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DIST_NO	4010
COUNTY	Pershing
If different from written on document	
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QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Deposit; Rosebud Project Santa Fe Pacific Gold; Hecla Mining Co. Dreamland Mine; Rosebud Joint Venture South Zone; North Zone; East Zone; Far East Zone.
COMMODITY	gold; silver
If not obvious	
NOTES	Geologic report; geology; resources; reserves; assays; production; handwritten note
	95p

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(for every 1 oversized page (>11x17) with text reduce
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Santa Fe Pacific Gold Geologic Due Diligence Report for the Rosebud Deposit, Pershing County, Nevada

July 22, 1996

Prepared by
David Caldwell, Mike McCulla and W. Skip McIntosh
for the SFPG Rosebud Geologic Evaluation Team

SFPG Rosebud Geologic Team Members:

David Caldwell, Radu Conelea, Richard Dixon, Fred Jenkins, William Matlack,
Mike McCulla, W. Skip McIntosh, Dan Taylor,

1575N?
McCulla noted that section 575N has excellent potential for mineralization as projected from 600 N—it is not adequately drilled. See the due diligence report.

1600N?

4/9/98

TO: Pete Rogowski

Fr: Randy

I had saved this note from last fall.
You may want to pursue it. The due diligence
report is in a narrow white binder in our
brown file cabinet.

- Randy

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EXECUTIVE SUMMARY

Geology

The Rosebud Mine is located in the Kamma Mountains of northwestern Pershing County, approximately 50 miles west southwest of Winnemucca, Nevada (Figure 1). The Kamma Mountains are composed of Tertiary (Miocene) age volcanic rocks erupted onto a basement of Jurassic/Triassic age siltstone, shale, phyllite, and other metasediments. A sequence of felsic tuffs, coarse grained pyroclastics, and volcanic-sedimentary rocks were deposited in an elongate volcano-tectonic depression roughly 10 miles long (north-south) by 4 miles wide. Sub-volcanic intrusive bodies of felsic composition locally cut this volcanic pile.

The volcanic trough is structurally controlled by north-south trending Basin and Range faults, down dropping young volcanics against Jurassic/Triassic age basement rocks to the east and west. The rocks have been intensely faulted and displaced along the regionally extensive Rosebud Shear Zone.

The Rosebud Shear Zone strikes northeast-southwest and has a left-lateral displacement of a few to several thousand feet. Near the mine area the shear zone is at least 500' wide. Significant mineralization is not known to be present within this shear zone. However, rocks hosting the Rosebud ore bodies exhibit numerous small scale faults and fractures subparallel to the Rosebud Shear, many of which may have been feeders for mineralizing solutions.

Regional to district scale east-west trending faults dissect the Kamma Mountains. East-west trending faults provided an important pathway for ore fluids within the Rosebud system, and locally host ore grade mineralization. Major ore controls within the deposit appear to be the intersection of east-west trending listric faults with north-striking, east-dipping, permeable volcanic beds.

Resurgent igneous activity in the southern half of the volcano-tectonic depression may be responsible for the formation of a topographic dome 3-4 miles in diameter. It is along the ring fracture of this resurgent dome that the Rosebud deposit resides. The deposit is epithermal in character, and comprises high grade gold-silver and silver-gold mineralization within a sequence of permeable volcaniclastic rocks. Some of the volcanic beds are literally flooded by mineralization, whereas others host discrete vein, vein stockworks, and mineralized tectonic breccias. The total sulfide content of the deposits is generally low. Within the South Ore Zone sulfide content is estimated at $\leq 4\%$.

The Rosebud deposit has been divided into three distinct, spatially separate zones of precious metal mineralization: the South, North, and East Zones. The South Zone and the majority of the North Zone are hosted within the LBT unit of the Kamma Mountain volcanics, which are comprised of fine-grained water lain and air fall tuff, and lithic ash flow tuff and tuff breccia. The East Zone and a small portion of the North Zone are hosted within the Dozer Tuff unit, which is an aphanitic, siliceous, weakly flow-banded ash flow tuff. The two other major

units in the deposit area, the Chocolate Tuff and Bud Tuff cap the deposit with 200' to >500' of nonmineralized volcanic cover.

Historic mining in the Rosebud District took place during the early 1900's with the production of 3,700 oz gold and 116,000 silver. Most of this production came from the Dreamland Mine (adjacent to Rosebud) from high grade silver-gold veins, striking east-west and dipping vertical to low angle. In the last five years an estimated 2 million ounces of new gold reserves have been drilled out within the district and the remaining area of the Eugene 1:100,000 scale sheet.

Evaluation of the 1994 Block Model and Database Analysis

The assay database provided by Hecla was checked against the original assay lab certificates. Assay certificates were not available for some of the drilling done by other companies. The majority of the ore body was well documented in assay certificates and very few errors were found.

Reverse circulation drill holes in the Rosebud area occasionally encountered high water flows. The possibility of down hole contamination was evaluated in these holes. About 1% of the drill holes have indication of contamination due to high water flow. Hecla carried out a similar analysis and removed the problem holes from the database before modeling.

Statistical analysis of the assay and composite gold data show the presence of a set of very high grade outliers. This set of high values is characterized by extreme variability. Hecla's grade block model was built with tight grade zones to limit the influence of the extreme values. The model currently being built by Hecla will also use grade capping to limit the effect of outliers on the grade model resource.

The closely spaced underground drilling in the South ore body supports an indicator variogram with a 70 foot omni-directional range, at the 0.14 opt Au grade cutoff. This value provides an effective upper limit for the search distances used in this study.

Resource Validation

A cross-section polygonal estimate (Manual model) of the Rosebud deposit was performed to validate the gold resource and reserve numbers provided by Hecla's 1994 block model. All resource modeling in the SFPG study was done using 10 foot composites. This is identical to the length used in the Hecla block model, and carries a similar amount of dilution due to compositing. SFPG did not attempt to estimate the additional dilution that would be expected during mining. Dilution accounts for ~23,000 ounces (4%) of Au in the Hecla mineable reserves, and is derived from stope planning based on the 10 ft benches from the block model.

The Far East Zone was also excluded from the estimates in this study due to poor drill control and insufficient geologic understanding. This zone accounts for an additional ~12,000

ounces (2%) of Au in the Hecla mineable reserves. SFPG feels that it is premature to include this gold in a 'mineable' classification.

The overall agreement between these models is very good when compared at the global level. Table 1 presents the comparison of the **GLOBAL RESOURCES**, exclusive of dilution modeled from mine planning. The block model does not discriminate between geographic zones, so the resource blocks from the Far East Zone were not removed from the Hecla figures presented here. These figures compare models with similar constraints, and it is considered a valid verification of the Hecla results given the limitations of the different estimation methods used.

Table 1

COMPARISON OF SFPG MANUAL GLOBAL RESOURCE TO THE HECLA 1994 BLOCK MODEL GLOBAL RESOURCE

INVENTORY of BLOCKS ABOVE a 0.14 opt CUTOFF, grades given in opt. Hecla figures include blocks from the Far East Zone

	CU YDS	TONS	Au GRADE	Au OUNCES
HECLA	503,556	1,031,599	0.489	504,783
SFPG	500,569	945,250	0.522	493,145
SFPG as % of HECLA	99%	92%	107%	98%

The observed divergence is primarily due to differences in the Tonnage Factors (TF) used. Hecla's global average TF (as calculated from the modeled volume and announced tonnage) was approximately 13.25 ft³/ton. Based on SFPG's experience in other volcanic hosted systems with similar alteration styles this value may be overly optimistic. A global average of 14.30 ft³/ton was used in the SFPG Manual model. This represents a difference of about 8% in the total tons estimated, and accounts for all of the observed difference in the table above. The higher grade in the Manual model is expected when comparing these two methods; the magnitude of the difference is within an acceptable range (<10%).

A comparison of the SFPG **MEASURED and INDICATED RESOURCE** to Hecla's announced **RESERVES SCHEDULED FOR MINING** is presented below (Table 2). This comparison is not considered rigorous due to the differing assumptions, as outlined above, and is considered a poor indicator for veracity of the Hecla model and results. It is presented here to address and partially confirm the publicly announced numbers.

The potential to upgrade and add additional ounces within the immediate mine area has also been evaluated. Table 3 summarizes the results of this study. The **GEOLOGICALLY POSSIBLE** resource represents material that is implied by drill control either fore or aft, but that are not drilled or are underdrilled on a given panel. These represent high-probability ounces, and it is estimated that drilling will return a 50% confirmation rate. It is also assumed that all of the material currently classed as **INFERRRED** will be proven with infill drilling. These numbers do

Table 2

COMPARISON OF SFPG MANUAL MEASURED AND INDICATED RESOURCE TO THE RESERVES SCHEDULED FOR MINING ANNOUNCED BY HECLA IN THE MAY 17, 1996 PRESS RELEASE

	CU YDS	TONS	Au GRADE*	Au OUNCES
HECLA	583,689	1,189,403	0.452	537,932
SFPG	419,676	788,785	0.558	439,883
SFPG as % of HECLA	72%	66%	123%	82%

*Au grades in opt.

Table 3

ESTIMATE OF THE TOTAL MINEABLE 'RESOURCE' PRESENT WITHIN THE MINE AREA AS DEFINED BY CURRENT DRILLING

	CU YDS	TONS	Au GRADE	Au OUNCES
MODEL AREA RESOURCE*	614,158	1,167,706	0.456	532,845

*Global Resource plus 50% of the Geologically Possible, Au grade in opt.

not include any dilution that would be encountered in mining, and the eventual mineable reserve numbers can be expected to contain more tons and more ounces at a lower grade (~23,000 ounces Au @ 25% dilution with 0.08 opt waste).

In 1995 Hecla designed and carried out a confirmation drilling program to test the 1994 block model. The drilling was centered in the South Zone between panel 600N and 1000N, and consisted of infill drilling on the 50 ft spaced panels, as well as the establishment of new panels splitting the existing ones. This area has now been drilled out on nominal 25 ft spacing, which is coincident with the planned production drill density.

SFPG has produced a manual resource estimate of the drilled area to assess the impact of the increased data resolution. The results of this study are presented in Table 4. Although interpretation of the spatial distribution of the gold changed locally with the addition of the new data, the amount and tenor of the mineralization present has remained the same. This suggests that the 50 ft spacing is adequate for defining the resource, but that 25 ft spacing will be necessary to accurately delineate reserves for mine planning.

Table 4

COMPARISON OF SFPG MANUAL ESTIMATES OF THE TOTAL MEASURED AND INDICATED 'RESOURCE' PRESENT WITHIN THE AREA OF CONFIRMATION DRILLING

	CU YDS	TONS	AU GRADE	TOTAL OUNCES
1994 Measured and Indicated	179,889	323,805	0.634	205,202
1995 Measured and Indicated	180,399	324,727	0.630	204,635
% DIFFERENCE	100%	100%	99%	99%

This study, coupled with work summarized in the Tables above, provides an opportunity to assess the distribution of gold mineralization within this deposit. Several conclusions can be made in this regard:

- The majority of the gold is hosted by the South Zone (58%), followed by the East Zone (31%) and the North (11%).
- The distribution of grade by domain varies by up to a factor of 2.
- The distribution of grade by panel (location) is not consistent, and displays several local maximums.
- The majority of contained ounces are accounted for by three of the six domains modeled: 1) the upper lith horizon in the South Zone, 2) feeders in the South Zone, and 3) mineralization below the South Ridge Fault in the East Zone.
- Contained ounces mimic the grade distribution when viewed by panel.
- The volume of mineralized material also mimics the grade distribution when viewed by panel.

These findings suggest that all future block modeling should resolve the mineralization into discrete domains to minimize the mixing of populations. The mineralization may also be present as a series of coalescing cells which could also be used to isolate distinct statistical populations.

Geology of the Rosebud Deposit, Pershing County, Nevada

GENERAL GEOLOGY OF THE AREA

The Rosebud Mine is located in the Kamma Mountains of northwestern Pershing County, approximately 50 miles west southwest of Winnemucca, Nevada (Figure 1). The Kamma Mountains are composed of Tertiary (Miocene) age volcanic rocks erupted onto a basement of Jurassic/Triassic age siltstone, shale, phyllite, and other metasediments. A sequence of felsic tuffs, coarse grained pyroclastics, and volcanic-sedimentary rocks were deposited in an elongate volcano-tectonic depression roughly 10 miles long (north-south) by 4 miles wide. Sub-volcanic intrusive bodies of felsic composition locally cut this volcanic pile. The volcanic trough is structurally controlled by north-south trending Basin and Range faults, down dropping young volcanics against Jurassic/Triassic age basement rocks to the east and west. Resurgent igneous activity in the southern half of the volcano-tectonic depression may be responsible for the formation of a topographic dome 3-4 miles in diameter. It is along the ring fracture of this resurgent dome that the Rosebud ore deposits reside.

A regional-scale structural study of the Eugene 1:100,000 scale sheet in 1995 shows a common pattern of major east-west trending and north-south trending faults and linears. Additionally, there are several circular features and domes. Mineral deposits and occurrences on this sheet are frequently coincident with N-S, E-W, structural intersections or are hosted within circular structures and domes.

In the last five years an estimated 2 million ounces of new gold reserves have been delineated within the Eugene sheet. Three of the four major gold systems on the sheet (Crofoot-Lewis, Rosebud, and Wild Cat) are within or adjacent to circular structures or domes, as defined from satellite imagery. The most common orientation of local structures used as conduits for gold-bearing fluids in these mines is within 15° of N-S, with the second most common direction northeast.

On the west margin of the Kamma Mountains, four miles northwest of the Rosebud Deposit is the Crofoot-Lewis Mine. Ore bodies on this property contain approximately 1.5 million ounces of low to very-low grade gold-silver ore, and are being mined by the open pit method. The ore bodies are hosted in older Tertiary fanglomerate upon which auriferous hot spring fluids and sinter deposits have been superimposed. Additionally, two vein type ore bodies have been recently discovered within the younger Tertiary Kamma volcanics. The Crofoot-Lewis Mine is the only operating mine in the district. Its similarities to the Rosebud deposit are minimal and a direct comparison of costs, recoveries, and the geologic models would be problematic.

GEOLOGY OF THE ROSEBUD DEPOSIT

The Rosebud deposit is hosted within the Kamma volcanics. In the mine area the Jurassic-Triassic age Auld Lang Syne formation forms the basement rocks below these volcanics. Deposited on the Auld Lang Syne Formation is an older Tertiary fanglomerate. Going up-section from these basement rocks are a sequence of volcanics including the Dozer Tuff, Oscar Sediments, LBT, Bud Tuff, with the Chocolate Tuff being the youngest. Recently a large intrusive plug of rhyolitic composition has been discovered adjacent to the ore deposits, and it may be the progenitor of mineralization. The stratigraphic section at Rosebud is presently being reexamined, and modifications may be made in the near future.

The Rosebud Deposit has been divided into three distinct, spatially separate zones of precious metal mineralization: the South, North, and East Zones. The South Zone and the majority of the North Zone are hosted within the LBT unit of the Kamma Mountain volcanics, which are comprised of fine-grained water lain and air fall tuff, and lithic ash flow tuff and tuff breccia. The East Zone and a small portion of the North Zone are hosted within the Dozer Tuff unit, which is an aphanitic, siliceous, weakly flow-banded ash flow tuff. The two other major units in the deposit area, the Chocolate Tuff and Bud Tuff cap the deposit with 200' to >500' of nonmineralized volcanic cover. The rocks in this area, from young volcanics to older basement rocks, have been intensely faulted and displaced along the regionally extensive Rosebud Shear Zone. This shear zone strikes northeast-southwest and has a left-lateral displacement of a few to several thousand feet. Near the mine area the shear zone is at least 500' wide. Significant mineralization is not known to be present within the shear zone proper; however, rocks hosting the Rosebud ore bodies exhibit numerous small scale faults and fractures subparallel to the Rosebud Shear, many of which may have been feeders for mineralizing solutions.

