

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud - Gator Prospect
AUTHOR	Rogowski, J
DATE OF DOC(S)	1999
MULTI_DIST Y / N?	
Additional Dist_Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Mining Co; Hecla Mining Co; Santa Fe; Gator prospect
COMMODITY If not obvious	gold; silver
NOTES	Property report; geology; hand written notes, assays 13 p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

SS: DD 2/31/08
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DB: _____
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SCANNED: _____
Initials Date

PETE ROGOWSKI

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Peter M

**UPDATE
GATOR AREA**

J.P. Rogowski

27 July 1999

(8 Page - Gator doc Aug99)

GATOR PROSPECT

Rosebud Mine

Sec. 6 & 7, T.34 N., R.30 E.

Pershing County, Nevada

UPDATE SUMMARY

During the 2 February 1999 review of potential drill targets in the Rosebud area, recommendations were suggested by Rogowski and others that the Gator prospect should be remapped and sampled before selecting drill targets.

In May of 1999 three trenches were cut and 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 5560 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.

The following is an updated review of information presented at the 2 February 1999 meeting. This covers the Gator prospect and adjacent areas with respect to future exploration targets.

UPDATED CONCEPTUAL TARGET

Two 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.

Potential target size With a strike length along the Gator fault 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 Explanation for more detailed unit descriptions)

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 Gator fault zone – The primary conduit for mineralization in the area is the Gator 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 Gator 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 4833E fault – A near N-S structure on the 483,300E 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 4833E 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. Mapping further 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 Gator faults. If so, this would indicate left-lateral displacement on the Juniper Canyon fault.

Mineralization - Surface mapping and drill hole logging reveal strong silica replacement of the rock types adjacent to the Gator 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 Gator 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.

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.

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.

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.

GEOCHEMISTRY

Surface Geochemistry (The following statement is from the 2 February 1999 Report)
“Lac Minerals and Hecla both obtained soil data from this area. 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 indicate that these elements do not correspond with the Au values. Rock chip data is not available for the Gator area”.

Later, limited rockchip data was found for the 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 were not repeatable but 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 Gator 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 None.

Distance from the Rosebud Mine 10,000 to 20,000 feet due north.

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 None.

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.

RECOMMENDATIONS

The potential target area down dip from the Gator prospect may cover more than two square miles. 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 structure should progress down dip toward the best surface expressions. It must be kept

in mind that many, if not all, of the flat faults on the Rosebud property probably have some degree of post-mineral movement and, in addition, that numerous slick striations on these flat structures point near N55W.

Future work at Gator should include:

- 1) Continue mapping and sampling north and west from 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 must be taken at each sample site for PIMA or if using XRD the sample pulps will suffice and be more representative.
- 2) The following six holes are recommended for a second pass drilling program. These holes are designed to find ore or give the most useable geologic information. Access is also considered.
 - A) N 2,213,530 – E 479,030, -90, +/-1100 feet, to test the Gator fault and the center of the IP high on the north side of N. Equinox.
 - B) N 2,214,550 – E 479,600, -90, +/-550 feet, to test the Gator fault between N. Equinox and Gator prospects and down dip from possible buried alteration.
 - C) N 2,215,450 – E 479,040, -90, +/-650 feet, to test the Gator fault down dip from the highest surface samples and drill intercepts and down dip on N-S Structure.
 - D) N 2,216,200 – E 479,280, -90, +/-850 feet, to test the mineralization on the Gator fault on an E-W profile down dip from drill hole RS-467 that has 110 feet of 335ppb Au.
 - E) N 2,217,550 – E 479,150, -90, +/-1300 feet, to test down dip on the Gator fault from RS-468 and ,most important of all, collared in the middle of the largest alteration zone on Wildrose Peak.
 - F) N 2,218,440 – E 479,080, -90, +/-1100 feet, to test the three way intersection of the Gator fault, the N70E mineralized structures in Juniper Canyon and a series of N60W structures that make up the main alteration zone on the east side of Wildrose Peak.

REFERENCES

- Brady, M. 1996. Project Evaluation – Rosebud Area, Pershing County, Nevada:
Unpublished. Hecla Mining Co. Report.
- Zong Geophysical. 1997, Zong Job # 9724, Gator Prospect – Pershing County, Nevada:
Unpublished. Santa Fe Report.
- Rogowski, J. P. Feb 1999, Gator Prospect Conpilation – Rosebud Area, Pershing
County, Nevada: Unpublished. Rosebud Mining Co. Report.

