that also end in the canyon bottom. Previous workers in the area thought that the N70E faults were the Juniper Canyon fault. Further mapping to the west should resolve which is correct. The intersection of the Gator structures and the Juniper Canyon fault is buried beneath the Tbg and Qa. It should be noted that mapping to the north of the Gator area has revealed a northerly striking fault with a -30W dip that has +/-80 horizontal feet of intense silicification and pyrite with strong brecciation in the hanging wall and that slick striations, like so many others, point N55W. This structure could be the offset portion of either the 4800E or the GZY faults. If so, this would indicate left-lateral displacement on the Juniper Canyon fault.

During the summer of 2000 Don MacKerrow and Pete Rogowski mapped the south side of Juniper canyon in detail. They confirmed that the Juniper canyon structure was the N70E zone on the south side of the valley and also found that it was strongly mineralized. Hole RS-497 later found this broad zone to be very anomalous in Au and Ag. The dip on this zone is thought to be 55 degrees to the north.

- 6) The Cave and the South Ridge faults may have joined further to the south and could be deep under the Gator area with the ALS (Auld Lange Syne Formation) in their footwall similar to the mine section at the Rosebud Mine.

Mineralization

Surface mapping and drill hole logging reveal strong silica replacement of the rock types adjacent to the GZY structure in an envelope 100 to 300 feet thick. Silicification ranges from outlying mixed silica and clay to central long intersections of +90% silica. Associated with this silica is pyrite occurring as disseminated cubes and pyritohedrons and as fracture filling or veinlets. Generally, pyrite is below 5% but locally exceeds 50%. Marcasite was not observed with the GZY structure but is found in minor amounts at depth in drill hole RS-467. Rare pyrrhotite also occurred with this marcasite. The oxidization zone in the drill holes extends from 50 to 100 feet and contains very strong hematite, goethite and jarosite with rare scorodite and alunite. The alunite is confined to fracture fillings and almost certainly secondary as none was identified below the oxidization. Kaolinite was the only clay mineral found using the PIMA for both surface and drill hole samples. An interesting occurrence of what appeared to be cream colored silica showed only kaolinite on the PIMA. This is thought to be silica-encapsulated kaolinite. More PIMA work will probably help. A single occurrence of barite crystals in a narrow brecciated fault is exposed in a prospect pit at the NE corner of Wildrose peak. The 2000 drilling program revealed that deeper on the GZY fault, marcasite occurs in abundance and alunite less so. Gold mineralization increased only marginally but silver increased dramatically.

Gold in sub-ore grades occurs throughout the silicified and pyritized portion of drill holes and surface samples. Gold ranges in continuous intersections from 50 to several hundred ppb and where the highest pyrite is found also occurs the highest gold. Silver is also low-grade, and is directly associated with the gold. Drill hole RS-500 in the far north intersected 1518 ppb Au (0.044 oz). This 20-foot zone did not appear to be on the GZY structure. Additionally, hole RS-498 cut 35 of feet 6.62 opt Ag on the GZY.

(1999) Significant drill hole gold (ppb) and silver (ppm) averages are as follows:

- RS-461 - 160 feet, 161ppb Au, 5.02ppm Ag.
- RS-462 - 35 feet, 634ppbAu, 5.30ppm Ag. or 185 feet, 306ppb Au, 2.83ppm Ag.
- RS-464 - 70 feet, 208ppb Au, 0.88ppm Ag and 100 feet, 64ppb Au, 0.74ppm Ag.
- RS-465 - 210 feet, 170ppb Au, 1.24ppm Ag.
- RS-466 - 55 feet, 267ppb Au, 3.04ppm Ag; and 95 feet, 256ppb Au, 4.0ppm Ag; and 70 feet, 176ppb Au, 4.0ppmAg.
- RS-467 - 65 feet, 169ppb Au, 1.85ppm Ag; and 110 feet, 335ppb Au, 3.05ppmAg; 60 feet, 161ppb Au, 3.48ppm Ag.
- RS-468 - 155 feet, 167ppb Au, 1.57ppm Ag.

(2000) Significant drill hole intersections are as follows:

- RS-494 - 815 to 880 – 65 feet 134ppb Au and 7.67ppm Ag. 1200 TD.
- RS-497 - 60 to 340 – 280 feet of 180ppb Au and less than 0.6ppm Ag;
385 to 555 – 170 feet of 143ppb Au and 0.6ppm Ag;
1560 to 1650 – 90 feet of 114ppb Au and 2.8ppmAg. 1780 TD.
- RS-498 - 1605 to 1640 – 35 feet of 75ppb Au and 227ppm Ag(6.62 oz). 1955 TD.
- RS-499 - 875 to 905 – 30 feet of 262ppb Au and 5.8ppm Ag;
1005 to 1025 – 20 feet of 281ppb Au and 4.9ppm Ag. 1335 TD.
- RS-500 - 1300 to 1320 – 20 feet of 877ppb Au and 9.0ppm Ag. 1450 TD.
- RS-506 - TD at 640, end of money, end of project and still in Badger Fm. No Assays at present, and do not expect much in the way of Au.

HYDROTHERMAL ALTERATION

Type and Intensity

A detailed study of the alteration at Gator has not been attempted to date. Surface and drill hole estimates of argillization are based on visual estimates of "bleaching" and this could encompass alunite mixed with kaolinite and/or montmorillonite (smectite). Several samples were analyzed using a PIMA and only kaolinite and alunite were found. Silicification is less ambiguous. An alteration overlay is included in the Gator file that was made from field observations (10% outcrop and 90% float).