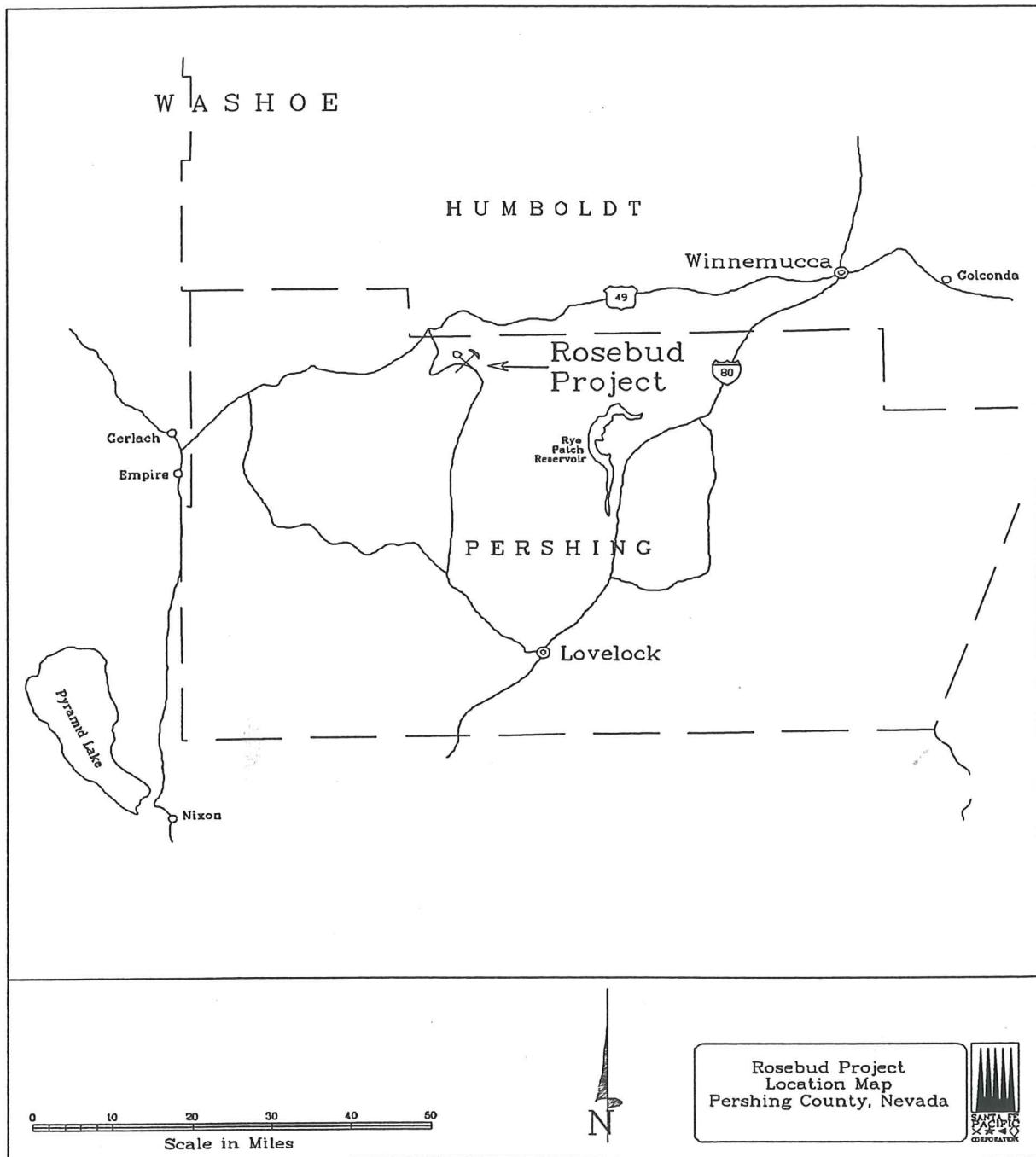
Regional to district scale east-west trending faults dissect the Kamma Mountains. East-west trending faults provided an important pathway for ore fluids within the Rosebud system, and locally host ore grade mineralization. Major ore controls within the deposit appear to be the intersection of east-west trending listric faults with north-striking, east-dipping, permeable volcanic beds.

MINING HISTORY OF THE DEPOSIT AND DISTRICT

As noted previously, the only deposit actively being mined within the district is the Crofoot-Lewis Mine, four miles to the northwest. Less than one mile northwest of the Rosebud Mine is the Dreamland deposit. Historical mining took place here in the early 1900's along high grade silver-gold veins and vein systems, striking east-west and dipping vertical to low angle. Production from the Rosebud District is 3,700 oz gold and 116,000 silver; most of this came from the Dreamland Mine.

Approximately five miles southeast of the Rosebud Mine is the Scossa property. SFGP's interest in Scossa is part of the Rosebud Joint Venture agreement. Drilling at Scossa by Santa Fe Pacific Mining in the early 1990's outlined a large area of highly anomalous gold and silver mineralization, and associated trace elements. It is expected that work on the Rosebud deposit

Figure 1



will help put metal anomalies at Scossa into a geologic, geochemical, and structural framework that will be more meaningful for future exploration efforts.

DESCRIPTION OF MINERALIZATION

The Rosebud ore bodies are epithermal in character, and are comprised of high grade gold-silver and silver-gold mineralization within a sequence of permeable volcaniclastic rocks. Some of the volcanic beds are literally flooded by mineralization, whereas others host discrete vein, vein stockworks, and mineralized tectonic breccias. The total sulfide content of the deposits is generally low. Within the South Ore Zone sulfide content is estimated at $\leq 4\%$.

Preliminary ore microscopy studies were performed by Lac, and reported by Hecla as follows: There are two principal episodes of mineralization. The early stage deposited quartz + pyrite + marcasite \pm chalcopyrite \pm gold \pm electrum, with traces of arsenopyrite, sphalerite, and galena. A later episode of mineralization was silver rich and comprised of silver sulfosalts \pm silver sulfides \pm silver selenides \pm silver-rich electrum. Barite was deposited late, and in the South Ore Zone is generally in the footwall of precious metal mineralization. In the East and North Ore Zones stibnite was deposited late and is above the ore zones.

Because of the high grade nature of the deposit, several of the core drill logs indicate the presence of visible gold, electrum, and ruby silver (silver sulfosalts). Work by Hecla on the grain size of gold indicates the presence of two size fraction populations, one around ± 10 microns in diameter and the other about ± 350 microns (with some grains exceeding 700 microns). Silver minerals have a wide size range from very fine grained particles up to 1/4" crystals of silver sulfosalts.

SFPG collected five bulk samples (50 pounds each) from an ore stockpile extracted from the 900N cross cut through the South Ore Zone. These samples were submitted for size fraction analysis. Results show that there is generally a large increase in gold and silver content of the - 1/4" size fraction of crushed material, with the greatest amount of gold reporting to the -28 mesh to +100 mesh size fraction (the 590 micron to 150 micron size fraction). This data is presented in Tables 5-9

DRILL HOLE CORE AND CHIP LOGGING CONSISTENCY

Lac used several different contract geologists to log core and chips throughout the drilling program. Nineteen different loggers have worked the property for Lac and Hecla since discovery in 1989, logging a total of ~264,000 feet of drilling. The use of several different geologists shows up as a disturbing lack of consistency in logging, especially with regard to the description and assigning of lithologic units, as well as the amount of detail present in describing lithology, alteration, and mineralization. Most of the work by Lac was highly appellative in nature. That is, they attempted to assign names and sub-names to loosely described lithologic units. For example: the Bud Formation, the Bud Lite, the True Bud, the Red Brown Ugly Unit, and others. Lac's appellative logging style is present time again on the drill hole logs, both within and

Table 5

**SANTA FE PACIFIC GOLD CORPORATION PROJECT
AS-RECEIVED MATERIAL
KCA SAMPLE NO. 23289 A
RBFRA - 1
WET SCREEN ANALYSIS AND FIRE ASSAYS**

Size Fraction		Weight Kilograms	Weight Percent	Cumulative Weight Percent Passing	Fire Assay		Weight Percent Gold	Cumulative Gold Percent Passing	Fire Assay		Weight Percent Silver	Cumulative Silver Percent Passing
					opt Au	Average			opt Ag	Average		
- 6"	+ 2"	5.88	25.32	100.00	0.008	0.006	1.50	100.00	0.87	0.88	24.12	100.00
				0.006					0.86			
				0.005					0.92			
- 2"	+ 1"	3.18	13.70	74.68	0.026	0.031	4.19	98.50	0.20	0.22	3.26	75.88
				0.035					0.23			
- 1"	+ 1/4"	6.28	27.04	60.98	0.025	0.021	5.60	94.32	0.43	0.58	16.98	72.61
				0.016					0.73			
- 1/4"	+ 28M	3.80	16.37	33.94	0.258	0.216	34.85	88.72	1.52	1.39	24.63	55.63
				0.173					1.25			
- 28M	+ 100M	1.00	4.31	17.57	0.621	0.641	27.21	53.87	2.90	3.03	14.13	31.01
				0.661					3.16			
- 100M	+ 200M	0.36	1.55	13.26	(1)		9.80	26.66	(1)		5.09	16.88
- 200M		2.72	11.71	11.71	0.140	0.146	16.86	16.86	0.88	0.93	11.79	11.79
					0.152				0.98			
Total:		23.22	100.00			0.101				0.92		
Wt. Average:												

(1) - Combined the -100M + 200M fraction with the - 28M + 100M fraction.

Table 6

*SANTA FE PACIFIC GOLD CORPORATION PROJECT
AS-RECEIVED MATERIAL
KCA SAMPLE NO. 23289 B
RBFRA - 2
WET SCREEN ANALYSIS AND FIRE ASSAYS*

Size Fraction		Weight Kilograms	Weight Percent	Cumulative Weight Percent Passing	Fire Assay		Weight Percent Gold	Cumulative Gold Percent Passing	Fire Assay		Weight Percent Silver	Cumulative Silver Percent Passing
					opt Au	Average			opt Ag	Average		
- 6"	+ 2"	5.94	26.73	100.00	3.406	3.686	51.96	100.00	14.05	13.84	47.42	100.00
				3.965					13.62			
- 2"	+ 1"	3.22	14.49	73.27	0.360	0.307	2.35	48.04	0.66	0.59	1.10	52.58
				0.254					0.52			
- 1"	+ 1/4"	4.98	22.41	58.78	0.318	0.450	5.32	45.69	4.20	4.50	12.93	51.49
				0.350					4.25			
				0.681					5.04			
- 1/4"	+ 28M	3.80	17.10	36.36	1.731	1.701	15.34	40.37	8.85	9.07	19.88	38.56
				1.670					9.29			
- 28M	+ 100M	1.26	5.67	19.26	4.095	4.042	12.09	25.03	12.30	12.63	9.18	18.68
				3.988					12.96			
- 100M	+ 200M	0.40	1.80	13.59	(1)		3.84	12.95	(1)		2.91	9.50
- 200M		2.62	11.79	11.79	1.450	1.465	9.11	9.11	4.25	4.36	6.59	6.59
					1.468				4.28			
					1.478				4.55			
Total:		22.22	100.00									
Wt. Average:						1.898				7.81		

(1) - Combined the -100M + 200M fraction with the - 28M + 100M fraction.

Table 7

SANTA FE PACIFIC GOLD CORPORATION PROJECT
AS-RECEIVED MATERIAL
KCA SAMPLE NO. 23289 C
RBFRA - 3
WET SCREEN ANALYSIS AND FIRE ASSAYS

Size Fraction		Weight Kilograms	Weight Percent	Cumulative Weight Percent Passing	Fire Assay		Weight Percent Gold	Cumulative Gold Percent Passing	Fire Assay		Weight Percent Silver	Cumulative Silver Percent Passing
					opt Au	Average			opt Ag	Average		
- 6"	+ 2"	5.36	24.54	100.00	0.195	0.214	6.09	100.00	0.30	0.310	2.58	100.00
				0.191					0.27			
				0.255					0.36			
- 2"	+ 1"	3.32	15.20	74.46	0.147	0.140	2.47	93.91	0.29	0.31	1.60	97.42
				0.132					0.32			
- 1"	+ 1/4"	5.12	23.44	60.26	0.626	0.531	14.44	91.44	1.94	1.76	14.01	95.82
				0.435					1.58			
- 1/4"	+ 28M	3.66	16.76	36.82	1.104	1.257	24.43	77.01	4.88	5.96	33.91	81.81
				1.410					7.03			
- 28M	+ 100M	1.26	5.77	20.06	3.708	3.627	24.27	52.58	11.19	11.45	22.43	47.90
				3.545					11.71			
- 100M	+ 200M	0.50	2.29	14.29	(1)		9.63	28.31	(1)		8.90	25.48
- 200M		2.62	12.00	12.00	1.360	1.343	18.68	18.68	3.99	4.07	16.58	16.58
					1.388				4.01			
					1.332				4.22			
Total:		21.84	100.00									
Wt. Average:					0.862				2.95			

(1) - Combined the -100M + 200M fraction with the - 28M + 100M fraction.

Table 8

**SANTA FE PACIFIC GOLD CORPORATION PROJECT
AS-RECEIVED MATERIAL
KCA SAMPLE NO. 23289 D
RBFRA - 4
WET SCREEN ANALYSIS AND FIRE ASSAYS**

Size Fraction	Weight Kilograms	Weight Percent	Cumulative Weight Percent Passing	Fire Assay		Weight Percent Gold	Cumulative Gold Percent Passing	Fire Assay		Weight Percent Silver	Cumulative Silver Percent Passing
				opt Au	Average			opt Ag	Average		
- 6" + 2"	1.92	8.75	100.00	0.209	0.212	2.69	100.00	1.24	1.29	2.42	100.00
				0.215				1.34			
- 2" + 1"	3.72	16.96	91.25	0.728	0.772	18.97	97.31	3.58	3.70	13.43	97.58
				0.816				3.82			
- 1" + 1/4"	7.84	35.73	74.29	0.298	0.295	15.27	78.35	2.76	2.69	20.58	84.15
				0.296				2.69			
				0.292				2.63			
- 1/4" + 28M	4.34	19.78	38.56	1.434	1.157	33.16	63.07	7.62	7.29	30.87	63.58
				0.880				6.96			
- 28M + 100M	1.16	5.29	18.78	2.244	2.228	17.07	29.91	13.69	14.08	15.94	32.71
				2.211				14.46			
- 100M + 200M	0.42	1.91	13.49	(1)		6.18	12.84	(1)		5.77	16.77
- 200M	2.54	11.58	11.58	0.479	0.397	6.66	6.66	4.22	4.44	11.00	11.00
				0.314				4.65			
Total:	21.94	100.00			0.690				4.67		
Wt. Average:											

(1) - Combined the -100M + 200M fraction with the - 28M + 100M fraction.

Table 9

**SANTA FE PACIFIC GOLD CORPORATION PROJECT
AS-RECEIVED MATERIAL
KCA SAMPLE NO. 23289 E
RBFRA - 5
WET SCREEN ANALYSIS AND FIRE ASSAYS**

<i>Size Fraction</i>		<i>Weight Kilograms</i>	<i>Weight Percent</i>	<i>Cumulative Weight Percent Passing</i>	<i>Fire Assay</i>		<i>Weight Percent Gold</i>	<i>Cumulative Gold Percent Passing</i>	<i>Fire Assay</i>		<i>Weight Percent Silver</i>	<i>Cumulative Silver Percent Passing</i>
					<i>opt Au</i>	<i>Average</i>			<i>opt Ag</i>	<i>Average</i>		
- 6"	+ 2"	3.22	13.71	100.00	0.014	0.012	0.34	100.00	1.88	1.83	12.75	100.00
					0.009				1.78			
- 2"	+ 1"	4.78	20.36	86.29	0.112	0.118	4.97	99.66	0.95	0.91	9.41	87.25
					0.123				0.87			
- 1"	+ 1/4"	6.78	28.88	65.93	0.211	0.307	18.35	94.69	0.49	0.64	9.39	77.84
					0.402				0.78			
- 1/4"	+ 28M	4.06	17.29	37.05	0.578	0.700	25.05	76.34	3.17	3.21	28.20	68.45
					0.821				3.24			
- 28M	+ 100M	1.36	5.79	19.76	2.160	2.078	24.91	51.29	6.78	6.82	20.07	40.24
					2.162				6.83			
					1.911				6.86			
- 100M	+ 200M	0.48	2.04	13.97	(1)		8.79	26.39	(1)		7.08	20.17
- 200M		2.80	11.93	11.93	0.616	0.713	17.60	17.60	2.16	2.16	13.09	13.09
					0.810				2.16			
Total:		23.48	100.00			0.483				1.97		
(1) - Combined the -100M + 200M fraction with the - 28M + 100M fraction.												

surrounding the ore deposits. In many, if not most, instances drill hole logs completed by Lac geologists are (not descriptive enough) to be useable in determining which lithology is present. A consistency of alteration types and intensity is similarly lacking on these drill hole logs.