GATOR EXPLANATION

- Qa Alluvium – Rounded and angular pebbles and boulders of numerous rock types in a mixture of loess and silt. Difficult to distinguish from eroded Badger Formation which often exhibits similar composition.
- Tbg Badger Formation – Conglomerate, fanglomerate and possibly lahars derived in part from mass wasting. Clasts are angular to rounded, sand to boulder in size and composed of many of the rock types found in the area. The matrix is mud through silt in size with moderate to strong hematite stain. The larger clasts often exhibit more rounding than the smaller. The upper part of the Badger is normally not well consolidated and crops out poorly, but it can have discontinuous layers up to 50 feet thick that are strongly indurated. The lower Badger is well indurated for most of the section and is compositionally identical to the upper. Bedding is common in both the upper and lower units and varies from $<1/2$ inch to several feet. Within the detrital portion there are at least two and possibly three thin basalt flows that are discontinuous on strike and exhibit vesicular flow tops. There is also a Dozer-like rhyolite flow near the top of the upper Badger that varies in thickness from 20 to 60 feet. The Badger Formation is of unknown thickness but appears to be more than 2000 feet at several locations. NOTE: Often there is confusion between the lower Badger and similar units throughout the Chocolate Formation, especially when observed in RC cuttings.
- Tqp Quartz Porphyry – Rhyolite quartz porphyry containing 10 to 20%, 1 to 2mm quartz phenocrysts, and 1 to 5% additional phenocrysts of sanidine, equant k-spar, plagioclase, biotite and Femags. This unit crops out at only one location as a probable 5 foot wide dike near the base of the Badger. Except for the abundance of quartz it is similar to the Gator porphyry.
- Tb Basalt Dike – Dark olive-green, aphyric, finely crystalline dike. This unit is found in a few outcrops and float at one location. It is approximately two feet wide, near N-S vertical, and may be related to the Ta.
- Tan North Andesite – Olive-green to maroon, finely crystalline matrix with 10 to 30%-0.2 to 4mm white plagioclase phenocrysts that exhibit parallel arrangement. Some of the plagioclase is glomerophyric. There is also less than 1% combined biotite and equant k-spar. Large areas of this unit are strongly argillized and contain numerous narrow silicified and brecciated fault zones.

- Ta Andesite – Generally aphyric but it can have rare plagioclase and Femag phenocrysts. This unit is dark olive-green and fine to medium crystalline. It appears to have intruded the LBT/WR and may, because of its similarity, be related to the Tb dike.
- Tgp Gator Porphyry – Finely crystalline or aphanitic gray groundmass with varying amounts, but less than 10% k-spar, plagioclase, biotite and Femag phenocrysts. There are also rare sanidine and quartz phenocrysts. Phenocrysts are less than 3mm and flow banding is common. A similar unit outcrops at North Equinox. (P. Mitchel does not think this unit is the same as the Rosebud quartz latite but may be closely related).
- TgpBx Gator Porphyry Flow Breccia – Monolithic clasts of Gator porphyry in a very finely crystalline red matrix that has phenocrysts of feldspar, quartz and biotite.
- LBT/WR LBT/Wildrose Rhyolite – Medium gray to maroon, finely crystalline or aphanitic rhyolite flow. Has rare, less than 3mm, sanidine and biotite phenocrysts and is often strongly flow banded. Layers with leopard skin texture are common.
- EpiC Lithic Ash and/or Epiclastic – A BUD like unit within the LBT/WR. The groundmass appears to be a devitrified fine ash with broken, fresh biotites and a pale green, talc-like texture and appearance. The clasts are + 95% LBT/WR and vary in size from 1mm to +20cm and also in quantity from zero to 30%. Associated with this unit are 5 to 50 foot layers of black obsidian.
- LBT/Bx Monolithic Flow Breccia – This unit appears to be LBT/WR clasts in a finely crystalline rhyolite that is probably also LBT/WR. This unit may be 50 feet thick and may also have reworked LBT/WR clasts in a fine-grained red sediment at the top.

Faults – two dashes

Faults with slick striation direction and plunge

Contacts – one dash

Joints

Flow Banding

Specimen Location

Outcrop and sub-outcrop boundaries

Sample numbers

Alteration boundaries

Alteration intensity – s = silicification and c= argillization (Bleaching)
1,2 & 3 intensity.

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- Tb** Basalt ~~Dike~~ *Dike* – Dark olive-green, aphyric, finely crystalline dike. This unit is found in a few outcrops and float at one location. It is approximately two feet wide, *near N-S* vertical, and may be related to the Ta. *trends N-S*
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