

DISTRICT	Rosebud
DIST_NO	4010
COUNTY <small>If different from written on document</small>	Pershing
TITLE <small>If not obvious</small>	Degerstrom Prospect Exploration Report
AUTHOR	Stiles C
DATE OF DOC(S)	1999
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Additional Dist_Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME <small>(mine, claim &amp; company names)</small>	Rosebud Mine; Degerstrom Prospect
COMMODITY <small>If not obvious</small>	gold; silver
NOTES	Property summary; geology  4p.

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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DEGERSTRON

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## **Degerstrom Prospect Exploration Report**

(June 22, 1999 - C.A. Stiles)

### Introduction

During a six-week period between May 3 and June 23, 1999 exploration work was conducted on the Degerstrom prospect for the Rosebud Mining Co. under contract with Newmont Exploration. Newmont requested that a 1:2400 scale geologic map with cross sections be produced, as well as developing accompanying alteration and structural overlays at the same scale. The resultant data would then be used to develop target concepts for follow-up drilling.

Previous geologic mapping was utilized where feasible. However, field mapping was emphasized during the contract period due to the detail required, particularly in relation to alteration and structural interpretations. Where drilling data existed in the prospect area ( $\pm 10$  holes), logs and cuttings were reviewed and contacts transferred to the cross sections with minor modifications based on new mapping.

Alteration mapping was supported by field observations and PIMA analysis of approximately 24 representative hand samples. Airphoto interpretations were also utilized.

Rock chip and soil sample anomaly maps generated from the Newmont database were used to determine whether or not additional sampling was warranted and to incorporate into the exploration model. Forty-one additional rock chip geochem samples were collected in areas of little to no sampling.

Review of the IP/Resistivity survey data with the Newmont geophysicist was done to incorporate anomalous results into the Degerstrom exploration model.

Data and maps generated for the Degerstrom exploration during this work period and accompanying this report include:

- 1:2400 orthophoto base map
- 1:2400 geologic map and 7 cross sections
- 1:2400 alteration overlay
- 1:2400 structure overlay
- 1:2400 rock chip geochem composite anomaly and resistivity/chargeability overlay
- 8 1/2 x 11" summary geology/alteration/structure map
- Summary of results, conclusions, recommendations

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Craig A. Stiles  
Consulting Geologist



## Degerstrom Target Conclusions

- Geologic assessment to date indicate that the Degerstrom prospect is characterized by the presence of favorable mine stratigraphy (LBT unit) projected at depth, northeast trending strong alteration patterns, anomalous geochemical "leakage" anomalies related to the main Degerstrom structure, and smaller structures concentrated in the hanging wall area.
- The Degerstrom structure exhibits significant brecciation and silicification over a traceable distance of about 3000 feet, with apparent normal and right lateral strike slip components.
- At least two periods of deformation occurred along the structure. One developed substantial hanging wall open spaces while a later event was more compressive along the fault plane. The earlier deformation was accompanied and followed by significant silicification along the entire length of the structure where traced on the surface.
- Geochemical pathfinder anomalies and alteration in the hanging wall of the Degerstrom structure persist substantially farther west and deeper than has been tested by previous drilling which penetrated 700 feet toward the down dip projection of the structure (RB 234).
- IP/Resistivity surveys support geologic mapping of the Rosebud Quartz Latite - Chocolate lava contacts, strikes, and dips, as well as indicating elevated chargeabilities underlying the contact zones. The chargeabilities could indicate elevated sulfide deposition where the contact zones are intersected by hanging wall extension fractures related to the Degerstrom structure.
- The clay alteration patterns, fault patterns, IP anomalies, and anomalous rock chip Hg-Se-Ag±Au patterns in the hanging wall area to the west of the apparent bend or offset in the Degerstrom structure may indicate that this area is affected by a hydrothermal system focused between the surface trace of the structure and Schoolbus Canyon.
- Projections of the Cave fault - Degerstrom fault intersection at depth, in the projected LBT unit are incomplete at the time of this study, but should be followed up as interpretation of the Cave fault in the valley drill holes continues.
- The projected intersection of the Cave fault and the Degerstrom fault planes trends N30W, plunging 24 degrees NW, assuming the unlikely case that neither fault is offset by other structures or flexures down-dip.
- One strategic deep drill hole ( $\leq 2500$  feet) could partially test most of the above interpreted scenarios.
- Peripheral exploration - projected alteration patterns, geochem patterns, gravity and IP anomalies indicate that additional exploration is warranted between the Degerstrom structure and the "Chalcedony" prospect to the southwest, underlying the Brown Palace knob to the north, and possibly in the altered area between the Degerstrom structure and Dreamlands.