When Hecla geologists attempted to put together a workable geologic model of the ore deposits, they found Lac's drill logs minimally useful. Hecla geologists relied heavily on slides of Lac core to determine lithologic units and contacts.

Hecla geologists used descriptive terminology in logging drill core and rotary chips. On the whole, Hecla's logging contains much better detail and is much more useable than Lac's when determining rock lithology, alteration, and mineralization within and surrounding the ore deposits. Additionally, Hecla had a greater consistency of geologic personnel logging core and chips.

However, Hecla's drill hole logging also has its drawbacks. One of its major flaws is the periodic lack of an adequate number of personnel for logging. During these times several of the drill holes were logged with a "Speed Log". That is, only major lithologic contacts were noted, with little to no significant descriptive detail regarding lithologies, alteration, or mineralization. Even as recently as Hecla's 1995 block model drill verification program some holes were logged using "speed logs".

The general lack of usage of descriptive terms on several drill hole logs, and the inconsistent usage of several descriptive lithologic and tectonic terms, has led to a general difficulty in correlating volcanic units and structures from drill hole to drill hole.

ROCK TYPE MODEL

Hecla's geologic model is primarily based on Lac's drilling and the numerous holes drilled by Hecla from underground stations, with fewer holes collared from the surface. They interpret the geology mostly as a layer-cake of volcaniclastic rocks striking north-northeast and tilted to the east-southeast. These rocks are cut by one or more east-west trending listric faults, which form the base of mineralization in the South Ore Zone, and several northeast trending high angle faults.

Hecla has constructed cross sections at 25' intervals throughout the South Ore Zone and is presently working to do the same for the North and East Ore Zones. These cross sections are a good general view of the basic geologic model of the ore deposit. However, when examined in detail there are several parts of individual cross sections that do not sufficiently represent the geology as described on drill logs, or geology does not track well from section to section. Hecla has not taken their geologic cross sections to plan and resolved lithologic and structural discrepancies.

SFPGeologists constructed preliminary plan level maps for the 4,600', 4,700', 4,800', and 5,000' elevations based on pierce point geology, as described in drill hole logs. This work showed a sequence of volcanic pyroclastics and thin bedded tuffs striking north and dipping to the east, with strong east-west fault control. This is generally consistent with Hecla's geologic model. However, when Hecla's cross sections were checked on these plans it became apparent

that many of their high angle northeast trending faults either zigzagged across the plan sections, or showed no obvious geologic basis for their presence. There appears to be a need to refine Hecla's present cross section geologic model.

A key to a potentially better interpretation was noted in the geology of the underground cross cut through the South Ore Zone. Here it was noted that several of the volcanic beds exhibit significant folding. Traverses across the surface also located folding in thin bedded water lain tuffs. It is possible that by incorporating folds into the present cross section model a better and more predictive geologic model can be constructed.

Evaluation of Hecla's 1994 Block Model and Statistical Analysis of the Au Assay Database

ROSEBUD PROJECT ASSAY DATA REVIEW

Hecla and Mine Development Associates (MDA) supplied assay data for the Rosebud project in several forms. The MEDS file 11 which MDA used as the basis for the block model completed January 1995 utilizing the data through 1994 (1994 Block Model) was provided in Unix format. Hecla supplied the assay and drill collar data in Excel spreadsheets which included the 1995 confirmation infill drilling.

In addition, Hecla allowed SFPG staff to copy their archive of assay certificates and drill logs. From these SFPG constructed two sets of MEDS assay and survey data files. The first file comprised the 1994 drill data (the basis for the MDA block model), and the second included the 1995 drilling data as well.

The assay data validation focused on checking the laboratory certificates against the digital (Excel Spreadsheet) files. The spreadsheets, as provided, contained the North, South and East ore zones in separate files. Checklists from these files were generated by selecting the data from mineralized intervals; including some adjacent low grade to barren intervals. The North and South Zones were emphasized in this study. The previous model was based on averaged grades from the initial and check assays. For this reason both were compared to certificate values in this study. Significant errors were considered to be discrepancies greater than 10% in Au grade, except for the low grade samples (less than 0.01 OPT Au) in which larger errors were not considered important.

In the North and East areas 450 original assays and 218 check assays were reviewed. Errors were found in 2 original assays and 7 check assays within the subset selected for review. The majority of check assay errors consisted of shifting a series of values in the spreadsheet by one interval.

The South Zone contains the highest drill density and highest grades. Assay certificates were checked against 967 initial grades in the database and against 647 check assays or reassay results. Nine initial assays were found to be entered incorrectly, and 16 check assays were in error by greater than 10%. Many of the errors found were values shifted off by one interval from their correct location.

The assay database appears very clean. The values chosen for checking were weighted toward mineralized intercepts. The number of assay intervals checked represents 3.6% of all assay intervals, or 5.6% of the assay intervals with values greater than or equal to 0.001 opt Au. The error rate encountered is 1.5%. The most frequent error consists of grades in a contiguous series having been shifted by one sample interval.

This error rate includes the errors in check assays associated with an assay interval. Multiple assays for a single interval were averaged before loading to the database. Errors in the check assays have an effect on the Au value used in modeling, but the magnitude of the error is reduced by the averaging function. This type of error will tend to result in broader zones being interpreted as mineralized with a lower average grade within the zone.

COMPOSITE DATA

Updated assay data were used to generate a new set of bench composites. The old composite sets were not used in the Manual Resource. The data received from MDA was not in a consistent spatial reference. The files had to be rotated into a different coordinate system before composite data could be generated in a compatible format. The composites and the cross sectional mineralization were manipulated in this rotated coordinate system prior to the statistical analysis.

SURVEY DATA

Actual down hole survey logs were either not available or not in a form we could use. The collar locations checked relative to topography served as the only survey check carried out at this stage. One drill hole was found to have a collar elevation too high and another had a total depth error. The survey data is consistent and error free to the degree which SFPG could determine.

EVALUATION OF HIGH WATER FLOW IN REVERSE CIRCULATION HOLES

High water flows were reported on some of the drill logs. Flows greater than 50 gallons/minute ,or with "high water flow" noted in the log, were chosen for evaluation in this portion of the study. Holes with high water flows are subject to down hole contamination by washing material from high grade zones down hole into the lower samples. The pattern of grade distribution down the hole may show a peak and then a slow tapering off of grade. Another pattern which points toward contamination is a grade spike at rod changes below a high grade intercept. Spikes characterizing this scenario are separated by the length of the drill rod (usually 20 feet).

A list of the drill holes with high water flows noted on the log sheets was compiled. The drill hole assay data were extracted from the database for these intervals. Graphs of the grade vs. depth were constructed for each drill hole. The graphs were checked visually for the patterns suggestive of down hole contamination. Twenty five holes were checked; five were found to have potential down hole contamination problems. Three holes displayed grade spikes

accompanied by gradually decreasing grade down the hole. Two holes showed a less distinct pattern of lower grade spikes at about 20 foot intervals below a high grade intercept.

The limitations on this check method are significant. The logging of water flows is not carried out uniformly throughout the deposit or consistently between individual loggers. Minor high grade veinlets intercepted by a drill hole may show a series of elevated grades at some spacing along the drill hole which are legitimately related to mineralization controls. Structural control of stockwork or disseminated mineralization about a higher grade zone may produce high grade intercepts within or adjacent to lower grade mineralization. The problem of down hole contamination below zones of high water flow deserves attention on a hole by hole basis, by geologists familiar with the mineralization styles. Suspect intercepts with strong influence on the local resource tons and grade need to be retested with core if practical.

Only a small percentage of the drilling appears to be affected by high water flow. Of 426 collars in the survey database, five appear to have problems. Hecla also identified about 5 cases of contamination which they removed from the modeling. Although no record was kept of which holes were involved, it is likely that most were the same as those found in this study. Hecla used similar pattern recognition in conjunction with the geologic context to determine possible contamination problems.

ASSAY STATISTICS

The assay database contains 39,109 assays. Reverse circulation drill holes were typically sampled on 5 foot intervals. Core holes were sampled by splitting (Lac Minerals) or sampling whole core (Hecla) on variable sample lengths, with most about 5 feet long. Lab procedures varied between the past operators on the property, as did record keeping practices. The loss of assay certificates reduced the ability of SFPG staff to check some of the data. Hecla faced the same situation with respect to the Lac data. The certificates available represent a reasonable range of data and allowed an acceptable percentage of the database to be checked.

The assay laboratories that have been used on the property are: 1) American Assay (Hecla), 2) GSI (Lac) 3) Bondar-Clegg (Lac) 4) Chemex and 5) Barringer. The data include AA finish as well as gravimetric finish with charge sizes of both 30: grams (1 AT) and 60: grams (2 AT):

- For the American Assay data, few significant problems exist. The major problems identified are data entry (usually getting a decimal place off), entering preliminary assay results or failing to update the database with final results.
- The GSI data are extremely disorganized with numerous typographic errors evident in sample numbering. Moreover, sample numbers are frequently out of sequence, and portions of multiple holes are included in a single report. Check assay certificates are commonly missing from the drill hole file. The data was checked where certificates were available.
- The Bondar-Clegg data are generally well-organized and complete, although only a very small amount of these data have been checked.

Lac ran a large number of check assays, which are in the database, but for which no assay certificates exist. These check assays could not be checked by SFGP staff. Hecla have accepted Lac's data as stated. The sample prep protocols are not available for the Lac data. The majority of these data consist of 1 AT charges.

The vast majority of Hecla's gold assays are run with a 2 AT charge. Check assays were run on samples above 0.05 opt. Holes drilled before 94-303 have no gravimetric-finish check assays. A comparison of initial assays vs. gravimetric for 1038 samples showed a 98% correlation. All AA gravimetric finish checks were done from the original pulp. Metallic screen and cyanide soluble gold pulps were made from the coarse rejects.

Hecla calculated the accepted gold value for a sample interval by averaging all samples run on that interval. In the 1994 reserve, this included only the fire assays with AA and gravimetric finishes. In 1995, this was expanded to include metallic screen assays and cyanide soluble (value plus value of reject) gold.

The assay data distribution is skewed due to the presence of extremely high grade outliers from intercepts in the 1995 drilling. The influence of high grade outliers on the calculated resource may be very strong. The 1995 data has added underground fan drilling results from heart of the deposit. The result has been to increase in the proportion of strongly anomalous assays to the 1995 database, further accentuating this effect. The mean of assays without the extreme values is 0.0670 opt Au.

Various methods can reduce the disproportionate influence of high grade outliers, including cutting the highest grade values and tightly limiting the range of the variogram used to estimate the grade above a threshold. However, assays were not cut before compositing and interpolation in Hecla's 1994 block model. The following histogram summarizes the distribution of gold assay grades in the Rosebud database (Figure 2). Both background and high grade outliers have been eliminated in the statistical summary below.

Samples were also analyzed for silver. However, the silver distribution has not been evaluated at this time. Qualitatively, the higher grade gold appears to be associated with high grade silver.

COMPOSITE STATISTICS

Weighted length composites were generated for each bench. The composite database, inclusive of 1995 drill results, consists of 20,594 bench composites. Some of these composites are carried by very high grade assays, which add to the high coefficient of variability. Composites less than 70% of the bench height were eliminated from the histogram below. The short composites will weight high grade values out of proportion with the full length composites. Distribution of the composites is substantially log normal (Figure 3).

Figure 4 presents a cumulative frequency plot of the composite data. The distribution tails off above 2.0 opt. There may be multiple sample populations of data within the database. The Hecla geologists have proposed multiple stages of mineralization within the Rosebud ore body.