Areal Extent

"Using air photos and limited observations obtained during the first visit, a bleached area approximately 2000 x 500 feet was indicated". This 2 February 1999 statement for the central Gator area is still valid but at present has been expanded to include outlying areas found during the current mapping program. Of particular interest are the large areas of "bleaching" associated with numerous narrow brecciated and silicified faults that are found on the south, east and north sides of Wildrose Peak. It is assumed that mineralizing solutions moved up-dip along the Gator structure and into the hanging wall. If so, this is probably the source of mineralization and alteration on Wildrose Peak and possibly even further west in the Wildrose exploration area. During the 2000 drill program it became apparent that the alteration at Gator extends several thousand feet further to the north along the east side of the North Andesite ridge.

GEOCHEMISTRY

Surface Geochemistry

Lac Minerals and Hecla Mining Company collected soil sample data in the Gator target area prior to 1999. A moderate intensity Au anomaly was found. Au values show a 12 ppb closed contour with a high value of 186 ppb. There are also several low-value outliers. Trace element maps for Cu, Pb, Zn, Ag, Mn and Sb indicates that these elements do not correspond with the Au values. Limited rock chip data is available for the Gator area. Additional samples were taken around the periphery of the existing data during February 1999 and overlays were constructed for several different elements. These can be found in the Gator file. Noteworthy is that virtually all the samples taken from altered outcrops contain anomalous gold.

It should be mentioned that several previous soil and outcrop sample sites were re-sampled. The high gold value found in the creek on the south side of Gator hill was not repeatable but is still very anomalous. Also, the very high silver values found on the western soil lines were not repeatable.

Drill Hole Geochemistry

All drill holes were assayed on five-foot intervals for Au and Ag by 30gm fire AA. Also, 20 foot composites were made at the lab and assayed by ICP for trace elements. All assay sheets are in the drill log files. Plots for each drill hole are on a single sheet in the Gator file.

In the drill holes, a pattern of zoning is present for several elements. Au, Ag, Sb, Cu, Mo and Se appear to be centered on the core silicification which generally lies just above or below the main GZY structure. Extending progressively outward from the highest gold values are Sb, As, Hg and Zn. Depleted elements in the central core are Ca and Mn and these appear to be re-deposited on the outside.

A statistical analysis of this data has not been attempted at this date. Perhaps Robert Jackson should take a look at the Gator assays and integrate this data into his geochemical compilation of the Rosebud area.

PRODUCTION HISTORY

Past Production

No past production has taken place in the Gator target area.

GEOPHYSICS

Newmont Geophysicists assisted in the presentation of both the reinterpreted older data and the 1999 IP and gravity surveys at the 3 June 1999 review in Winnemucca. The data has been presented as interpretive overlays only and no written material is available.

Induced Polarization and Resistivity An IP survey at Gator was not found in the old files and is presumed nonexistent. Consequently, a contract was given to Zong Geophysical and four lines with 500 foot dipoles were finished during May of 1999. Zong supplied data only without a report. Newmont built several interpretive maps from this data and these are located in the Gator file. Written interpretations were not supplied with these maps.

Magnetics Zong Geophysical conducted a ground magnetic survey in 1997 (Zong Job # 9724). Zong presented the data without interpretation. Newmont geophysicists have persented interpretive maps of Zong's work plus older airborne surveys. These maps are in the Gator file.

Radiometrics K, Th, U, and total count surveys are available for this area in the Gator file.

Gravity A gravity survey was conducted by Newmont during 1997/98 on 800 foot station intervals. During the Spring of 1999 the station density was increased to 400 feet. This data is available as interpretive overlays in the Gator file.

Thematic Mapper Data from recent interpretation of this imagery indicates a small clay and iron anomaly at the south end of the Gator prospect. These maps can be found in the Gator file.

DRILL HOLES

Past Drilling

Prior to 1999 - None. At present there are 13 RC holes in the area. Footage to Date, during 1999 - 5560 feet and 2000 - 8360 feet for a total of 14,920 feet.

1999 Drill Program

Nine drill holes, RS-461 through RS-469, were completed between 8 June 1999 and 7 July 1999 for a total of 5560 feet. The logs with attached cover sheets can be found in the Gator file.

2000 Drill Program

Six drill holes, RS-494, RS-497 through 500 and 506 were completed between 15 March and 1 August 2000 for a total of 8360 feet. Drill logs with attached coversheets and assays can be found in the drill log files.

POTENTIAL AND RECOMMENDATIONS

The potential target area down-dip from the Gator prospect may cover more than two square miles. Two types of ore occurrences are possible at the Gator prospect along the GZY and other deeper flat dipping structures: 1) Rosebud Mine high grade orebodies ranging from 0.5 to 2 million oz Au. 2) Larger tonnage lower grade stockwork or disseminated bodies that could be mined by open pit methods - 1 to 5 million oz. Au deposits.

Due to the expense in exploring such a large area, drill target selection must be based on all of the available data. Logic dictates that exploration of the Gator and other structures should progress down dip toward the best surface and drill hole expressions. During future exploration programs it must be kept in mind that many, if not all, of the flat faults in the Gator area probably have some degree of post-mineral movement. The numerous slick striations and mullions on these flat structures point near N55W and mineral deposits will probably be greatly influenced by this direction.

