

MISSING OUNCES - PIERSON

60008373 - 60008382 ; 60008483 - 60008490



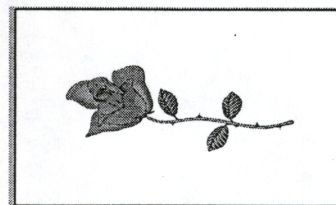
Kurt

**MEMO TO:** Charles Bucknam  
Gene Pierson  
Dave Seymour

**FROM:** Ron Clayton

**DATE:** 10/13/98

**SUBJECT:** Identified Changes in Ore Control Process



Rosebud Project

As per the request of the Investigating Team, the following changes in the mine procedures and personnel have occurred during the mine life.

Personnel

Name	Position	Start	End	New Position	Start
Charlie Muerhoff	Chief Geologist	3/16/94	8/7/97		
Kurt Allen	Sr. Mine Geologist	7/1/95		Chief Geologist	8/1/97
Alex Davidson	Stope Geologist	6/1/96		Mine Geologist	7/1/98
Chris Raspa	Stope Geologist	4/21/97	7/21/98		
Brian Morris	Stope Geologist	6/16/98			
Chris Shaw	Stope Geologist	8/1/98			
Tami Rudnick	Data Base Mgr.	10/1/97	7/2/98		
Cindy Moore	Grade Control Eng.	7/27/97			
J. Spry	Sampler	4/7/97	8/7/97		
C. Case	Sampler	4/7/97		Truck Driver	9/30/97
R. Colvin	Sampler	4/30/97	6/30/97		
J. Coney	Sampler	4/30/97		Truck Driver	10/21/98
J. Wiseley	Sampler	10/22/97		Truck Driver	9/8/98
A. Salzer	Sampler	7/14/97	1/19/98		
J. Avilia	Sampler	11/19/97	1/13/98		
D. Would	Sampler	1/19/98			
D. Shamburger	Sampler	1/20/98			

Stockpile Accounting Changes

Tonnage, Grade, and Ounces

Hand Calculated	2/1/97 through 6/1/97	Duplicate methods 6/97
Excell Spread Sheet	6/1/97 through 8/1/97	Duplicate methods 8/97
Access Database	8/1/97 through present	



### Mining Methods

Subdrift only	Feb. 97 through April 97
Subdrift and bottom up	May 97 through Aug. 97
Subdrift, bottom up, and Breast Down	Sept. 97 through present
Pulling sill	May 98 start - will be intermittent through mine life

### Backfill Dilution Estimate

Mining along side of Backfill	Add 6" per rib directly to stockpile total 6/97 through 10/97
No extra dilution added	11/97 through 6/98
Mining Backfill all Sides	Replacing 6" of Face dimension on all sides with 6" of backfill at zero grade in each stope round mined Tracking actual backfill dilution by physically measuring each face 7/98 through present
Survey Comparison	Have compared geology measured volumes to surveyed volumes 2/97 through present as the basis for the above changes.

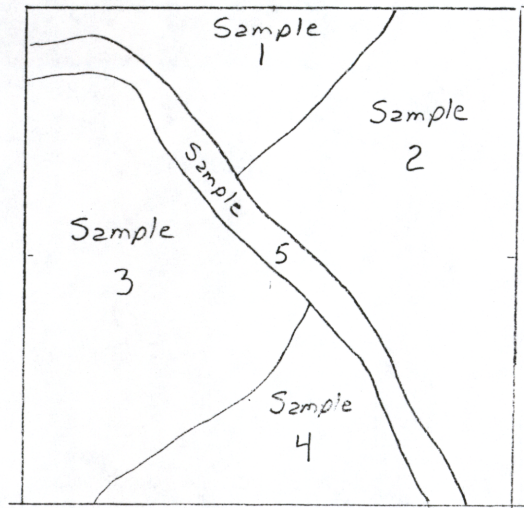


## Sampling Techniques

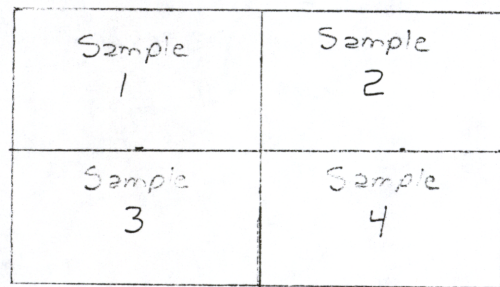
Feb. 97 through present

Face samples taken based on geology

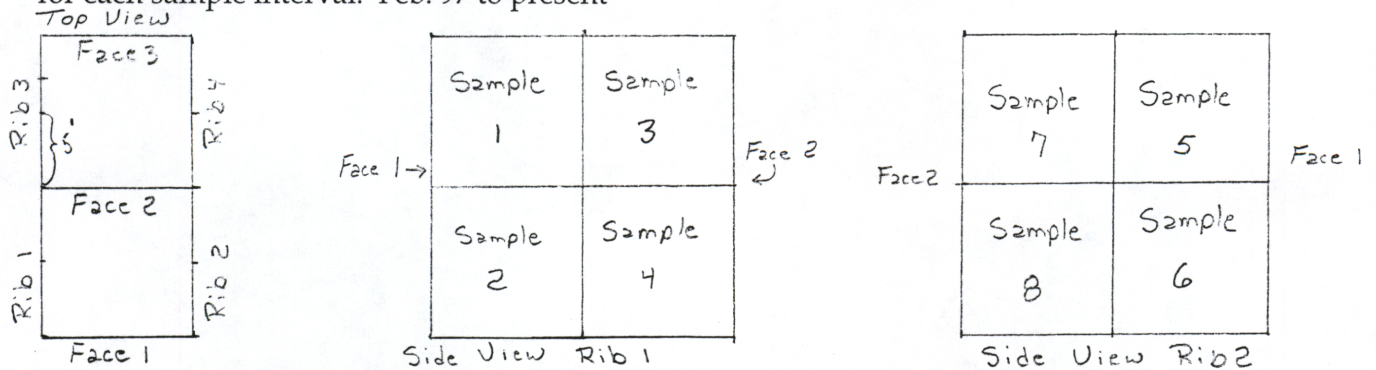
Or



Face samples taken based on  $\frac{1}{4}$  faces



Rib Samples are limited to 5 ft. in length along the rib and one sample is taken in the upper half of the rib and one sample is taken in the lower half of the rib. If the round length is less than 10 ft. but greater than 5 ft., the distance is divided in half and upper and lower samples are taken for each sample interval. Feb. 97 to present



Random chip sampling is completed by dividing the face into four equal area squares and taking approximately 12 pounds per quarter face or rib. Feb. 97 to present



Special Sample buckets were constructed and put in use by the samplers starting in July 1998. Prior to this time the samplers were chipping the sample into a bag or collecting the chips into their hands and placing the sample into the bag. This change was made at the recommendation of Francis Pitard.

### Assaying

#### Grade Control Samples

Metallic Screen Assays      Feb. 97 through June 97

Changed to regular fire assays with gravimetric finish June 97 to Present

#### Truck Sampling

Feb. 97 through Oct. 97      Discontinued to present

#### Stopes

Discontinued mining stope 13 on Feb. 1, 1998

### Qa Qc

Duplicate sampling began in force June 1997 continued to present

Standards      Began January 1998

One standard is run with every assay batch  
One assay batch contains up to 44 samples  
We average two to three standards per day

#### Check Assays

Bulk (-24 mesh) and Pulps (-120 mesh)      Sept. 97 through present