Figure 2

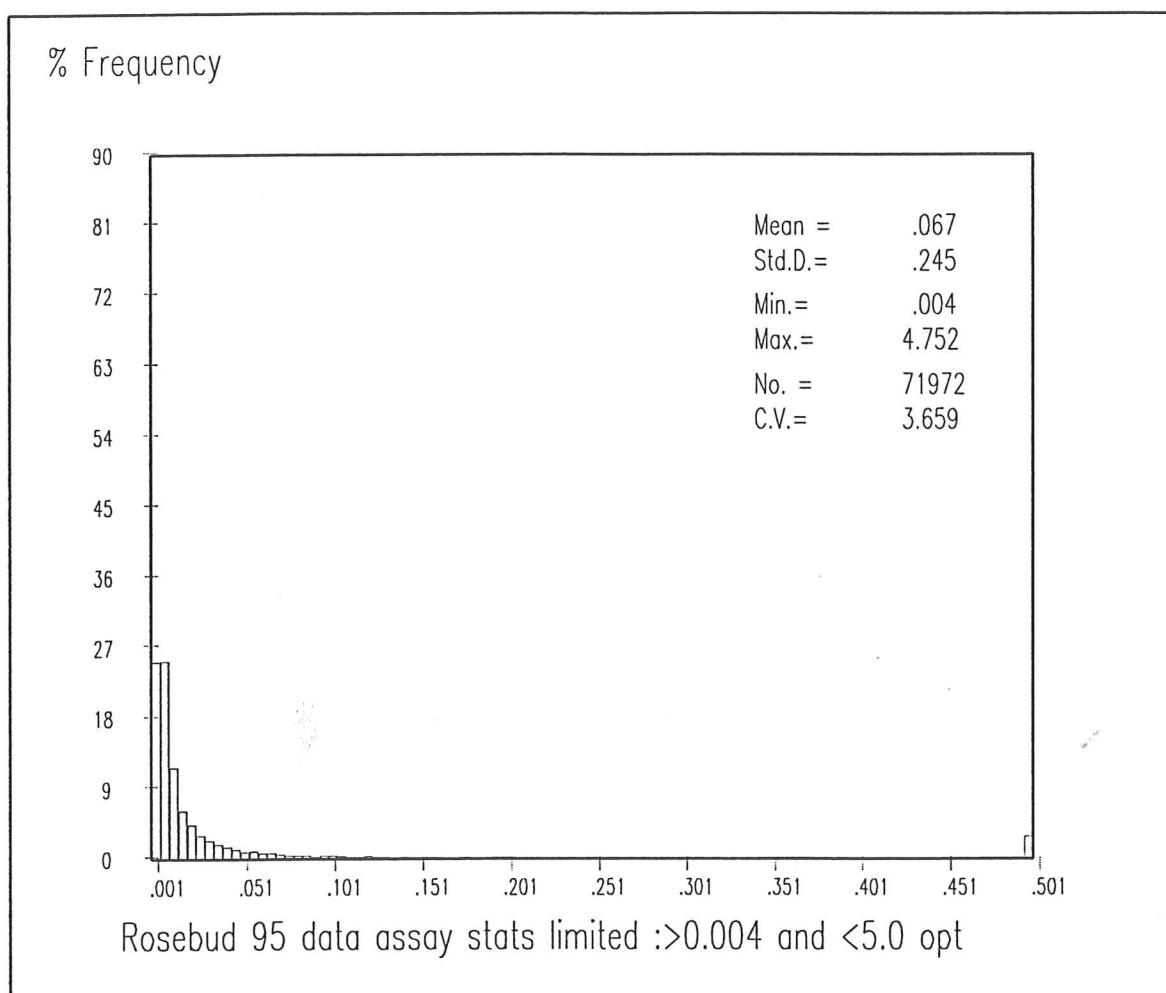


Figure 3

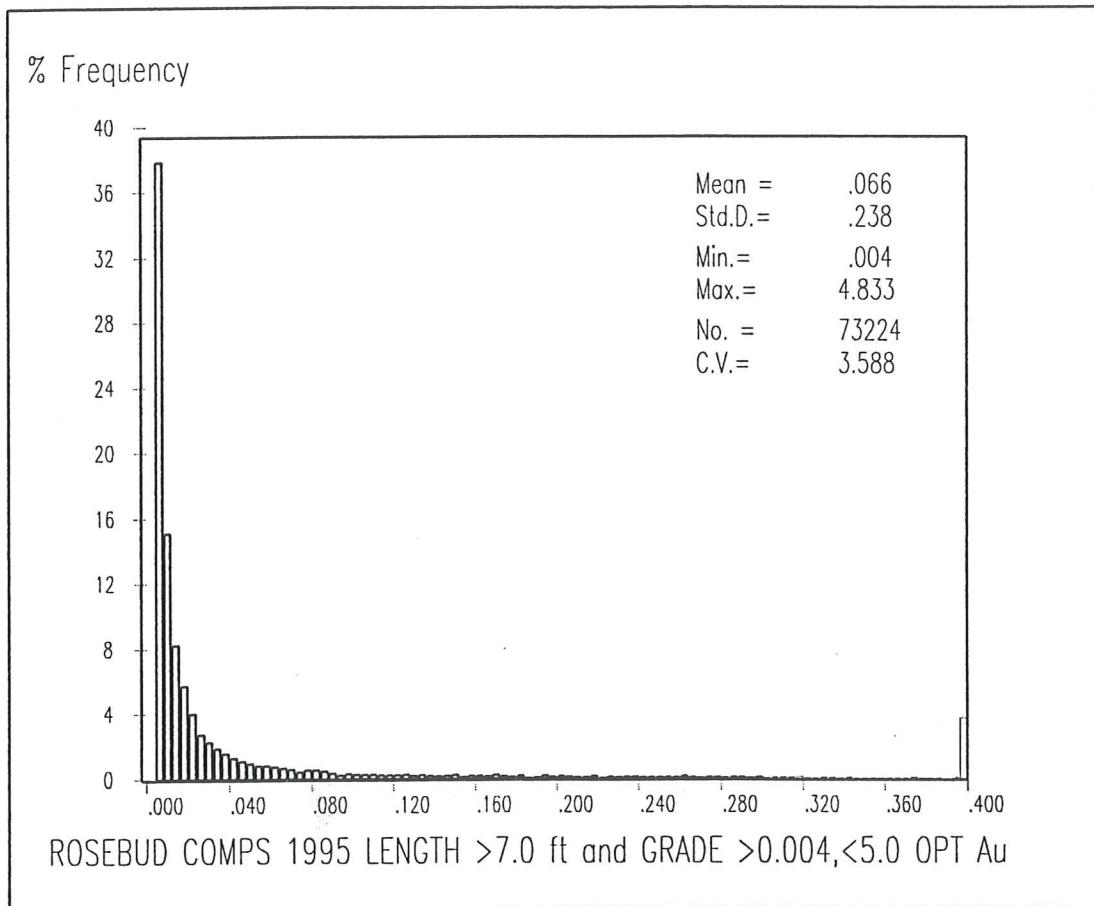
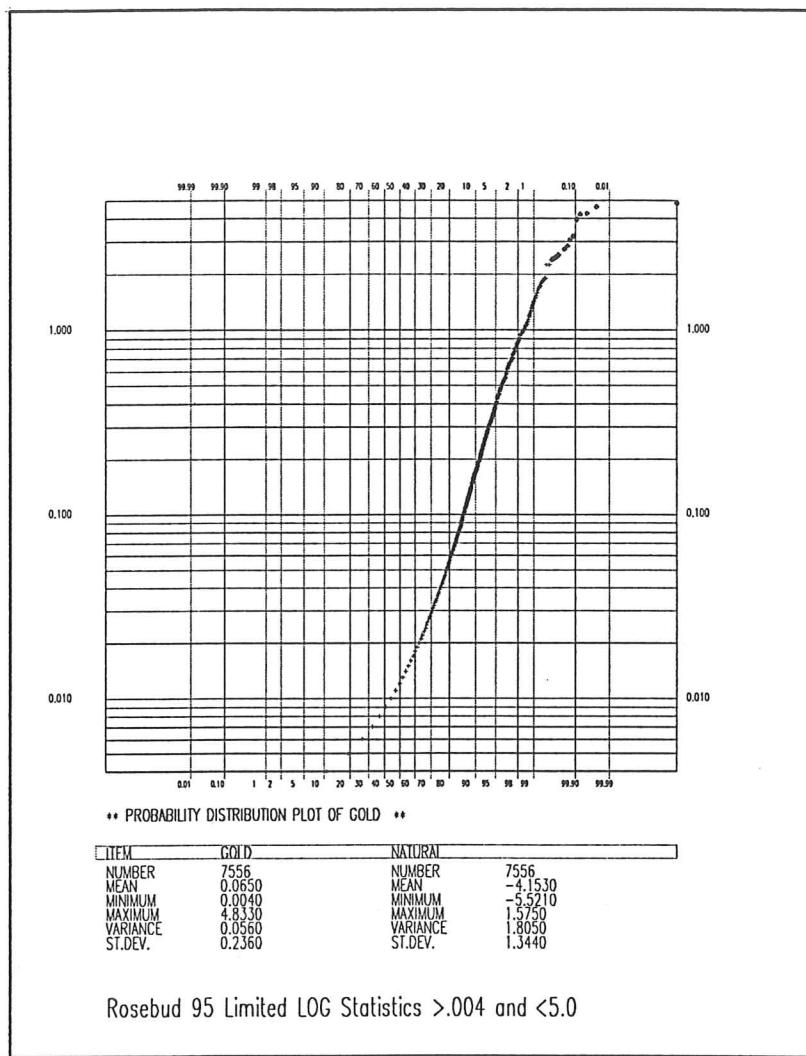


Figure 4



It may be possible to separate multiple populations and determine if they require different treatment in the modeling process. The calculated estimate of the mean of the Log normal population is 0.4086. The reported mean is higher than the calculated mean, suggesting that the grade may need to be cut further to match a truly log normal distribution.

VARIOGRAMS

The 3-D omni directional variogram at 0.14 opt Au has a range of 70 feet. Closely spaced fan drilling from the decline provides a substantial dataset to support this short range. The more widely spaced surface drilling in the North and East zones provides few pairs from

which to calculate the variogram, except in the downhole directions. The mineralization is spatially consistent between sections, suggesting that the 70 foot variogram is not unreasonable in these areas.

DATA CLUSTERING

Data is strongly clustered in the South Zone. Underground fan drilling from stations spaced on 25 foot centers creates a dense dataset in the core of the mineralization. This clustering allows the mineralized zones to be defined with a high degree of confidence. The variogram is also improved by the close spaced data. Calculation of a block model must not allow the dense data clusters to exert unbalanced influence on block grades in other areas. The block model which MDA built for Hecla utilized a Kriging algorithm which declusters the data.

GRADE BLOCK MODEL

Hecla's current block model was not statistically evaluated. Due to time constraints SFPG staff constructed M650AR models (MedSystem manual resource models) based on each of the 1994 and 1995 databases.

Manual Verification of the 1994 Hecla Block Model

INTRODUCTION

A cross-section polygonal resource estimate (Manual model) of the Rosebud deposit was performed to validate the gold resource and reserve numbers provided by Hecla. These estimates were the result of a block model completed in the first quarter of 1995, and included drilling through the end of 1994 (1994 block model). The database used for the SFPG estimate was identical to that used by Hecla.

Mineralized envelopes were developed at a 0.01 cutoff to outline the limits of the gold bearing portion of the hydrothermal system. Secondary envelopes were then interpreted within this halo at a 0.14 opt cutoff. These envelopes were constrained by actual assay values, and were drawn on 25 ft panels in the South deposit, and on 50 ft panels for the North and East zones. These interpretations were performed on paper using standard light table techniques.

The ore envelope model was then used to construct a M650AR model of the ore-grade mineralization. The M650AR model was calculated using 50 ft panel spacing to match the nominal drill panel spacing in the pre-1995 database. The interpretation of envelopes was validated independently against the original logs to assure geologic consistency, and continuity of style. The original Hecla grade envelopes were also monitored during the M650AR work to qualitatively evaluate that interpretation. These preliminary interpretations are subject to change with addition of new data and the three dimensional perspective that Minesight will provide.

CONSTRAINTS

The 1994 block model provides a breakdown of the relative quality of estimated ounces. The omnidirectional indicator variography for the data yielded a 70 ft range, suggesting a practical limit of predictability at this distance. Work with the ore envelopes suggests that high-grade gold cannot be extrapolated further than 25 ft with high confidence. This empirical finding is consistent with 1/3 of the variogram range, and was chosen to constrain the high-confidence resource (**Measured**). The **Indicated** resource was modeled at ~2/3 of the variogram range (50 ft), and the **Inferred** was taken to the limit of the variogram range (70 ft).

To facilitate emulation of the **Measured**, **Indicated** and **Inferred** resource reported by Hecla, Manual models were produced for the following four scenarios:

1. A strict 25 ft search was applied to approximate a **Measured** resource.
2. A strict 50 ft search was applied to approximate an **Indicated** resource
3. A strict 70 ft search was applied to approximate an **Inferred** resource.

A geologically constrained search was applied to estimate the tonnage of high probability exploration targets within the model area.

MODELING PROTOCOLS

In the restricted searches (25, 50 and 70 ft) the basic protocols were the same for all three models:

- Polygons were restricted to single drill intercepts where possible. In the small number of cases where splitting was not practical, multiple intercepts were averaged.
- Individual Polygons averaged as many 10 ft composites as were interpreted to fall within a given style of mineralization (Domains).
- Polygons were drawn to the limit of the search where there was no constraint.
- Polygons were extended no more than halfway between holes if this distance was less than the search.
- The relative grade in adjacent holes did not influence the distance that polygons were drawn toward that hole: the search distances were strictly adhered to in each of the three models.

In the fourth model, an estimate of the volume (and tonnage) of high probability exploration targets within the model area was made. The geologic context of the mineralization on a given panel was compared to the mineralized zones fore and aft to define areas possessing a high probability for mineralization above cutoff (0.14 opt). The following protocols were used as guidelines to estimate the potential for reserve expansion within the immediate area of existing drilling:

- The geologic constraints of mineralization within an area were used to identify untested potential, and to assign a length and thickness to the polygons.
- If a drill hole displayed mineralization in excess of 0.049 opt, but less than 0.140 opt, it was assumed that the subgrade mineralization had a high probability of extending 25 ft around the drill test. In cases where a polygon trended toward one of these subgrade intercepts, it was allowed to extend to within 25 ft of that intercept.
- If an existing polygon trended toward a drill intercept grading less than 0.050 opt, it was extended to halfway between drill control on that panel. Intercepts on adjacent panels had no influence in these cases.
- If there was no drill control to limit the extent of an existing polygon, intercepts and polygons from adjacent panels were used to establish a reasonable limit.
- If mineralized polygons were present fore and/or aft of a panel, and the area where that mineralization would project was not tested on that panel, a polygon was established using the above constraints. The average grade for the panel was then assigned to the modeled volume.

TONNAGE FACTOR

Tonnage Factors (TFs) used by Hecla in the 1994 block model were defined using over 950 specific gravity measurements. These measurements were performed on saturated core, and were immersed in water during the procedure. No attempt was made to correct for the water content. In a small number of measurements the core was wrapped in plastic to try to account for large vugs or vesicles. An average TF of 13.4 cubic feet per ton was calculated for all rocks except the East Zone and portions of the North Zone. Here silicification has produced a TF of 12.9 (quartz = 12.65).

SFPG's experience with rocks in similar volcanic-hosted systems suggests that the densities measured by Hecla may be too heavy. The TFs measured at Mule Canyon and Golden Eagle are presented in Table 10. Rosebud is hosted in rocks of quartz latite to rhyolite composition, and is generally less mafic than either Mule Canyon or Golden Eagle. In addition, the Rosebud host rock consists of ash tuffs, lapilli ash tuffs, pyroclastic flows and epiclastic rocks. These compositions and lithologies tend to represent lighter rocks overall. The relative degree argillic alteration at Rosebud has not been quantitatively determined, but from descriptions of the physical and mechanical behavior of these rocks it is assumed to be an average degree for this study (ARG 2: see explanation Table 10).

Preliminary Results of Measured Tonnage Factors

To gain a better understanding of the density of the mineralized rock in part of the Rosebud South Zone, Westec was contracted to perform in situ rock density measurements using a hand-held Nuclear Field (NF) Density Meter. Testing took place underground along the 900N cross-cut and encompassed a variety of rock and alteration types. At each density measurement

Table 10

Accepted TFs for Mule Canyon and Golden Eagle. All values determined by whole-box dry bulk-density method and are given in cubic feet per ton. Mule Canyon is hosted in basalts to basaltic andesites; Golden Eagle is hosted in andesites. ARG 1 scratches lightly with a probe, ARG 2 can easily be gouged with a probe and ARG 3 has little resistance to penetration with the probe.

SUPERGROUP	SUBGROUPS		
	ARG 1	ARG 2	ARG 3
<i>GOLDEN EAGLE</i> Sediments	14.3	14.8	16.1
<i>GOLDEN EAGLE</i> Volcanics	13.4	14.1	16.2
<i>MULE CANYON</i> Volcanics	12.9	14.5	16.0

station a 3/4" hole was drilled in the rock to a depth of 14"-16". When drilling was completed, a probe was inserted into the hole and a reading taken. A total of 17 density measurement stations were completed over two days.

The NF Density Meter takes a reading of the wet density and water content of the rock at each station, then calculates a dry rock density. Because the machine often overestimates water content of the rock (leading to a lighter dry density calculation), samples were collected at each station and sent to Chemex Labs for a wet/dry determination of their water content. The drying process took 3-4 days. When an accurate water content of the rocks was determined the results were factored into the calculated rock density.

Of the 17 density measurement stations, 16 were accepted as valid measurements (Figure 5). These give an average wet density of 13.8 cubic feet per ton of rock, and a calculated dry TF of 14.9 cubic feet per ton. The measured water correction yields a TF of 14.7 cubic feet per ton.

Recommendation

Based on the values measured in similar deposits, and the small number of values measured in situ, SFPG assigned a TF of 15.0 cubic feet per ton for all mineralization except for silicification associated with the East Zone and portions of the North Zone. Here the Hecla measured value is within the range that would be expected for this style of mineralization, and 12.9 was accepted for use in this study.

Fifteen cubic feet per ton is considered conservative, and is consistent with the level of precision that is currently available for this property. It is expected that a rigorous dry bulk density study will confirm lighter TFs than those used by Hecla, and that the true bulk density will be nearer to the value that SFPG has assumed. Additional work will be necessary to confirm the specific TFs that will be used for reconciliation and mine planning.

RESULTS and DISCUSSION

The Manual model was reviewed by all members of the geologic team for consistency and completeness. The results of the four model runs were then tabulated in Excel and the data

reduced. Detailed breakdowns of the model runs are provided in Appendixes 1 through 4. The tabulated results of the SFPG resource study are provided Table 11.

SFPG has been provided several versions of the resource and reserve estimates performed by Hecla for the Rosebud deposit. In the press release following the agreement to develop the property jointly, Hecla announced 1.2 million tons grading 0.452 opt for 540,000 ounces of mineable Au. This reserve estimate was taken as the basis for comparison of the Manual results with the block model (Table 12; the original is provided in Appendix 5).