Future work at Gator should include:

- 1) Continue mapping and sampling north of the Gator area. If soil sampling is not an option, then numerous rock-chip samples from both altered and unaltered outcrops may be the only method for identifying targets based on geochemical trace element zoning and/or alteration mineralogy. Structure must also be carefully considered. A specimen should be taken at each sample site for PIMA or if using XRD the sample pulps will suffice and be more representative.
- 2) After the above field work, design a drill program that will determine: A) What happened to the GZY structure to the north of Juniper canyon; B) Where the alteration is coming from that is deep under the Gator area; C) Determine where the Cave and South Ridge faults are to the east and southeast of the Gator area; D) Give serious consideration to continue down dip exploration of the GZY structure from drill hole RS-498 northwest toward the Wildrose prospect.

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NORTH EQUINOX

2000 NORTH EQUINOX EXPLORATION PROGRAM

Rosebud Mine
Pershing, County NV

SUMMARY

The North Equinox target area is located approximately 10,000 feet north-northwest from the Rosebud Mine. No production is known from the North Equinox target area and only a few prospect pits are present.

The North Equinox target area prior to the 2000 exploration program contained 7 drill holes (4 by Lac, 1 by Santa Fe, and 2 by Newmont) containing up to 20 feet of 0.027 Au oz/ton from 400' to 420' in hole RS-473. Mineralization within this intercept consists of fine-grained pyrite, silica veinlets, and minor white clay.

During January 2000, Craig Byington and John Proffett spent two days looking at the North Equinox area. Byington defined a drillable target in the North Equinox area and recommended drilling one hole to test the target. The target was defined as the structural intersection between the northerly striking westerly dipping low-angle GZY fault and the east-west striking steeply south dipping 212 fault zone. Six drill holes (RS-489, 490, 491, 492, 495C, and 496) were drilled into this target area during the 2000 exploration program.

Results of the first drill hole RS-489 in the North Equinox target area during the 2000 drill program were encouraging, as it intersected several zones of plus 100-ppb gold up to 0.016 Au oz/ton and a high-grade silver zone. The silver zone consists of 20 feet of 14.93 Ag oz/ton from 1495 to 1515 feet. Contained within this zone is 5 feet of 54.20 Ag oz/ton from 1495 to 1500 feet. Alteration within this hole contains large portions of silicification, pyrite, marcasite, white clay, +/- pyrrargyrite, and +/- chalcopyrite. Results from the other five drill holes were disappointing and contained no significant intercepts, however, they all contained strong alteration zones similar to those observed in RS-489 and anomalous gold and silver.

PROGRAM OBJECTIVE

The objective of the 2000 exploration drilling program in the North Equinox target area was to re-evaluate the structural setting and to drill test any drillable target resulting from this re-evaluation. The work resulted in five drill holes testing the structural intersection between the GZY fault, the 212 fault zone, and the Gully fault within the LBT Formation.

GEOLOGY

Lithology

The dominant rock units in the North Equinox target area on the surface belong to the Chocolate Formation characterized by extrusive rocks of various RQL and Gorilla type porphyries, and minor sub-crop of epiclastics belonging to the Bud Formation. In drill holes, the entire sequence of rock formations were intersected including ALS Formation, Tcs Formation, Dozer Formation, Tos Formation, LBT Formation, Bud Formation, and Chocolate Formation.

Structure

The GZY, 212, and Gully fault zones dominate the structural fabric in the North Equinox target area. The largest and strongest fault zone in the area is the GZY fault zone, which strikes north and dips 25° to 35° west. The GZY fault was previously known as the Yellow Knob fault in the mine area, the ZZ fault in the North Equinox area, and the Gator fault in the Gator target area. The name of the fault was changed to the GZY fault when it was realized that they were all the same large low-angle fault that has a strike length in excess of 12,000 feet.

Hydrothermal Alteration

Alteration in the North Equinox target area is structurally and lithologically controlled. Silicification, pyritization, and minor argillization are widespread within the Chocolate porphyries surrounding the 212 structural zone. Propylitic and argillic alteration dominates the Bud Formation whereas silicification and propylitic alteration dominates the LBT and Dozer Formations. The GZY fault and surrounding rocks are strongly silicified, moderately argillized and propylitized as you move away from the structure, and mineralized consisting of pyrite, chalcopyrite, white clay, marcasite, calcite, and pyrrargyrite.

GEOCHEMISTRY

The North Equinox area contains zones of anomalous Au, Ag, Se (As, Sb, Hg, Pb, and Mo). Several surface rock chip samples from the North Equinox area contains Au >0.10 ppm or Ag >1.0 ppm but samples rarely contain both. Compared to the Rosebud ore bodies, rock chip samples have comparable As but much higher Sb and Hg and lower Se. A multi-sample soil anomaly with >0.050 ppm Au occurs at North Equinox and covers an area of approximately 700 ft. X 500 ft.

GEOPHYSICS

Numerous geophysical techniques have been applied to the North Equinox area by various companies involved with the property. Methods used were Induced Polarization, Resistivity, Magnetics, Radiometrics, Gravity, and Thematic Mapper. The geophysics

data is available in the flat files and discussed in detail in the 1999 Rosebud Project Review by P. Mitchell.

DRILL HOLES

A total of 13 drill holes have been drilled in the North Equinox target area by Lac (4 holes), Santa Fe (1 hole), Newmont (2 holes), and Hecla (6 holes). The 4 holes drilled by Lac were shallow holes looking for shallow oxide mineralization. The 1 hole drilled by Santa Fe (97-387) was drilled to test the 212 structure at depth and an IP high. Hole RS-447 drilled by Newmont was to test the down-dip extension of the Gully fault but the hammer flooded out at a depth of 1,600 feet prior to intersecting the structure. Hole RS-473 was drilled to test the intersection of the 212 fault and the GZY fault at a depth of 1,800 feet. This hole began to have problems at 600 feet and was terminated at a depth of 1,345 feet, short of the target. The 6 holes drilled by Hecla during the 2000 exploration drilling program (RS-489, 490, 491, 492, 495C, and 496) were drilled targeting various structural intersections between the GZY, 212, and Gully fault zones.