## **Degerstrom Target Identification**

### **A) Cave Fault - Degerstrom Fault Intersection in LBT Horizon**

While additional work is necessary to identify the Cave structure in the valley drilling and to trace the fault northwest into the Degerstrom prospect area, the preliminary assumptions indicate a location in the highlighted area on section 2205200N. This is based on a 25 degree dip taken from the portal intersection with the Cave fault, taken through RBW 17 and extended (without offset from other faulting) to the projected down dip extension of the Degerstrom structure. The vertical drill hole would need to be at least 2200 feet deep to attain target depth. Consideration should be given to the elevation of deposition of the Rosebud ore relative to the regional gradient in this case, and whether the projections northwesterly could realistically be deeper than at the mine.

### **B) Degerstrom structure at flexures (dilatent zones) intersecting LBT Horizon**

In the absence of the Cave fault, dilatent zones in the Degerstrom structure are viewed as extremely favorable for classic "ore shoot" metal deposition. Significant on the plan geologic map is the apparent offset or bending of the Degerstrom structure in the area of the old "Degerstrom" workings. Based on reasonable traces of the apparent bend and/or offset down dip (to the west-southwest) and interpolations of the LBT unit from the surface in Schoolbus Canyon and from RBW 17 a potential target area could exist as indicated in NW-SE section AZ 129.1415@7747'.

### **C) Degerstrom structure - hanging wall extension structure (antithetic faults) intersections in LBT unit**

Numerous "small" northeast to northwest trending faults occur in the area west of the Degerstrom structure. Persistent clay alteration and pathfinder Hg(?) - Se - Ag  $\pm$  Au geochemistry indicate best directions of fluid flow as illustrated on the plan maps and section. Selection of a drill target is based on these patterns as well as reasonable depth projections to the LBT unit from Schoolbus Canyon to the west and from RBW 17.

### **D) Coincidental alteration - geochemical - geophysical anomalies in hanging wall of Degerstrom structure in LBT unit or higher in stratigraphic section**

Convergent lines of alteration/geochem/geophysical evidence indicate targets in the hanging wall which may occur above the Degerstrom structure and the LBT unit in the Rosebud Quartz Latite - Chocolate lava contact (possibly indicated by the resistivity/chargeability anomalies).

### **E) Strongest clay alteration anomalies coincidental with geochemical anomalies above projected LBT unit at reasonably attainable drilling depths ( $\pm$ 500 to 1000 ft)**

### **F) Clay alteration in the Rosebud Quartz Latite in the footwall of the Degerstrom structure. Located northeast of the Degerstrom structure's main outcrop mass and the Dreamland prospect area, the alteration is associated with a Au in soils geochem anomaly. Although drill hole RB 49 tested a portion of this anomaly nearest to the footwall contact with the structure, a step-out towards Dreamlands may be warranted by additional interpretations of the Dreamland target geology.**



**Degerstrom Prospect Proposed RC Drilling**  
(June 22, 1999)

**Priority Drill Hole 1:**

Location: 2205300N/475600E (see plan map and cross section 2,205,200N)

Depth:  $\leq$  2500 feet

**Targets:**

- 1) Rosebud Quartz Latite (Trql) - Chocolate lava (Tct) contact indicated by IP resistivity high and underlying chargeability high.
- 2) Strong clay alteration and silicified extension structures in hanging wall of Degerstrom structure.
- 3) LBT unit near Degerstrom structure, optimally in hanging wall.
- 4) Favorable hanging wall geochem trends.
- 5) LBT unit near intersection of Degerstrom structure and Cave fault projection.

**Additional Drill Hole 2:**

Location: 2204200N/474850E (see plan map and cross section 2,204,400N)

Depth:  $\pm$  1300 feet

**Targets:**

- 1) Very strongly clay altered and faulted/locally silicified Rosebud Quartz Latite (Trql).
- 2) LBT unit at depth.
- 3) Hanging wall mineralization related to projected Degerstrom structure and extension faults.

**Additional Drill Hole 3:**

Location: 2206200N/477300E (see plan map and cross section 2,206,400N).

Depth:  $\pm$  1000 feet

**Targets:**

- 1) Very strongly clay altered Rosebud Quartz Latite, Au in soils, and underlying stratigraphy related to Dreamlands prospect environment and/or Brown Palace target area.

**Optional Drilling Considerations:**

- Several shorter (500-750 ft.) angle and/or vertical holes along the Degerstrom structure may better define the potential of the structure as a contributor to significant mineralization. Pick the best and biggest exposures for hanging wall drilling.
- Drill the southeasterly chargeability anomaly (500-750 ft. vertical).