Figure 5

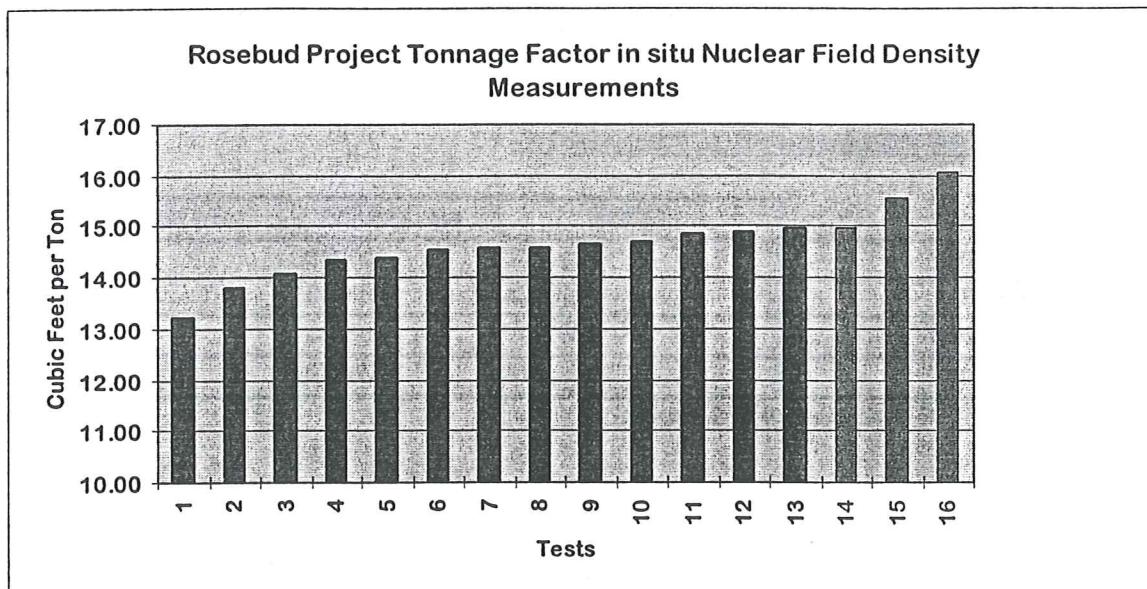


Table 11

Results of the SFPG 1996 Manual model for the Rosebud deposit. All Au grades reported in ounce per ton.

	CU YDS	TONS	Au GRADE	Au OUNCES
MEASURED (25 FT)	189,318	348,360	0.592	206,183
INDICATED (50 FT)	230,359	440,425	0.531	233,700
INFERRRED (70 FT)	80,892	156,465	0.340	53,262
GLOBAL TOTAL	500,569	945,250	0.522	493,145
GEOLOGICALLY POSSIBLE	113,590	222,456	0.357	79,402
MODEL AREA RESOURCE*	614,158	1,167,706	0.456	532,845

* = Measured, Indicated and Inferred Resource plus 50% of the Geologically Possible

Table 12

Summary of the mineable reserves for the Rosebud deposit as stated by Hecla. Values used in this breakdown were derived from stope planning based on the 1994 block model. All Au grades reported in ounce per ton. Asterisk indicates resource not included in the SFPG model.

	TONS	Au GRADE	Au OUNCES
SOUTH	594,245	0.560	332,777
NORTH and EAST	555,158	0.348	193,195
FAR EAST*	40,000	0.299	11,960*
TOTAL	1,189,403	0.452	537,932

* not included in SFPG estimate

DILUTION INCLUDED IN FIGURES ABOVE

	TONS	Au GRADE	Au OUNCES
SOUTH	132,047	0.070	9,243
NORTH and EAST	148,224	0.095	14,081
FAR EAST	16,007	0.005	80
TOTAL*	296,278	0.079	23,405*

* not included in SFPG estimate

Measured and Indicated Comparison

For the purpose of this comparison, the figures in Table 12 have been reduced to an undiluted equivalent (the Manual model has no modeled dilution) and the Far East has been removed. This zone is not currently understood, and no interpretation or resource has been assigned by SFPG at this time. The revised **Measured and Indicated** resource totals are presented in Table 13.

Table 13

Mineable resource derived from the 1994 Hecla block model exclusive of Far East zone and modeled dilution due to mining. Figures represent materials above 0.14 opt cutoff; Au grades reported in ounce per ton.

	CU YDS	TONS	Au GRADE	Au OUNCES
HECLA	420,243	853,125	0.578	502,567
SFPG	419,676	788,785	0.558	439,883
SFPG as % of HECLA	100%	92%	97%	88%

The **Measured** and **Indicated** comparison lies within normal tolerance for comparison of Kriged block model results with those of a hand generated polygonal estimate. There are two factors which account for the observed divergence: 1) definition of the classes and 2) the difference in Tonnage Factor used in the models.

The block model defines **Measured** and **Indicated** based on true 3-dimensional geometries and geostatistical criteria. In the Manual model, these categories were approximated. Domains that were represented by a single drill intercept with no apparent continuity either fore or aft were assigned to the **Inferred** category. Continuity was determined qualitatively using an approach similar to light table overlay, and may be viewed as working in 2.5 dimensions.

Global Resource Comparison

A Global resource estimate was produced from the Hecla block model using a MEDS file 608 inventory of all blocks in the model area that had assigned grades greater than 0.14 opt. A full breakdown of this inventory is provided in Appendix 6. Table 14 presents the comparison of the **GLOBAL RESOURCES**, exclusive of dilution modeled from mine planning. The block model does not discriminate between geographic zones, so the resource blocks from the Far East Zone are included in the Hecla figures presented here.

There is an apparent bust when comparing the figures in the Hecla announcement, and the inventory produced from MEDS. The 502,567 ounces in Table 13 was derived from the announcement (Appendix 5) has had Far East removed. The 504,783 ounces in Table 14 was derived from an independent inventory of the block model and includes the Far East Zone. The Far East is reported to contain about 12,000 ounces of gold; the bust appears to be on the order of 10,000 ounces, or about 2% of the resource in question. It is not clear which figure is more correct, and in lieu of the 1996 block model has not been pursued any further.

Table 14

Global resource contained within blocks grading better than 0.14 opt in the 1994 Hecla block model for the Rosebud deposit. This estimate includes the Far East Zone. SFPG values represent the total Measured, Indicated and Inferred resource exclusive of the Far East Zone which was not modeled. All Au grades reported in ounce per ton.

	CU YDS	TONS	Au GRADE	Au OUNCES
HECLA	503,556	1,031,599	0.489	504,783
SFPG	500,569	945,250	0.522	493,145
SFPG as % of HECLA	99%	92%	107%	98%

The overall agreement between these models is very good when compared at the global level. The mineralized volumes in the **Global Resources** are nearly identical. The Manual model shows fewer tons and higher grade than the block model; there is only a 2% difference in the contained ounces of Au.

Removal of the Far East mineralization can be approximated by using the figures presented in Table 12. This would result in the SFPG model containing more mineralized volume, approximately the same tonnage (despite the TF difference) with similar grade and contained ounces of Au. Although this approach is not rigorous, it is probably legitimate given the overall precision of this type of comparison, and can serve to give a general comparison of the two models with nearly identical constraints.

CONCLUSIONS

The overall agreement between the Mineable Reserves announced by Hecla and the SFPG estimate of high-confidence ounces derived from Manual cross-sectional methods is within 18%. When compared after equilibration of assumptions and model constraints, this difference becomes less than 10%, and is almost entirely due to the difference in Tonnage Factor that was used. The magnitude of the difference is well within the normal and accepted tolerances for validating interpolated estimates with hand-generated polygonal estimates.

Monitoring of the Hecla interpretation demonstrated a model that was qualitatively very similar to the SFPG interpretation. Direct comparison of the volume of mineralized material and the contained ounces of gold is exceptional, and reflects this similarity, as well as the tight constraints which were placed on Hecla's grade envelopes. The grade envelopes limited the smearing of mineralized material, and produced a block model that closely approximates the ore body as interpreted by the geologists. SFPG's work confirms the total contained resource as announced by Hecla. The observed differences in the announced Mineable Reserves and the Measured and Indicated resources are due primarily to 1) differences in the Tonnage Factors used, and 2) the relative confidence level assigned to the ounces by Hecla and SFPG (accounting).

Manual Resource Evaluation Inclusive of the 1995 Confirmation Drilling

INTRODUCTION

In 1995 Hecla designed an infill drill program to validate the existing block model. This confirmation drilling took place in the South Zone, which hosts the highest grades and the majority of the gold resource in the Rosebud deposit. New information was gathered on existing sections, as well as on new panels which split the existing drill control from 50 foot to 25 foot spacing between panels 600N and 1000N. A cross-section polygonal resource estimate (Manual model) was performed as part of SFPG's due diligence effort. The impact of the 1995 information on the overall resource at Rosebud is examined through comparison of the SFPG Manual models using each dataset. Distribution of this resource by zone and by occurrence (domain) is also examined through the manually interpreted 1995 dataset.

Mineralized envelopes were developed at a 0.01 opt Au cutoff to outline the limits of the gold bearing portion of the hydrothermal system. Secondary envelopes were then interpreted within this halo at a 0.14 opt Au cutoff. These envelopes were constrained by actual assay

values, and were drawn on 25 ft panels in the South deposit, and on 50 ft panels for the North and East zones. These interpretations were performed on paper using standard light table techniques.

The ore envelope model was then used to construct a (MEDS) M650AR model of the ore-grade mineralization. The M650AR model was calculated using 50 ft panel spacing from -50S to 600N, and from panels 1000N to 2000N, to match the nominal drill panel spacing in the pre-1995 database. Panel spacing was reduced to 25 ft spacing between panels 600N and 1000N to model the impact of the 1995 confirmation drilling on the resource in this area.

The interpretation of envelopes was validated independently against the original logs to assure geologic consistency, and continuity of style. The original Hecla grade envelopes were also monitored during the M650AR work to qualitatively evaluate that interpretation. These preliminary interpretations are subject to change with the addition of new data, and with the three dimensional perspective that Minesight will provide.

CONSTRAINTS and PROTOCOLS

The modeling constraints used in this evaluation are identical to those outlined in the previous section (Manual Verification of the 1994 Hecla Block Model for the Rosebud Deposit, Pershing County, Nevada). A brief summary is provided below:

To facilitate emulation of the **Measured**, **Indicated** and **Inferred** resource reported by Hecla, Manual models were produced for the following three scenarios:

1. A strict 25 ft search was applied to approximate a Measured resource.
2. A strict 50 ft search was applied to approximate an Indicated resource
3. A strict 70 ft search was applied to approximate an Inferred resource.

The basic protocols were the same for all three of these models:

- Polygons were restricted to single drill intercepts where possible. In the small number of cases where splitting was not practical, multiple intercepts were averaged.
- Individual Polygons averaged as many 10 ft composites as were interpreted to fall within a given style of mineralization (Domains).
- Composites in excess of 1.0 and 4.0 opt were segregated into separate polygons to facilitate estimation of sensitivity of the resource to the high grade intercepts.
- The Domains were tracked to test the geologic distribution of the grade and tonnages.
- Polygons were drawn to the limit of the search where there was no constraint.
- Polygons were extended no more than halfway between holes if this distance was less than the search.

- The relative grade in adjacent holes did not influence the distance that the polygons were drawn toward that hole: the search distances were strictly adhered to in each of the three models.

Based on Tonnage Factors measured by SFPG at Mule Canyon and Golden Eagle, and preliminary results from Rosebud, a value of 15.0 cubic feet per ton was assigned for all mineralization, except the silicified mineralization associated with the East Zone and portions of the North Zone. Here the Hecla measured value is within the range that would be expected for this style of mineralization, and 12.9 was accepted for use in this study.

RESULTS and DISCUSSION

The area affected by the 1995 drilling is limited to the heart of the South Zone. This area lies between panels 600N and 1000N, and was interpreted on 25 ft panels in this study. Tables 15 and 16 present the comparison of the SFPG resource modeled on 50 ft centers using the original 1994 drill control, versus the SFPG resource modeled on 25 ft panels using the 1995 confirmation drilling in conjunction with the 1994 dataset. The search windows for the 25 ft panels at 600N and 1000N were increased by 12.5 ft (to the south and north respectively) to produce an exact match of the volume covered by the 50 ft panels. Full inventories of the three search distances are provided in Appendices 7 through 9.

Table 15

Comparison of the SFPG Measured and Indicated resources within the volume from panels 600N to 1000N in the South Zone of the Rosebud deposit. The 1994 Measured and Indicated represents data on 50 ft spacing; the 1995 Measured and Indicated represents the confirmation drill data on 25 ft spacing in addition to the 1994 dataset. All numbers compared represent SFPG modeling, all Au grades are reported in ounce per ton.

	CU YDS	TONS	Au GRADE	TOTAL OUNCES
1994 Measured and Indicated	179,889	323,805	0.634	205,202
1995 Measured and Indicated	180,399	324,727	0.630	204,635
% DIFFERENCE	100%	100%	99%	99%

Table 16

Comparison of the SFPG Global resources (Measured, Indicated and Inferred) within the volume from panels 600N to 1000N in the South Zone of the Rosebud deposit. The 1994 Global represents data on 50 ft spacing; the 1995 Global represents the confirmation drill data on 25 ft spacing in addition to the 1994 dataset. All numbers compared represent SFPG modeling, all Au grades are reported in ounce per ton.

	CU YDS	TONS	Au GRADE	TOTAL OUNCES
1994 Global	191,057	343,905	0.627	215,586
1995 Global	190,206	342,366	0.640	219,203
% DIFFERENCE	100%	100%	102%	102%

Despite locally significant changes in the interpretation of geometry for the mineralization, the overall resource in this area remains unchanged. This suggests that the 50 ft spacing is adequate for definition of the resource in this deposit. The poor correlation between the individual confirmation drill intercepts and the grade and thickness predicted by the 1994 block model (Appendix 10) suggests that the 50 ft spacing is not currently adequate for mine planning. Refining our understanding of the geologic and structural controls on mineralization will improve the predictability of the spatial distribution of gold in the deposit.

The updated global resource for the whole property is presented in Table 17. Note that the small resource and grade increase over the 1994 dataset is due to the addition of Inferred ounces in the core of the South Zone. The overall numbers remain essentially unchanged.

Table 17

Comparison of the SFGP Global (Measured, Indicated and Inferred) resource within the volume from panels 50S to 2000N of the Rosebud deposit. The 1994 Global represents drill data through 1994; the 1995 Global represents the 1995 confirmation drill data on 25 ft spacing in addition to the original 1994 dataset. All numbers compared represent SFGP modeling, all Au grades are reported in ounce per ton.

	CU YDS	TONS	Au GRADE	TOTAL OUNCES
1994 GLOBAL	500,568	945,250	0.522	493,144
1995 GLOBAL	499,717	943,710	0.530	496,761
% DIFFERENCE	100%	100%	102%	101%

The South and East Zone mineralization dominates when viewed either by geographic zone (Table 18) or geologic domain (Table 19). Nearly 90% of the Global resource is found in these two zones. The North Zone mineralization is not as well defined, and further work will probably delineate a more significant resource there. However, the existing mineralization appears to be more limited in extent and of lower grade than the rest of the deposit.

Table 18

Breakdown of Global gold distribution by zone. (The South Zone dominates the tons and grade in these figures, but the East Zone is also significant).