Results of the first drill hole RS-489 in the North Equinox target area during the 2000 drill program were encouraging, as it intersected several zones of plus 100-ppb gold up to 0.016 Au oz/ton and a high-grade silver zone. The silver zone consists of 20 feet of 14.93 Ag oz/ton from 1495 to 1515 feet. Contained within this zone is 5 feet of 54.20 Ag oz/ton from 1495 to 1500 feet. Alteration within this hole contains large portions of silicification, pyrite, marcasite, white clay, +/- pyrrargyrite, and +/- chalcopyrite. Results from the other five drill holes were disappointing and contained no significant intercepts, however, they all contained strong alteration zones similar to those observed in RS-489 and anomalous gold and silver. Hole RS-495C, within the GZY fault zone contained silicification, marcasite, stibnite, pyrite, and calcite.

POTENTIAL AND RECOMMENDATIONS

The results of the 2000 drill program in the North Equinox target area were encouraging and the potential for a Rosebud sized deposit exists in this target area. The potential host structure is the GZY fault zone, which contains strong alteration everywhere it is intersected. It is recommended that future exploration continue to define and drill test structural intersections along the GZY fault zone through detailed mapping and soil and rock chip sampling. Continued exploration in this target area will be expensive as the down-dip potential quickly reaches depths in excess of 3,000 feet.

REFERENCES

Mitchell, P., 1999 Rosebud Project Review, Pershing County, Nevada: Unpublished Rosebud Mining LLC.

2000 EAST DREAMLAND EXPLORATION PROGRAM

Rosebud Mine
Pershing, County, NV

SUMMARY

The East Dreamland target area is located in a saddle between the original Rosebud Silver mine and the Mother Lode prospect area. The saddle area is approximately 2,500 feet northwest of the present Rosebud mine. The Dreamland East area has numerous adits and stopes from previous production.

Mineralization was modeled to be along east-west striking shear zones with strong argillization, silicification, and/or quartz stockwork. There was also a possibility that the mineralization was partially related to the GZY fault.

The East Dreamland target had six previous drill holes in the area of interest. Drill hole RS-425 was drilled in December of 1997 and intercepted 5.9' of 0.819 Au opt. Within that interval was 2.9' of 1.394 Au opt. Two drill holes, RS-502 and RS-503, were completed in July 2000 to test the extent of the RS-425 mineralization. The objective was to test the high angle shear zone, above and below, the known mineralization. The assay results from the 2000 drilling did not achieve the levels intercepted by RS-425. RS-502 contained a maximum value of 5' of 0.009 Au opt from 325-330. RS-503 contained 25' of 0.004 Au opt from 1895-1920.

The results of the 2000 exploration drill program decrease the East Dreamland potential. Recent drilling has reduced the potential size of the ore bodies in the East Dreamland target. No further work is recommended at this time.

PROGRAM OBJECTIVE

The objective of the 2000 drilling program was to intercept and extend high grade Au mineralization originally drilled in RS-425. The RS-425 intercept was believed to be in a east-west trending shear zone. The drill holes were also expected to cross the GZY fault where Rosebud-style fracture network mineralization was a possibility.

GEOLOGY

Lithology

The dominate formations of the East Dreamland target area consist are the Badger (Tbg) and Chocolate Formation (Tc). The Chocolate Formation was characterized by extrusive rocks of various Rosebud Quartz Latite (RBQL) type porphyries, lava flows, and quartz

latite tephra pyroclastic breccias. Intrusive phases include 'Gorilla' porphyry andesite and variations of the RBQL.

Structure

The East Dreamland target area is dominated by a series of east west steeply dipping ($>80^\circ$) shears that have had small scale production along them in the past. The shear zones can be followed for some distance toward the west. The low angle fault that was mined at the original Rosebud Silver mine may be cut off to the north by these east west shears or merged with them. The low angle GZY fault was modeled in the target area. Identification of the fault in the reverse circulation cuttings was inconclusive.

Hydrothermal Alteration

Propylitic alteration is the most general hydrothermal alteration in the East Dreamland area. The propylitic alteration is overprinted by argillic alteration and silicification which is controlled by contacts and shears. There is a general increase in argillic alteration when the Dozer Formation is entered. Silicification remains restricted to fractured areas.

GEOCHEMISTRY

The East Dreamland area has been rock-chip and soil sampled by various companies involved with the district. Weak gold anomalies occur in the rock-chip and soil samples in the East Dreamland area. Values greater than 1000 ppb Au have been obtained in rock chip samples. Soil sample in the area reached as high as 500 ppb Au. In July of 2000 two samples were taken from the Dreamland number five adit. The first sample (67509) was taken across the back near the face and ran 0.078 Au opt and 0.502 Ag opt. A second sample (67510) collected from a fault zone containing marcasite ran 0.183 Au opt and 0.767 Ag opt. Surface and underground sample data can be found in the Dreamland map flat files.

GEOPHYSICS

Numerous geophysical techniques have been applied to the East Dreamland area by the various companies involved with the property. The methods used were Induced Polarization, Resistivity, Magnetism, Soil Susceptibility, Radiometrics, Gravity, and Thematic Mapper. The level of use of this data in previous work is unclear. The geophysics data is available in the flat files.

DRILL HOLES

A total of eight drill holes have tested the East Dreamland area. These holes were drilled by Freeport, Newmont, and Hecla. The two Freeport holes were drilled 500 feet for

shallow oxide mineralization. Newmont drilled four core holes for the Rosebud Joint Venture attempting to intercept deep sulfide mineralization. Two drill holes were completed in July as part of the 2000 Hecla exploration program. The two Hecla Mining drill holes were RS-502-00 and RS-503-00. Results are in the following table.

2000 Exploration Drill hole Statistics

Drill Hole	Azimuth (°)	Angle (°)	Interval (ft)	Depth (ft)	Au* (opt)	Ag (opt)
RS-502-00	140	-65	5	325-330	0.012	0.04
			10	1015-1025	0.008	0.11
RS-503-00	345	-48	5	15-20	0.008	0.0
			10	1905-1915	0.008	0.16

* intervals >.005 Au opt

POTENTIAL AND RECOMMENDATIONS

The two drill holes completed in July 2000 did not intercept significant intervals of Au mineralization. Limitations on the possible size of ore chutes in the area must now be recognized. The Hecla 2000 drilling tested the possibility of high-angle fault related mineralization. The only other explanation for the mineralization in RS-425 is that it is related to a low angle splay of the GZY fault. Similar splays have been observed along the plane of the South Ridge fault. This type of mineralized occurrence has been found to be limited in its dimensions. No further work is recommended at this time on the project area.

REFERENCES

Mitchell, P., 1999 Rosebud Project Review, Pershing County, Nevada: Unpublished Rosebud Mining L.L.C., 69-73.

2000 DEGERSTROM EXPLORATION PROGRAM

Rosebud Mine
Pershing, County NV

SUMMARY

The Degerstrom target area is located approximately 5,000 feet northwest from the Rosebud Mine. No production is known from the Degerstrom target area, however, prospect pits are numerous and minor underground workings are present.

The Degerstrom target area prior to the 2000 exploration program contained 11 drill holes (10 by Lac and 1 by Newmont) containing up to 5 feet of 0.207 Au oz/ton from 1,850' to 1,855' in hole RS-474C. Mineralization within this intercept consists of fine-grained pyrite, minor silica veinlets, and clayey gouge near the base of the Tos Formation.

During February 2000, Craig Byington spent a week re-mapping the target area and identified a drill target consisting of the structural intersection between the Cave fault and the north-northeast striking steeply east-southeast dipping Saddle fault within the LBT Formation. One hole (RS-493) was drilled to this target during the 2000 exploration program. This hole contained no significant intercepts as it intersected the basement rocks prior to hitting the target structural intersection.

The results of drill hole RS-493 in the Degerstrom target area during the 2000 drill program were not encouraging, however, this hole appears to have missed the structural target. Potential for a Rosebud sized deposit still exists in this target area and it is recommended that future exploration consist of at least two drill holes testing the above described structural intersection.

PROGRAM OBJECTIVE

The objective of the 2000 exploration drilling program in the Degerstrom target area was to re-map the area in order to get a better handle on the structural setting and to drill test any drillable target resulting from this mapping effort. This work resulted in one drill hole testing the structural intersection between the Cave fault and the Saddle fault within the LBT Formation.

GEOLOGY

Lithology

The dominant rock units in the Degerstrom target area on the surface belong to the Chocolate Formation consisting of Femag flow, RQL, and Bud like epiclastics.

Structure

The Saddle fault zone and the Degerstrom fault dominate the structural fabric in the Degerstrom target area. The Saddle fault zone is a north-northeast striking steeply east-southeast dipping structural zone. The Degerstrom fault is a northwest striking low-angle normal fault that dips to the southwest. This fault contains slicks along the footwall that rake west. Numerous other small-scale faults are also mapped in the target area.

Hydrothermal Alteration

Silicification and argillization are present around the Degerstrom fault whereas argillization and propylitization are present around the Saddle fault zone. Alteration seems strongest in the footwall of the Degerstrom fault and hanging wall of the Saddle fault zone. Alteration in this area is largely structurally controlled.

GEOCHEMISTRY

Degerstrom has strong geochemical values in soils and rocks. The intensity and patterns of the geochemical contours at 6000 scale resemble Dozer Hill. There are many rocks with 10-500 ppb gold and >5 ppm silver. Selenium, mercury, antimony, and arsenic are also quite anomalous. Many soils have 50-500 ppb gold, >0.5 selenium, 5-25 ppm antimony, and >1 ppm mercury.

GEOPHYSICS

Numerous geophysical techniques have been applied to the Degerstrom area by various companies involved with the property. Methods used were Induced Polarization, Resistivity, Magnetics, Radiometrics, Gravity, and Thematic Mapper. The geophysics data is available in the flat files and discussed in detail in the 1999 Rosebud Project Review by P. Mitchell.

DRILL HOLES

A total of 12 drill holes have been drilled in the Degerstrom target area by Lac (10 holes), Newmont (1 hole), and Hecla (1 hole). The 10 holes drilled by Lac were shallow holes looking for shallow oxide mineralization. The 1 hole drilled by Newmont (RS-474C)

was drilled looking for high-grade gold down dip along the Degerstrom fault. The 1 hole drilled by Hecla during the 2000 exploration-drilling program (RS-493C) was drilled targeting the structural intersection between the Cave fault and the Saddle fault zone within the LBT formation. Drill hole RS-493C contained no significant intercepts, however, it fell short of testing the target due to intersecting the basement rocks earlier in the hole than expected.