	TONS	GRADE	OUNCES	% TONS	% OUNCES
SOUTH	492,638	0.583	287,008	52%	58%
EAST	315,896	0.491	155,896	33%	31%
NORTH	135,177	0.404	54,673	14%	11%
TOTALS	943,711	0.526	496,761	100%	100%

Table 19

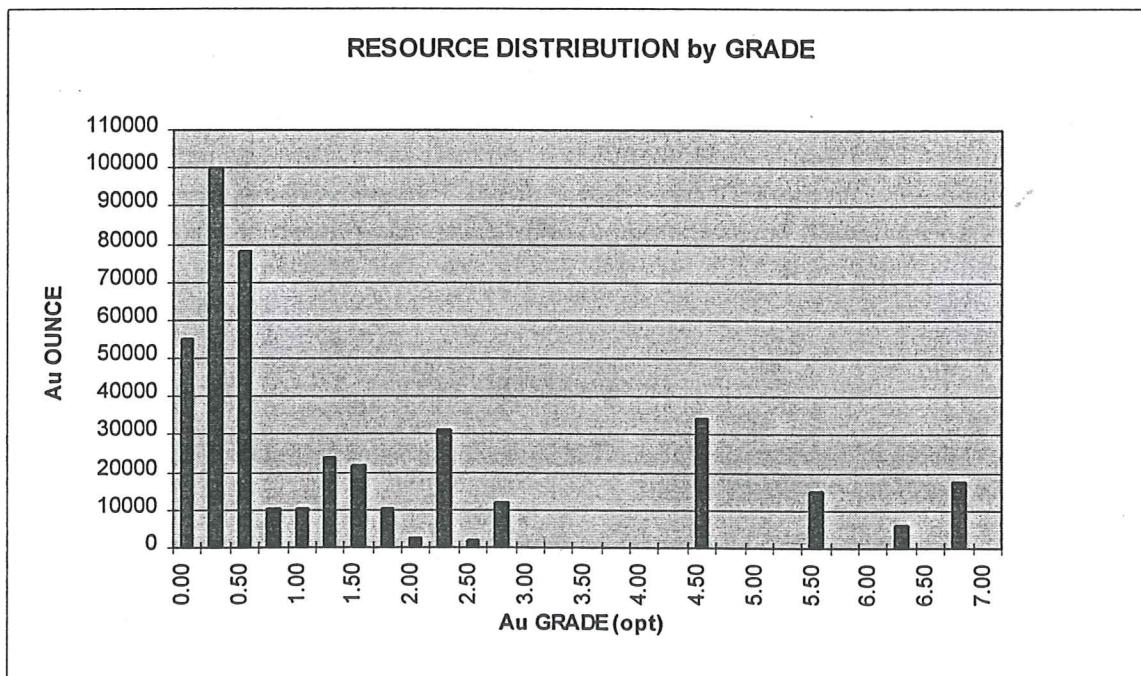
Summary of gold distribution by Domain, sorted by total contained ounces. Figures are based on the SFPG Manual models, and represent Global totals (Measured, Indicated and Inferred).

	TONS	Au GRADE	TOTAL Au OUNCES
EAST ZONE (BELOW SRF)	315,896	0.491	155,896
SOUTH ZONE UPPER LITH HORIZON	233,106	0.622	144,886
SOUTH ZONE FEEDERS	111,160	0.721	80,158
NORTH ZONE	135,177	0.404	54,673
SOUTH ZONE LOWER LITH HORIZON	76,532	0.492	37,623
SOUTH RIDGE FAULT (SRF)	71,840	0.339	24,341
TOTALS	943,711	0.526	496,761

DISTRIBUTION OF THE GOLD RESOURCE

The gold resource was examined for sensitivity to high grade outliers by segregating the materials above one and four ounces when drawing polygons. The distribution of resource by grade is presented in Figure 6. About 43% (187,913 ozs) of the Measured and Indicated gold resource in the Manual model derives from polygons grading better than 1 opt. Almost 17% (73,000 ozs) derives from polygons grading better than 4 opt Au.

Figure 6



The spatial distribution of the Rosebud mineralization can also be examined on a panel by panel basis (Figure 7). This study, coupled with work summarized in Manual Verification of the 1994 Hecla Block Model for the Rosebud Deposit, provides an opportunity to assess the distribution of contained gold, mineralized material (proportional to volume) and gold grade. The data have been normalized to 50 ft volume slices for the purposes of comparison, but all data through 1995 have been used.

Chart A presents the distribution of total contained ounces of gold. The form of this histogram chart is very distinct, and shows the main South Zone and East Zone mineralization very clearly. There is also a smaller amplitude periodicity, with three smaller humps in the south end of the South Zone.

Chart B presents the tonnage of mineralized material. This chart can be thought of as representing the volume of mineralized material present in each slice (panel) of this deposit. Tonnage is directly proportional to volume through the tonnage factor. The form of this chart mimics the contained ounces, and displays the same maxima.

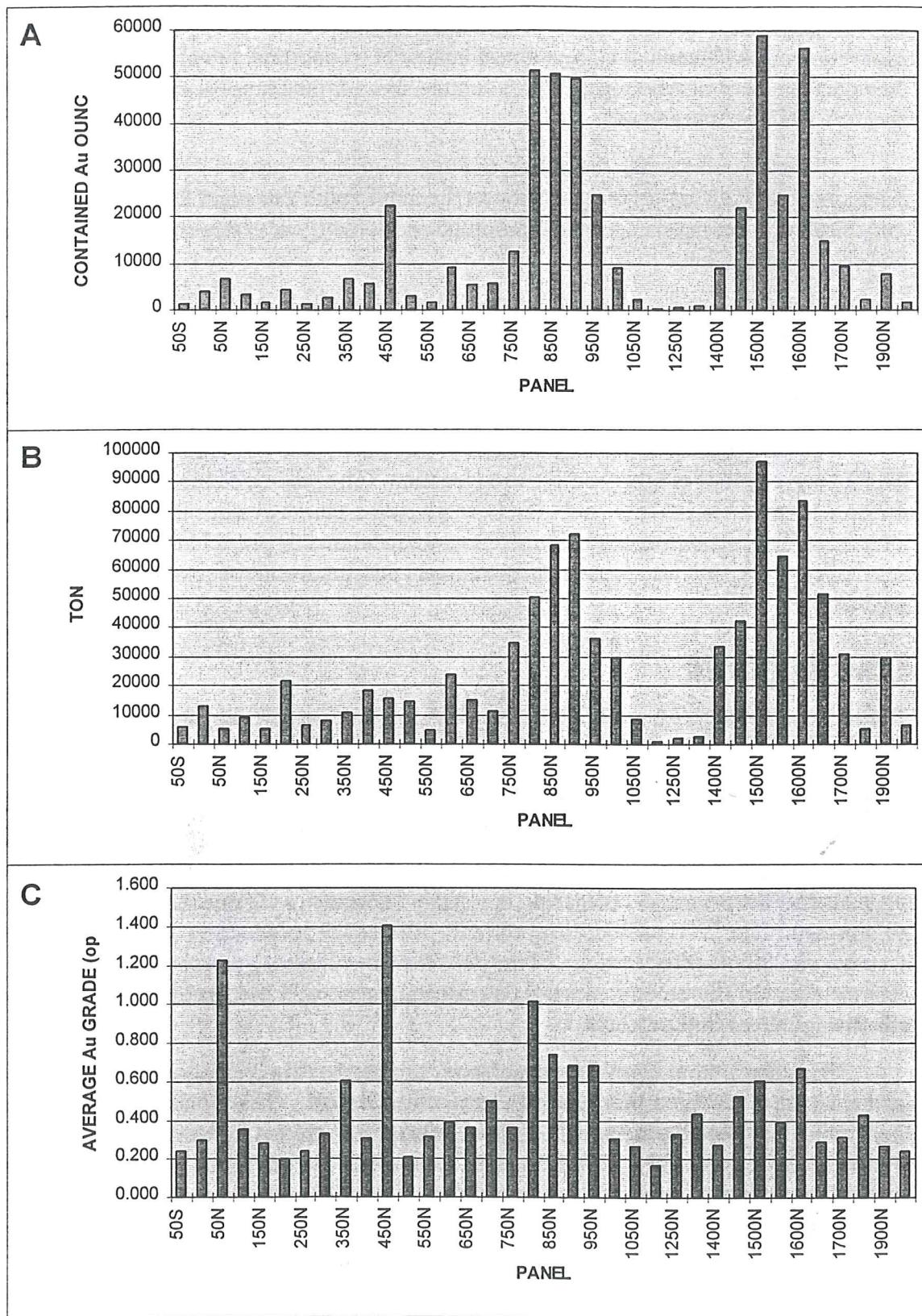
Chart C presents the distribution of average gold grade by slice. Significantly, the distribution of grade is highly sensitive to location. The grade differences by domain and zone are broadly exhibited in these data. But overprinted on these average differences are very well developed distributions centered around the same maxima displayed in Charts A and B. These distributions may indicate separate hydrothermal cells, and could be unique statistical populations.

CONCLUSIONS

The improved resolution provided by the 1995 confirmation drilling has demonstrated that the present geologic understanding of the Rosebud deposit is not adequate. Interpretations based on 50 ft panel spacing were very similar in the 1994 Hecla block model and in the SFPG Manual model. The addition of the 1995 data required significant changes in interpretation on a local scale in the core of the South Zone. Despite these changes in geometry, and the additional assays, the Measured, Indicated and Inferred resource numbers did not change materially. This suggests that the present 50 ft spacing is probably adequate to define the presence and quantity of gold present. The 25 ft infill drilling currently planned for production will be necessary to allow accurate prediction of the location of the gold for mine planning and scheduling. Better understanding of the geologic controls on mineralization will have to be developed to design an effective grade control protocol.

The distribution of gold by panel lends insight into the controls on mineralization, geologic context and possible genesis/history of the deposit. These findings suggest that future block modeling should segregate the mineralization into the South, North and East Zones and treat each group separately. Within each of these zones, the different host domains should be modeled to minimize the mixing of populations. It is interesting to note that the 1994 and current (in progress) block models are constrained very tightly, and appear to produce reasonable estimates despite the mixing of populations.

Figure 7



Mineralization may be present as a series of discrete cells which could also be used to isolate distinct statistical populations: These cells are overprinted on the host domains, and may further subdivide them. The discontinuities in the distribution may also indicate areas which are underexplored. An example of this lies on panel 1550N, where the total contained ounces dip by 30,000 ounces due primarily to a lack of drill control.

Ore Reserve

	South Zone		North & East Zones		Far East Zone		Total Tons	Gold Grade	Ounces Mined	Ounces Milled
	Tons	Au Grade	Tons	Au Grade	Tons	Grade				
Cut-Off Grade (opt)		0.14		0.14		0.14		0.14		
Total Resource Estimate	473,898	0.678	419,594	0.421	25,243	0.459	918,735	0.555	509,523	
Measured Resource	440,171	0.677	240,939	0.461						
Indicated Resource	33,727	0.687	178,655	0.369	25,243	0.459				
Reserve Scheduled for Mining	594,245	0.560	555,158	0.348	40,000	0.299	1,189,403	0.452	537,655	500,557
Proven Reserve	535,207	0.572	306,894	0.385			842,101	0.504		
Probable Reserve	59,038	0.449	248,265	0.301	40,000	0.299	347,302	0.326		
Resource Not Scheduled for Mining	11,700	0.207	12,660	0.161	1,250	0.230	25,610	0.185		
Percent Extraction	97.5%		97.0%		95.0%		97.2%			
Dilution	132,047	0.070	148,224	0.095	16,007	0.005	296,278	0.079		
Percent Dilution	22.2%		26.7%		40.0%		24.9%			

Rosebud
Project

APPENDIX 1

1994 DATABASE

MEASURED RESOURCE (25 FT SEARCH)

APPENDIX 1

PANEL	SLICE	CUT #	TONS	CU YD	Au GRAD	OUNCES	
-50N	8	1	1654	919	0.243	402	
ON	9	1	1277	709	0.390	498	
ON	9	2	635	353	0.241	153	
ON	9	3	786	437	0.198	156	
ON	9	5	714	397	0.450	321	
50N	10	1	756	420	0.835	631	
50N	10	2	752	418	1.638	1232	
100N	11	1	828	460	0.523	433	
100N	11	2	836	464	0.157	131	
100N	11	3	793	441	0.379	300	
150N	12	1	623	346	0.170	106	
150N	12	2	679	377	0.218	148	
150N	12	3	875	486	0.464	406	
150N	12	4	630	350	0.209	132	
200N	13	1	803	446	0.158	127	
200N	13	2	3510	1950	0.235	825	
200N	13	3	436	242	0.169	74	
200N	13	4	543	302	0.160	87	
200N	13	5	1566	870	0.222	348	
250N	14	1	386	215	0.361	139	
250N	14	2	1180	656	0.225	266	
250N	14	3	1082	601	0.211	228	
300N	15	1	1378	766	0.307	423	
300N	15	2	1053	585	0.368	387	
350N	16	2	742	412	0.188	139	
350N	16	3	744	414	1.717	1277	
350N	16	4	990	550	0.309	306	
350N	16	5	963	535	0.203	195	
400N	17	1	743	413	0.214	159	
400N	17	2	1054	586	0.200	211	
400N	17	3	985	547	0.426	419	
400N	17	4	965	536	0.241	232	
400N	17	5	1187	659	0.225	267	
400N	17	6	1311	729	0.490	642	
450N	18	7	900	500	0.249	224	
450N	18	1	345	192	0.217	75	
450N	18	2	895	497	0.144	129	
450N	18	3	1087	604	0.146	159	
450N	18	4	929	516	0.952	884	
450N	18	5	866	481	6.988	6052	
500N	19	1	838	466	0.378	317	
500N	19	2	1444	802	0.159	230	
500N	19	3	760	423	0.142	108	
500N	19	4	1043	579	0.216	225	
500N	19	5	1309	728	0.188	246	
500N	19	6	601	334	0.234	141	
500N	20	1	977	543	0.297	290	
500N	20	2	494	274	0.321	158	
500N	20	3	243	135	0.410	99	

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600N	21	1	1703	946	0.589	1003	
600N	21	2	494	275	0.291	144	
600N	21	3	1965	1092	0.536	1053	
600N	21	4	1018	566	0.207	211	
600N	21	5	1013	563	0.180	182	
600N	21	6	1578	877	0.555	876	
600N	21	7	467	260	0.161	75	
600N	21	8	533	296	0.173	92	
600N	21	9	637	354	0.144	92	
600N	21	10	805	447	0.222	179	
600N	21	11	1101	612	0.182	200	
650N	22	1	3960	2200	0.444	1758	
650N	22	2	2171	1206	0.596	1294	
650N	22	3	1693	941	0.423	716	
650N	22	4	894	497	0.807	721	
700N	23	2	3026	1681	0.403	1219	
700N	23	3	669	372	0.373	250	
700N	23	4	1115	619	1.752	1953	
700N	23	5	755	419	0.795	600	
700N	23	6	1581	878	0.164	259	
700N	23	7	1822	1012	0.319	581	
700N	23	8	2226	1237	0.325	723	
750N	24	1	2111	1173	0.258	545	
750N	24	2	4599	2555	0.530	2437	
750N	24	3	2337	1299	0.379	886	
750N	24	4	492	273	0.490	241	
750N	24	5	874	486	0.221	193	
750N	24	6	444	247	0.227	101	
750N	24	7	2198	1221	0.219	481	
750N	24	8	1569	872	0.156	245	
750N	24	9	1405	780	0.205	288	
750N	24	10	1988	1105	0.273	543	
750N	24	11	2005	1114	0.150	301	
750N	24	12	1846	1026	1.530	2824	
750N	24	13	1630	906	0.168	274	
800N	25	1	3685	2047	0.514	1894	
800N	25	2	5208	2893	0.494	2573	
800N	25	3	4677	2598	0.263	1230	
800N	25	4	2058	1143	0.162	333	
800N	25	5	1420	789	0.400	568	
800N	25	6	1443	801	0.171	247	
800N	25	9	851	473	0.343	292	
800N	25	10	1665	925	2.115	3521	
800N	25	11	1228	682	0.611	750	
800N	25	12	2174	1208	1.751	3807	
800N	25	13	4018	2232	0.720	2893	
800N	25	14	2521	1400	0.317	799	
800N	25	15	1657	920	1.545	2560	
800N	25	16	555	308	0.649	360	
800N	25	17	491	273	6.037	2964	
800N	25	18	354	197	1.593	564	