POTENTIAL AND RECOMMENDATIONS

The results of drill hole RS-493 in the Degerstrom target area during the 2000 drill program were not encouraging, however, this hole appears to have missed the structural target. Potential for a Rosebud sized deposit still exists in this target area and it is recommended that future exploration consist of at least two drill holes testing the above described structural intersection.

REFERENCES

Mitchell, P., 1999 Rosebud Project Review, Pershing County, Nevada: Unpublished Rosebud Mining LLC.

SRF-Footerwall

2000 SRF FOOTWALL EXPLORATION PROGRAM

Rosebud Mine
Pershing, County NV

SUMMARY

The South Ridge fault and the Mine Sequence volcanic stratigraphy are thought to be the main controlling features for ore deposition at the Rosebud mine. Similar situations exist along other low angle faults on the Rosebud property and as of this date many of these have been drill tested along alteration zones trending northwest from the mine. Recent geologic mapping in Rosebud canyon and on South Ridge has revealed that there are other flat lying structures beneath the South Ridge fault. Drill hole RS-505 targeted the intersection of the LBT rhyolite and a low angle structure thought to have an ALS footwall similar to the mine. Target depth for this intersection was approximately 2000 feet but the fault and the ALS were intersected at 1100 feet with BUD-like clastics in the hanging wall. This indicates that the flat structure found under the Dozer formation in the mine area is dipping at a steeper angle than anticipated. Alteration and sulfide mineralization in this hole were minimal but this would be expected with BUD-like rocks in the hanging wall.

LOCATION

The target was located approximately 2400 feet SE of the East ore body in the Rosebud mine in the footwall of the South Ridge fault. Drill hole RS-505 is located at mine coordinates 2,202,625 N. and 484,885 E. The new drill target is 450 feet closer to the Rosebud mine on Mine Section 1700 NE.

TARGET CONCEPT

Exploring to the southeast of the Rosebud mine. This will be along the alteration corridor that extends on a line that runs northwest and southeast through the present operation. The primary target is the intersection of the mine sequence LBT rhyolite and shallow dipping structures similar to the South Ridge fault but well within its footwall. There are several prospect pits and one short adit in Rosebud canyon that have highly anomalous gold and silver values indicating that the Mine Sequence in this area is well mineralized. These workings are within the LBT stratigraphic unit that is the main ore host at the mine. At the above-mentioned adit, a Lac Minerals rock-chip sample assayed 3.65 ppm Au and 5.64 ppm Ag.

GEOLOGY

The Mine Sequence ore bearing Stratigraphic units at the Rosebud mine have been displaced approximately 1700 feet to the northwest from a position in the vicinity of Chocolate mountain. The target is along the line of intersection between the Mine Sequence LBT and a low angle fault that was recently mapped in Rosebud canyon. This fault, the Chocolate mountain detachment, or herein called simply the Chocolate fault outcrops along the southwest, south and east sides of Chocolate mountain and is of unknown displacement. This may be the same structure Newmont called the Foundation fault that separates the Dozer from the ALS in the mine. There also appears to be another low angle fault that is deeper yet and will probably have ALS in both the footwall and hanging wall.

Alteration is exposed along the west and southwest sides of Chocolate mountain in Rosebud canyon and is a structure controlled by montmorillonite argillization with silicification and pyrite. Considerable drusy quartz in breccias was found on the dump of the above-mentioned adit.

GEOCHEMISTRY AND MINERALIZATION

Rock-chip

Rock chip data from several different sources have been compiled by Newmont and are available in their database. 1 inch = 200 feet clear overlays for Au, Ag, As, Sb, Hg and Se are in the flat files. Data from the Chocolate saddle above the Sharks Fin is in general weakly anomalous but above background. The second cluster from further south in Rosebud canyon and centered in the LBT is highly anomalous in all trace elements.

Soil

Soil sample lines do not extend far enough to completely cover the area of interest. Data stops at the northwest and western boundary of the target area. Values are very weak at best. There are significant gold and silver anomalies on the western edge of the LBT outcrops and in the Dozer Formation.

GEOPHYSICS

Newmont Geophysicists have presented the geophysical data as interpretive overlays on clear mylar. No written reports are available. The overlays are in the flat file at the Rosebud mine and at the Newmont office in Winnemucca, Nevada. Brief comments on the various surveys is as follows:

Induced Polarization and Resistivity Only the northwest corner of Chocolate mountain is covered and the target in this area is too deep for recognition by this method.

Magnetics An airborne survey covered the entire area. No ground magnetics is available.

Radiometrics Airborne survey is available for the area.

Gravity A detailed survey covers the target area.

Thematic Mapper Maps of Newmont's interpretation are available.

PRODUCTION HISTORY

Possibly a very small tonnage was produced from a short adit on the southwest side of Chocolate mountain but there is no record of this.

POTENTIAL AND RECOMMENDATIONS

Another Rosebud type ore zone may exist in the target area. The geology is very similar to that at the Rosebud mine and the surface expressions are very encouraging.

Recommendations are as follows:

- 1) A more detailed surface geologic map of Chocolate mountain and vicinity needs to be constructed in order to intelligently extend the existing mine sections into the target area.
- 2) After obtaining the necessary geologic information, a follow up drilling program should be designed to test the area thoroughly.

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SRF - Northeast

2000 SRF NORTHEAST EXPLORATION PROGRAM

Rosebud Mine
Pershing, County NV

Pershing County, Nevada

SUMMARY

The South Ridge fault is the only structure in the Kamma Mountains that host a Rosebud type orebody. It has not been explored to the northeast more than a few hundred feet from the mine and offers an excellent opportunity to discover mineable mineralization. Drill hole RS-504 was the first attempt to probe this area and intersected highly anomalous gold and silver on what may be the South Ridge fault. Additional holes are recommended to work out the complex structure and explore for new ore zones

LOCATION

The area of interest lies along the South Ridge fault, starting at 800 feet from the Rosebud mine and continuing on to the northeast.

TARGET CONCEPT

The Rosebud mine orebodies are intimately associated with the South Ridge fault and the full extent of this structure has not been systematically explored over the large area to the northeast of the mine. It is the only known structure in the region that hosts Rosebud type mineralization. If this structure carried the solutions that deposited the Rosebud ore, then there is no reason to believe that it would not act as a conduit elsewhere.

Unfortunately, in the northeast, most of the surface expressions of this fault are covered by recent alluvium and talus and the last exposure on the surface is at the east end of the Sharks Fin (surface outcrops of the South Ridge fault). This structure is thought to curve around to the north and may merge or be cut off by the Cave fault in the same manner as to the southwest of the mine. Drill hole RS-504 was collared in an attempt to target the interpreted structural intersection.

GEOLOGY

Lithology

Outcrops in the area of interest are Tertiary Chocolate porphyritic flows, Badger Formation, recent lacustrine deposits, alluvium and talus. These are all underlain by the Triassic/Jurassic Auld Lang Syne group of carbonaceous phyllites. The Badger is a

complex mass wasting fanglomerate that contains a rhyolite flow similar to the Dozer, an andesite porphyry flow and at least three basalt flows that have vesicular tops.

Structure

Two dominate and very large displacement low angle faults are in the northeast area. The Cave fault with approximately 2300 feet of displacement dips 30 to 35 degrees to the northwest. Its strike, as with most of the flat faults, can be variable but generally changes from N60E at the mine to N10E on the eastside of the Kamma Mountains. Past workers in the region did not know of the existence of the Cave or other low angle faults and termed this eastern Structure the Kamma fault and gave it a much steeper dip. Both of these structures are part of a series of detachments that sole out at roughly 12 kilometers under the Black Rock desert.

The second low angle structure is the South Ridge fault with 1700 feet of displacement and, in the northeast, may be near parallel to the Cave and should lie approximately 1000 feet under it. There is also speculation that the South Ridge and the Cave may join in an anastomosing fashion somewhere to the northeast or possibly the Cave cuts off the South Ridge. The South Ridge also has a variable strike and dips from 25 to 35 degrees to the northwest. Slick striations and mullions on both of these faults plunge N55W and this is thought to be the primary and major motion on these structures. Additionally, there is also evidence of minor motion along strike.

Alteration in the northeast is weak to moderate montmorillonite with local concentrations of weak silicification and pyrite in the Badger rhyolite. Hole RS-504 was collared in this rhyolite but the alteration did not increase down hole.

GEOCHEMISTRY AND MINERALIZATION

Soil

Soil lines by Lac Minerals stopped short of the area where the South Ridge fault may be located and there is nothing anomalous indicated over shallow cover to the west. The South Ridge under these soil lines is more than 1000 deep.

Rock-Chip

Rock chip samples were taken at only a few isolated outcrops in the area of interest and most of these are not in the vicinity of the presumed location of the South Ridge fault. Areas to the west that have been sampled do not indicate any concentrations of anomalous trace elements. One locality, south of the main road, where the South Ridge may be exposed has not been sampled.

Drill Hole

Drill hole assays for gold and silver are the only results available at this time. ICP trace element data has been delayed but can be reviewed at a later date. Hole RS-504 intersections of interest are as follows:

770 to 810 – 40 ft.	49 ppb Au and	1.0 pm Ag.	In the ALS just the first fault.
1055 to 1080 – 25 ft.	50	1.2	In the ALS, an increase in pyrite.
1395 to 1400 – 5 ft.	178	1.6	Fault in ALS.
1555 to 1565 – 10 ft.	513	36.5	Start of alteration zone.
1645 to 1650 – 5 ft.	874	3.5	Drusy Qt. veinlets.
1555 to 1700 – 145 ft.	146	4.7	Interval in ALS with drusy Qt.

GEOPHYSICS

Geophysical data for this area is written up in Newmont's geophysics and monthly reports.

PRODUCTION HISTORY

No past production history.

POTENTIAL AND RECOMMENDATIONS

The potential for finding ore deposits on the South Ridge fault in the far northeast has been greatly enhanced by the deep 145 foot intersection in the ALS of stockwork like veinlets with drusy quartz, marcasite and very anomalous gold. This intersection was exactly on a projection of the South Ridge fault but having ALS in both footwall and hanging wall has left some doubt as to which structure it is. The potential for ore that has formed away from the Rosebud mine and on the South Ridge Fault is very good. Ore bodies of similar size and grade can be expected. There should be large mullions here that may have the same localizing effect as seen in the present operation.

Recommendations are as follows:

- 1) Mapping and thoroughly sampling any outcrops that can be found along the eastern margin of the of the Kamma mountains from the Sharks Fin to the vicinity of Wildrose canyon.
- 2) Drill a hole approximately mid way between holes RS-451 and RS-504 to reach the South Ridge fault at +/-1500 feet. This is an area where there may be a roll or mullion and will be an excellent place to look for Rosebud type ore. If the South Ridge fault in this hole is mineralized then more holes should be considered.