APPENDIX 1

800N	25	19	937	521	0.489	458	
800N	25	20	2317	1287	0.464	1075	
800N	25	21	1553	863	1.276	1982	
800N	26	1	3411	1895	1.993	6798	
800N	26	3	755	419	0.251	190	
850N	26	4	5420	3011	0.448	2428	
850N	26	5	4177	2321	0.499	2084	
850N	26	6	2976	1653	1.871	5568	
850N	26	7	2074	1152	0.398	825	
850N	26	8	3741	2079	0.639	2390	
850N	26	9	3593	1996	1.462	5253	
850N	26	10	4444	2469	0.330	1467	
850N	26	11	2205	1225	0.770	1698	
850N	26	2	1425	792	0.558	795	
900N	27	1	2596	1442	0.751	1950	
900N	27	2	2172	1207	1.375	2987	
900N	27	3	3255	1808	0.705	2295	
900N	27	4	1061	590	0.348	369	
900N	27	5	1080	600	0.218	235	
900N	27	6	2824	1569	0.732	2067	
900N	27	7	7031	3906	0.546	3839	
900N	27	8	5232	2907	0.800	4186	
900N	27	9	3525	1958	0.564	1988	
900N	27	10	1936	1076	0.176	341	
900N	27	11	1252	695	0.157	197	
900N	27	12	761	423	0.313	238	
900N	27	13	984	547	1.111	1093	
900N	27	14	1218	677	2.456	2991	
900N	27	15	1509	838	0.386	582	
900N	27	16	1104	613	0.485	535	
900N	27	17	1497	832	6.487	9711	
900N	27	18	963	535	0.292	281	
900N	27	19	1829	1016	0.473	865	
900N	27	20	3821	2123	0.323	1234	
900N	27	21	1650	916	0.162	267	
900N	27	22	997	554	1.136	1133	
900N	27	23	980	544	6.296	6170	
900N	27	24	1004	558	0.193	194	
950N	28	1	6254	3474	0.562	3515	
950N	28	2	1221	678	0.344	420	
950N	28	3	2832	1573	0.745	2110	
950N	28	4	2598	1443	0.212	551	
950N	28	5	1144	636	0.209	239	
950N	28	6	652	362	4.216	2749	
950N	28	7	1777	987	0.341	606	
950N	28	8	1646	914	0.141	232	
950N	28	9	1673	930	0.271	453	
950N	28	10	2586	1437	0.307	794	
1000N	29	1	2223	1235	0.653	1452	
1000N	29	2	1896	1053	0.374	709	
1000N	29	3	618	344	0.169	104	

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1000N	29	4	1420	789	0.197	280	
1000N	29	5	640	355	0.199	127	
1000N	29	6	1434	797	0.153	219	
1000N	29	7	903	502	0.180	163	
1000N	29	8	974	541	0.607	591	
1000N	29	9	2094	1163	0.227	475	
1000N	29	10	1723	957	0.530	913	
1000N	29	11	4136	2298	0.162	670	
1050N	30	1	352	196	0.144	51	
1050N	30	2	1540	856	0.278	428	
1200N	33	1	210	117	0.173	36	
1250N	34	1	323	180	0.328	106	
1300N	35	1	419	233	0.435	182	
1400N	37	5	670	372	0.476	319	
1400N	37	6	327	182	0.310	101	
1400N	37	1	1720	822	0.160	275	
1400N	37	2	946	452	0.151	143	
1400N	37	3	1888	902	0.432	816	
1450N	38	2	1789	994	0.226	404	
1450N	38	3	1395	775	0.379	529	
1450N	38	4	1089	605	0.163	177	
1450N	38	5	1673	930	0.202	338	
1450N	38	6	783	435	2.762	2163	
1450N	38	7	461	256	0.386	178	
1450N	38	1	2189	1046	0.350	766	
1500N	39	1	404	225	0.155	63	
1500N	39	2	1857	1032	0.159	295	
1500N	39	3	1966	1092	0.179	352	
1500N	39	5	368	204	0.194	71	
1500N	39	16	2659	1271	0.580	1542	
1500N	39	17	1897	907	0.309	586	
1500N	39	18	925	442	0.659	610	
1500N	39	20	646	309	0.263	170	
1500N	39	21	1212	579	2.270	2751	
1500N	39	22	668	319	0.689	460	
1500N	39	23	1264	604	0.677	856	
1500N	39	24	720	344	1.495	1076	
1500N	39	25	688	329	0.384	264	
1500N	39	26	1065	509	0.144	153	
1550N	40	4	786	437	0.467	367	
1550N	40	5	3101	1723	0.420	1302	
1550N	40	1	1977	945	0.351	694	
1550N	40	2	4837	2311	0.218	1054	
1550N	40	3	2855	1364	0.562	1604	
1600N	41	1	1539	855	0.541	832	
1600N	41	2	976	467	0.308	301	
1600N	41	4	1021	488	0.160	163	
1600N	41	5	604	289	0.211	127	
1600N	41	6	901	431	0.317	286	
1600N	41	7	942	450	0.263	248	
1600N	41	8	4266	2038	0.239	1019	

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1600N	41	9	917	438	0.153	140	
1600N	41	10	1039	497	0.171	178	
1600N	41	11	1610	769	4.545	7315	
1600N	41	12	1673	800	0.234	392	
1600N	41	13	962	460	0.875	842	
1600N	41	14	990	473	1.061	1050	
1650N	42	3	893	496	0.219	195	
1650N	42	4	1626	903	0.246	400	
1650N	42	5	678	377	0.159	108	
1650N	42	6	537	299	0.440	236	
1650N	42	7	1615	897	0.321	518	
1650N	42	8	2131	1184	0.517	1102	
1650N	42	1	941	450	0.150	141	
1650N	42	2	1034	494	0.289	299	
1650N	42	9	2138	1022	0.227	485	
1650N	42	10	1005	480	0.186	187	
1700N	43	1	602	288	0.170	102	
1700N	43	2	1128	539	0.399	450	
1700N	43	3	1855	887	0.449	833	
1700N	43	5	921	440	0.241	222	
1750N	44	2	963	535	0.492	474	
1750N	44	1	531	254	0.161	85	
CUMMULATIVE		POLYS	TONS	CU YDS	Au GRAD	TOTAL OUNCES	
		224	348360	189318	0.592	206183	

APPENDIX 2
1994 DATABASE
INDICATED RESOURCE (50 FT SEARCH)

APPENDIX 2

PANEL	SLICE	CUT #	TONS	CU YD	Au GRAD	OUNCES	
-50N	8	1	4741	2634	0.243	1152	
ON	9	3	4242	2357	0.390	1654	
ON	9	5	1270	706	0.241	306	
ON	9	6	2186	1214	0.198	433	
ON	9	7	2130	1183	0.450	959	
50N	10	1	2682	1490	1.638	4393	
50N	10	2	2825	1570	0.835	2359	
100N	11	1	2397	1332	0.379	908	
100N	11	2	2353	1307	0.157	369	
100N	11	3	2551	1417	0.523	1334	
150N	12	1	1259	699	0.209	263	
150N	12	2	1749	972	0.464	812	
150N	12	3	1358	754	0.218	296	
150N	12	4	1246	692	0.170	212	
200N	13	1	4615	2564	0.222	1025	
200N	13	2	872	484	0.169	147	
200N	13	3	7020	3900	0.235	1650	
200N	13	4	1377	765	0.160	220	
200N	13	5	2927	1626	0.158	462	
250N	14	2	3023	1679	0.211	638	
250N	14	3	2360	1311	0.225	531	
250N	14	4	934	519	0.361	337	
300N	15	1	3132	1740	0.368	1153	
300N	15	2	4287	2382	0.307	1316	
350N	16	1	2633	1463	0.203	534	
350N	16	2	2290	1272	0.188	431	
350N	16	3	2802	1556	0.309	866	
350N	16	4	2266	1259	1.717	3891	
400N	17	1	3554	1975	0.490	1741	
400N	17	3	3626	2014	0.225	816	
400N	17	4	2791	1550	0.426	1189	
400N	17	5	2771	1540	0.200	554	
400N	17	6	1989	1105	0.214	426	
400N	17	7	3372	1873	0.241	813	
450N	18	1	2938	1632	0.144	423	
450N	18	2	2245	1247	0.146	328	
450N	18	3	2426	1348	0.249	604	
450N	18	4	1439	799	0.217	312	
450N	18	5	2551	1417	6.988	17826	
450N	18	6	2894	1608	0.952	2755	
500N	19	6	1742	968	0.233	406	
500N	19	3	2332	1296	0.216	504	
500N	19	4	3411	1895	0.159	542	
500N	19	5	2083	1157	0.378	787	
500N	19	7	1929	1072	0.142	274	
500N	19	1	2901	1612	0.188	545	
500N	20	3	485	269	0.410	199	
500N	20	2	987	548	0.321	317	
500N	20	1	3075	1708	0.297	913	

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600N	21	3	3661	2034	0.182	666	
600N	21	4	1610	894	0.222	357	
600N	21	5	1339	744	0.144	193	
600N	21	6	1299	722	0.173	225	
600N	21	7	988	549	0.291	288	
600N	21	9	1032	573	0.161	166	
600N	21	8	2158	1199	0.207	447	
600N	21	11	2940	1633	0.180	529	
600N	21	12	4015	2230	0.555	2228	
600N	21	1	5297	2943	0.536	2839	
600N	21	2	6192	3440	0.589	3647	
650N	22	3	894	497	0.807	721	
650N	22	5	2741	1523	0.423	1159	
650N	22	1	2890	1606	0.596	1722	
650N	22	2	5454	3030	0.444	2422	
700N	23	6	3729	2072	0.403	1503	
700N	23	2	3560	1978	0.325	1157	
700N	23	3	3905	2169	0.319	1246	
700N	23	4	2443	1357	0.164	401	
700N	23	5	669	372	0.373	250	
700N	23	7	1115	619	1.752	1953	
700N	23	8	755	419	0.795	600	
750N	24	8	444	247	0.227	101	
750N	24	10	874	486	0.221	193	
750N	24	11	2634	1463	0.379	998	
750N	24	12	4248	2360	0.258	1096	
750N	24	13	917	510	0.490	449	
750N	24	6	1405	780	0.205	288	
750N	24	7	1569	872	0.156	245	
750N	24	9	2198	1221	0.219	481	
750N	24	1	2524	1402	0.150	379	
750N	24	2	1846	1026	1.530	2824	
750N	24	3	2648	1471	0.273	723	
750N	24	4	7697	4276	0.530	4079	
750N	24	14	1630	906	0.168	274	
800N	25	9	3326	1848	0.171	569	
800N	25	10	3215	1786	0.400	1286	
800N	25	5	1553	863	1.276	1982	
800N	25	6	2521	1400	0.317	799	
800N	25	7	4816	2676	0.720	3468	
800N	25	8	2249	1250	1.751	3938	
800N	25	14	1306	725	0.611	798	
800N	25	15	2051	1139	2.115	4338	
800N	25	16	1202	668	0.343	412	
800N	25	17	2317	1287	0.464	1075	
800N	25	18	1657	920	1.545	2560	
800N	25	19	555	308	0.649	360	
800N	25	20	491	273	6.037	2964	
800N	25	21	354	197	1.593	564	
800N	25	22	937	521	0.489	458	
800N	25	1	3190	1772	0.162	517	

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800N	25	2	8409	4672	0.263	2212	
800N	25	3	10847	6026	0.494	5358	
800N	25	4	6097	3387	0.514	3134	
800N	26	6	2524	1402	0.398	1005	
800N	26	7	5870	3261	0.330	1937	
850N	26	1	7175	3986	0.770	5525	
850N	26	2	4910	2728	1.462	7178	
850N	26	3	4971	2762	0.499	2481	
850N	26	9	3192	1773	1.871	5972	
850N	26	10	5881	3267	0.639	3758	
850N	26	4	9242	5135	1.993	18419	
850N	26	5	9781	5434	0.448	4382	
850N	26	8	2941	1634	0.558	1641	
850N	26	11	1135	630	0.251	285	
900N	27	8	1218	677	2.456	2991	
900N	27	9	1509	838	0.386	582	
900N	27	17	1104	613	0.485	535	
900N	27	21	1543	857	1.136	1753	
900N	27	22	1650	916	0.162	267	
900N	27	23	1571	873	6.296	9891	
900N	27	24	1687	937	0.193	326	
900N	27	14	8548	4749	0.546	4667	
900N	27	15	3100	1722	0.176	546	
900N	27	16	4068	2260	0.564	2294	
900N	27	18	5726	3181	0.800	4581	
900N	27	19	1868	1038	0.157	293	
900N	27	20	1511	839	1.111	1679	
900N	27	25	1497	832	6.487	9711	
900N	27	26	1274	708	0.313	399	
900N	27	11	3338	1854	0.473	1579	
900N	27	12	7765	4314	0.323	2508	
900N	27	13	1628	904	0.292	475	
900N	27	1	1560	866	0.218	340	
900N	27	2	2824	1569	0.732	2067	
900N	27	3	3255	1808	0.705	2295	
900N	27	4	2172	1207	1.375	2987	
900N	27	5	4206	2337	0.751	3159	
900N	27	6	1350	750	0.348	470	
950N	28	3	2215	1231	0.271	600	
950N	28	5	2286	1270	0.141	322	
950N	28	6	2106	1170	0.341	718	
950N	28	7	2832	1573	0.745	2110	
950N	28	9	1144	636	0.209	239	
950N	28	10	2598	1443	0.212	551	
950N	28	11	652	362	4.216	2749	
950N	28	4	4337	2409	0.307	1331	
950N	28	1	9351	5195	0.562	5255	
950N	28	2	1683	935	0.344	579	
1000N	29	1	1286	714	0.607	781	
1000N	29	10	640	355	0.199	127	
1000N	29	11	1420	789	0.197	280	

APPENDIX 2

1000N	29	2	903	502	0.180	163	
1000N	29	3	2094	1163	0.227	475	
1000N	29	4	2678	1488	0.530	1419	
1000N	29	5	6212	3451	0.162	1006	
1000N	29	6	1897	1054	0.153	290	
1000N	29	7	3812	2118	0.653	2489	
1000N	29	8	1896	1053	0.374	709	
1000N	29	9	618	344	0.169	104	
1050N	30	2	5973	3319	0.278	1660	
1050N	30	1	704	391	0.144	101	
1200N	33	1	809	449	0.173	140	
1250N	34	1	1364	758	0.328	447	
1300N	35	1	1909	1060	0.435	830	
1400N	37	2	1456	809	0.310	451	
1400N	37	1	3064	1702	0.476	1458	
1400N	37	3	6532	3121	0.160	1045	
1400N	37	4	3594	1717	0.151	543	
1400N	37	5	7225	3452	0.432	3121	
1450N	38	4	2825	1570	2.762	7803	
1450N	38	5	6182	3434	0.202	1249	
1450N	38	7	6790	3772	0.226	1535	
1450N	38	8	5551	3084	0.379	2104	
1450N	38	2	1991	1106	0.495	986	
1450N	38	3	3819	2121	0.163	622	
1450N	38	1	8207	3921	0.350	2872	
1500N	39	11	807	449	0.155	125	
1500N	39	8	6368	3538	0.159	1013	
1500N	39	9	7623	4235	0.179	1365	
1500N	39	12	1499	833	0.194	291	
1500N	39	1	7280	3478	0.144	1048	
1500N	39	2	5237	2502	0.677	3545	
1500N	39	3	4722	2256	0.263	1242	
1500N	39	5	6932	3312	0.659	4568	
1500N	39	6	12020	5743	0.309	3714	
1500N	39	7	8640	4128	0.580	5011	
1500N	39	13	9513	4545	2.270	21594	
1500N	39	14	6518	3114	0.689	4491	
1500N	39	15	2920	1395	1.495	4365	
1500N	39	16	2796	1336	0.384	1074	
1550N	40	4	12348	6860	0.420	5186	
1550N	40	5	3011	1673	0.467	1406	
1550N	40	1	13146	6281	0.562	7388	
1550N	40	2	19013	9084	0.218	4145	
1550N	40	3	8060	3851	0.351	2829	
1600N	41	12	5439	3022	0.541	2942	
1600N	41	1	2903	1387	1.061	3080	
1600N	41	2	7365	3519	0.234	1723	
1600N	41	3	5132	2452	0.153	785	
1600N	41	4	6237	2980	0.171	1067	
1600N	41	5	18149	8671	0.239	4338	
1600N	41	6	3619	1729	0.263	952	