MOTHER LODGE

2000 MOTHER LODE EXPLORATION PROJECT

Rosebud Mine
Pershing, County, NV

SUMMARY

High grade silver mineralization was intercepted by Lac Minerals on the Mother Lode vein. The intercept of interest in RL-122 consisted of 15 feet of 7.34 opt Ag, with a maximum value of 5 feet of 14.28 opt Ag. Subsequent drilling by Newmont was unable to intersect the Mother Lode vein.

A low angle unidentified fault, or splay of the Cave fault, was postulated to have fed the Mother Lode vein. The 2000 Hecla exploration program planned to test a target north of the Lode structure.

Three vertical drill holes were used to test this theory during the 2000 exploration program. The drill holes passed through the Badger Formation (Tbg) and ended in the Chocolate Formation (Tc). The proposed low angle fault was not identified. No significant Au or Ag mineralization was intercepted.

The lack of an intersection of the Mother Lode vein by Newmont drill hole RS-458 can not be explained at this time. There was no indication of the proposed low angle fault in the 2000 exploration drilling. No further work can be recommended at this time on the project area.

PROGRAM OBJECTIVE

The objective of the program was to test for mineralization along an unidentified low angle fault, or splay of the Cave fault, that fed the Mother Lode vein. Rosebud-style mineralization was proposed for the targeted area. The targeted area was north of the Mother Lode structure.

GEOLOGY

Lithology

The hanging wall and footwall of the Mother Lode structure is Badger Formation (Tbg) in the targeted area. Gorilla porphyry is also exposed on the surface in the target area.

The 2000 exploration program drill holes were collared in Badger Formation (Tbg). The Badger Formation (Tbg) averaged 150 feet thick in the three holes of the program. Below the Badger Formation (Tbg), the drill holes remained in the Chocolate Formation

(Tc). The Chocolate Formation (Tc) was composed of flows and porphyries. Gorilla porphyry was also present in the drill holes.

Structure

The Mother Lode structure is a silicified fault striking N70°E; 80°SE. Epithermal veining is visible in outcrop. The displacement on the Mother Lode fault is unknown. The low angle Cave and South Ridge fault dip beneath the Mother Lode area and are essentially parallel to each other. The Relay fault was proposed to cut off the east end of the Mother Lode structure but there is no consensus as to its existence.

Hydrothermal Alteration

Argillization and silicification are associated with the Mother Lode, and Cave faults in the program area. The extent of surface alteration on the Mother Lode structure is limited to its 500 feet of exposure. Argillization can extend up to 50 feet into the wall rock. Silicification is restricted to the core of the structure. Smaller fractures zones striking approximately parallel to the Mother Lode structure are apparent by their argillization on the hillsides of the area. Hanging wall alteration on the Cave fault was up to 70 feet thick in RS-458.

GEOCHEMISTRY

Soil geochemistry in the Mother Lode area is anomalous in Au, Ag, As, Sb and Hg. The soil anomaly covers an area southwest from the Mother Lode shafts. Rock-chip samples for the Mother Lode area reach 0.5 to 7.0 ppm in the same elements. Overlays and maps for soil and rock-chip geochemistry can be found in the flat files.

PAST PRODUCTION

Past production has taken place on the Mother Lode vein. The quantity of production is unknown. Production is assumed to be for silver. There are two shafts on the Mother Lode vein with various sub levels of unknown extent. Lac Minerals geologists sampled these shafts during their participation in the claim block. There is one adit possibly on the Mother Lode structure in the Gorilla Wash.

GEOPHYSICS

Various geophysical techniques have been used over the target area. Data has been collected for IP and Resistivity, Magnetism, Radiometrics, Gravity, and Thematic Mapper. A large resistivity low is associated with the Mother Lode structure. Airborne magnetism and gravity detected a northwest orientation to a structure in the area. A

N50°E linear, parallel to the Mother Lode fault was indicated by the gravity survey. Geophysical data is compiled on overlays and can be found in the flat file.

DRILL HOLES

There are four existing drill holes in the area of interest. Lac Minerals drilled three holes to intersect the Mother Lode vein. The drill hole, RL-122, had several intervals of 2 to 14 opt Ag starting at 230 feet below the surface. Newmont completed drill hole RS-458 and did not intersect the vein at depth. Hecla drilled three holes, RS-486, RS-487, and RS-488, for the 2000 exploration program. There were no significant Au or Ag intercepts in these holes. The following table contains drill holes in the local area of interest.

Mother Lode Drill Hole Summary

Drill hole	Company	Azimuth (°)	Angle (°)	TD (ft.)
RL-121	Lac	340	-45	300
RL-122	Lac	340	-65	400
RB-3	Lac	325	-70	460
RS-458	Newmont	305	-60	1765
RS-486	Hecla	--	-90	640
RS-487	Hecla	--	-90	645
RS-488	Hecla	--	-90	525

POTENTIAL AND RECOMMENDATIONS

The extent of the Mother Load structure is not completely understood. The recent exploration drill holes did find the proposed target. There is still no explanation for missing the Mother Lode structure in RS-458. This area can not be recommended for further work at this time.

REFERENCES

Mitchell, P., 1999 Rosebud Project Review, Pershing County, Nevada: Unpublished Rosebud Mining L.L.C., 85-88.

Rogowski, J.P., 1999 Rosebud Compilation, Pershing County, Nevada: Unpublished Report, 1-4.