APPENDIX 2

1600N	41	7	3600	1720	0.317	1141	
1600N	41	8	2185	1044	0.211	461	
1600N	41	9	3893	1860	0.160	623	
1600N	41	11	3719	1777	0.308	1146	
1600N	41	13	7056	3371	4.545	32068	
1600N	41	14	2886	1379	0.875	2525	
1650N	42	11	7862	4368	0.517	4065	
1650N	42	12	4653	2585	0.321	1494	
1650N	42	13	1196	665	0.440	526	
1650N	42	14	4109	2283	0.246	1011	
1650N	42	15	2192	1218	0.159	349	
1650N	42	16	3203	1779	0.219	701	
1650N	42	7	3684	1760	0.150	553	
1650N	42	8	7951	3799	0.227	1805	
1650N	42	9	3799	1815	0.186	707	
1650N	42	10	4069	1944	0.289	1176	
1700N	43	1	1203	575	0.170	205	
1700N	43	2	3600	1720	0.399	1436	
1700N	43	4	6938	3315	0.449	3115	
1700N	43	5	3541	1692	0.241	853	
1750N	44	1	1061	507	0.161	171	
1750N	44	2	3357	1604	0.492	1652	
CUMMULATIVE		POLYS	TONS	CU YDS	Au GRAD	TOTAL OUNCES	
		224	788785	419676	0.558	439883	

APPENDIX 3
1994 DATABASE
INFERRRED RESOURCE (70 FT SEARCH)

APPENDIX 3

PANEL	SLICE	CUT #	TONS	CU YD	AU GRAD	OUNCES	
-50N	8	1	5992	3329	0.243	1456	
0N	9	2	2130	1183	0.450	959	
0N	9	3	2186	1214	0.198	433	
0N	9	4	1270	706	0.241	306	
0N	9	5	4242	2357	0.390	1654	
0N	9	6	3183	1768	0.181	576	
50N	10	1	2825	1570	0.835	2359	
50N	10	2	2682	1490	1.638	4393	
100N	11	2	3170	1761	0.523	1658	
100N	11	3	3069	1705	0.157	482	
100N	11	4	3058	1699	0.379	1159	
150N	12	1	1246	692	0.170	212	
150N	12	2	1358	754	0.218	296	
150N	12	3	1749	972	0.464	812	
150N	12	4	1259	699	0.209	263	
200N	13	1	2927	1626	0.158	462	
200N	13	2	7020	3900	0.235	1650	
200N	13	3	872	484	0.169	147	
200N	13	4	4615	2564	0.222	1025	
200N	13	5	1377	765	0.160	220	
200N	13	6	2320	1289	0.236	548	
200N	13	7	546	304	0.199	109	
200N	13	8	2258	1254	0.154	348	
250N	14	1	934	519	0.361	337	
250N	14	2	2360	1311	0.225	531	
250N	14	3	3023	1679	0.211	638	
300N	15	1	5193	2885	0.307	1594	
300N	15	2	3132	1740	0.368	1153	
350N	16	1	2802	1556	0.309	866	
350N	16	2	2789	1550	1.717	4789	
350N	16	3	2903	1613	0.188	546	
350N	16	4	2633	1463	0.203	534	
400N	17	1	3372	1873	0.241	813	
400N	17	2	2296	1276	0.214	491	
400N	17	3	2771	1540	0.200	554	
400N	17	4	2791	1550	0.426	1189	
400N	17	5	3804	2113	0.490	1864	
400N	17	6	3626	2014	0.225	816	
450N	18	1	3714	2063	0.144	535	
450N	18	2	2245	1247	0.146	328	
450N	18	3	2894	1608	0.952	2755	
450N	18	4	2426	1348	0.249	604	
450N	18	5	2551	1417	6.988	17826	
450N	18	6	2200	1222	0.217	477	
500N	19	1	2007	1115	0.234	470	
500N	19	2	1929	1072	0.142	274	
500N	19	3	2083	1157	0.378	787	
500N	19	4	3411	1895	0.159	542	
500N	19	5	2332	1296	0.216	504	

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500N	19	6	2901	1612	0.188	545	
550N	20	1	3650	2028	0.297	1084	
550N	20	2	987	548	0.321	317	
550N	20	3	485	269	0.410	199	
600N	21	1	6649	3694	0.589	3916	
600N	21	2	988	549	0.291	288	
600N	21	3	4015	2230	0.555	2228	
600N	21	4	5297	2943	0.536	2839	
600N	21	5	2158	1199	0.207	447	
600N	21	6	1299	722	0.173	225	
600N	21	7	1339	744	0.144	193	
600N	21	8	3541	1967	0.180	637	
600N	21	9	1032	573	0.161	166	
600N	21	10	1610	894	0.222	357	
600N	21	11	4748	2638	0.182	864	
650N	22	1	5454	3030	0.444	2422	
650N	22	2	2890	1606	0.596	1722	
650N	22	3	3448	1916	0.423	1459	
650N	22	4	894	497	0.807	721	
700N	23	1	755	419	0.795	600	
700N	23	2	1115	619	1.752	1953	
700N	23	3	669	372	0.373	250	
700N	23	4	2443	1357	0.164	401	
700N	23	5	4700	2611	0.319	1499	
700N	23	6	3560	1978	0.325	1157	
700N	23	7	3729	2072	0.403	1503	
750N	24	1	2524	1402	0.150	379	
750N	24	2	1846	1026	1.530	2824	
750N	24	3	1630	906	0.168	274	
750N	24	4	2648	1471	0.273	723	
750N	24	5	9703	5391	0.530	5143	
750N	24	6	1569	872	0.156	245	
750N	24	7	1405	780	0.205	288	
750N	24	8	2198	1221	0.219	481	
750N	24	9	1324	736	0.490	649	
750N	24	10	4635	2575	0.258	1196	
750N	24	11	2634	1463	0.379	998	
750N	24	12	874	486	0.221	193	
750N	24	13	444	247	0.227	101	
800N	25	1	6284	3491	0.514	3230	
800N	25	2	10847	6026	0.494	5358	
800N	25	3	8409	4672	0.263	2212	
800N	25	4	3970	2206	0.162	643	
800N	25	5	3326	1848	0.171	569	
800N	25	6	3545	1969	0.400	1418	
800N	25	7	2051	1139	2.115	4338	
800N	25	8	1202	668	0.343	412	
800N	25	9	1306	725	0.611	798	
800N	25	10	2249	1250	1.751	3938	
800N	25	11	648	360	0.242	157	
800N	25	12	490	272	0.257	126	

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800N	25	13	4816	2676	0.720	3468	
800N	25	14	2521	1400	0.317	799	
800N	25	15	2317	1287	0.464	1075	
800N	25	16	1553	863	1.276	1982	
800N	25	17	1657	920	1.545	2560	
800N	25	18	555	308	0.649	360	
800N	25	20	491	273	6.037	2964	
800N	25	21	354	197	1.593	564	
800N	25	22	937	521	0.489	458	
850N	26	1	10124	5624	1.993	20177	
850N	26	2	9781	5434	0.448	4382	
850N	26	3	3508	1949	0.558	1957	
850N	26	4	1593	885	0.251	400	
850N	26	5	6822	3790	0.330	2251	
850N	26	6	2881	1601	0.398	1147	
850N	26	7	4971	2762	0.499	2481	
850N	26	8	3192	1773	1.871	5972	
850N	26	9	4910	2728	1.462	7178	
850N	26	10	5881	3267	0.639	3758	
850N	26	11	7616	4231	0.770	5864	
900N	27	1	1560	866	0.218	340	
900N	27	2	2427	1348	0.157	381	
900N	27	3	1768	982	0.313	553	
900N	27	5	2074	1152	1.111	2304	
900N	27	6	1218	677	2.456	2991	
900N	27	7	8548	4749	0.546	4667	
900N	27	8	1509	838	0.386	582	
900N	27	9	3100	1722	0.176	546	
900N	27	10	1628	904	0.292	475	
900N	27	11	3338	1854	0.473	1579	
900N	27	12	9398	5221	0.323	3036	
900N	27	13	1104	613	0.485	535	
900N	27	14	4068	2260	0.564	2294	
900N	27	15	1497	832	6.487	9711	
900N	27	16	1650	916	0.162	267	
900N	27	17	2824	1569	0.732	2067	
900N	27	18	1350	750	0.348	470	
900N	27	19	5726	3181	0.800	4581	
900N	27	20	3255	1808	0.705	2295	
900N	27	21	2172	1207	1.375	2987	
900N	27	22	5401	3001	0.751	4056	
900N	27	23	1492	829	1.136	1695	
900N	27	24	1761	978	6.296	11087	
900N	27	25	2103	1169	0.193	406	
950N	28	1	2286	1270	0.141	322	
950N	28	2	2215	1231	0.271	600	
950N	28	3	5466	3036	0.307	1678	
950N	28	4	2106	1170	0.341	718	
950N	28	5	652	362	4.216	2749	
950N	28	6	2832	1573	0.745	2110	
950N	28	7	1683	935	0.344	579	

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950N	28	8	1144	636	0.209	239	
950N	28	9	2598	1443	0.212	551	
950N	28	10	9351	5195	0.562	5255	
1000N	29	1	1897	1054	0.153	290	
1000N	29	2	903	502	0.180	163	
1000N	29	3	1286	714	0.607	781	
1000N	29	4	2094	1163	0.227	475	
1000N	29	5	3439	1911	0.530	1823	
1000N	29	6	8022	4456	0.162	1300	
1000N	29	7	1420	789	0.197	280	
1000N	29	8	618	344	0.169	104	
1000N	29	9	640	355	0.199	127	
1000N	29	10	1896	1053	0.374	709	
1000N	29	11	3812	2118	0.653	2489	
1050N	30	1	7970	4428	0.278	2216	
1050N	30	2	704	391	0.144	101	
1200N	33	1	1134	630	0.173	196	
1250N	34	1	1977	1098	0.328	648	
1300N	35	1	2652	1473	0.435	1154	
1400N	37	4	4056	2253	0.142	576	
1400N	37	5	1743	968	0.310	540	
1400N	37	6	4373	2429	0.476	2082	
1400N	37	7	9117	4356	0.160	1459	
1400N	37	8	5505	2630	0.151	831	
1400N	37	9	8634	4125	0.432	3730	
1450N	38	2	8279	4600	0.226	1871	
1450N	38	3	5551	3084	0.379	2104	
1450N	38	5	2985	1658	0.495	1478	
1450N	38	6	3999	2222	2.762	11045	
1450N	38	7	4424	2458	0.163	721	
1450N	38	9	7528	4182	0.202	1521	
1450N	38	10	9379	4481	0.350	3283	
1500N	39	1	1499	833	0.194	291	
1500N	39	2	807	449	0.155	125	
1500N	39	3	6368	3538	0.159	1013	
1500N	39	4	7623	4235	0.179	1365	
1500N	39	5	10816	6009	0.440	4759	
1500N	39	17	7962	3804	0.144	1147	
1500N	39	18	5237	2502	0.677	3545	
1500N	39	19	2920	1395	1.495	4365	
1500N	39	20	2796	1336	0.384	1074	
1500N	39	21	9513	4545	2.270	21594	
1500N	39	22	4722	2256	0.263	1242	
1500N	39	23	2784	1330	0.219	610	
1500N	39	24	6518	3114	0.689	4491	
1500N	39	25	6932	3312	0.659	4568	
1500N	39	26	12020	5743	0.309	3714	
1500N	39	27	8640	4128	0.580	5011	
1550N	40	4	4239	2355	0.467	1980	
1550N	40	5	16935	9409	0.420	7113	
1550N	40	1	9360	4472	0.351	3285	

APPENDIX 3

1550N	40	2	19013	9084	0.218	4145	
1550N	40	3	14948	7142	0.562	8401	
1600N	41	1	7723	4290	0.541	4178	
1600N	41	2	5358	2560	0.308	1650	
1600N	41	3	4822	2304	0.252	1215	
1600N	41	4	5337	2550	0.160	854	
1600N	41	5	3083	1473	0.211	651	
1600N	41	6	3993	1908	0.317	1266	
1600N	41	7	3619	1729	0.263	952	
1600N	41	8	18149	8671	0.239	4338	
1600N	41	9	5132	2452	0.153	785	
1600N	41	10	6237	2980	0.171	1067	
1600N	41	11	7365	3519	0.234	1723	
1600N	41	12	7056	3371	4.545	32068	
1600N	41	13	2886	1379	0.875	2525	
1600N	41	14	2903	1387	1.061	3080	
1650N	42	11	4239	2355	0.150	636	
1650N	42	5	1196	665	0.440	526	
1650N	42	6	4653	2585	0.321	1494	
1650N	42	7	9581	5323	0.517	4953	
1650N	42	8	4109	2283	0.246	1011	
1650N	42	9	2822	1568	0.159	449	
1650N	42	10	3866	2148	0.219	847	
1650N	42	1	5410	2585	0.186	1006	
1650N	42	2	10683	5104	0.227	2425	
1650N	42	4	5325	2544	0.289	1539	
1700N	43	1	3998	1910	0.174	696	
1700N	43	2	8391	4009	0.449	3768	
1700N	43	3	4339	2073	0.241	1046	
1700N	43	4	4322	2065	0.151	653	
1700N	43	5	4173	1994	0.367	1532	
1700N	43	6	4469	2135	0.399	1783	
1700N	43	7	1203	575	0.170	205	
1750N	44	1	1061	507	0.161	171	
1750N	44	2	4249	2030	0.492	2090	
1900N	47	1	9331	4458	0.147	1372	
1900N	47	2	14823	7082	0.376	5573	
1900N	47	3	5626	2688	0.170	956	
2000N	49	1	6553	3131	0.244	1599	
CUMMULATIVE		POLYS	TONS	CU YDS	Au GRAD	TOTAL OUNCES	
		241	945250	500569	0.522	493145	

APPENDIX 4
1994 DATABASE
CONCEPTUAL RESOURCE

APPENDIX 4

PANEL	SLICE	TONS	estimated grade	estimated ounces	
-200N	5	2306	0.243	560	
-150N	6	3389	0.243	824	
-100N	7	4232	0.243	1028	
-50N	8	5677	0.243	1380	
0N	9	6177	0.302	1865	
50N	10	4208	1.226	5159	
100N	11	737	0.355	261	
150N	12	8524	0.282	2404	
200N	13	1949	0.206	401	
250N	14	2828	0.238	674	<i>f</i>
300N	15	616	0.330	203	
350N	16	1746	0.605	1057	
450N	18	2956	1.405	4154	
500N	19	2690	0.322	866	
550N	20	12876	0.378	4866	
700N	23	3754	0.434	1629	
750N	24	12163	0.404	4909	
800N	25	1009	0.629	634	
850N	26	1776	0.907	1610	
900N	27	4479	0.844	3781	
950N	28	3096	0.488	1511	
1000N	29	394	0.328	129	
1050N	30	6350	0.267	1696	
1400N	37	16853	0.259	4362	
1450N	38	18335	0.350	6417	
1500N	39	2579	0.593	1528	
1550N	40	48018	0.172	8236	
1600N	41	13416	0.714	9584	
1650N	42	18640	0.232	4326	
1700N	43	10683	0.313	3347	
		TONS	GRADE	OUNCES	
	TOTALS	222456	0.357	79402	

APPENDIX 5

1994 BLOCK MODEL RESOURCE AS ANNOUNCED BY HECLA

APPENDIX 6

1994 BLOCK MODEL

INVENTORY OF BLOCKS GRADING ABOVE 0.14 opt Au

APPENDIX 6

CUTOFF	BLOCKS ABOVE		MEAN	S.T.D.
	#	%		
0	906458	100	0.489	0.495
0.2	675455	75	0.601	0.529
0.4	349459	39	0.900	0.593
0.6	240728	27	1.086	0.631
0.8	146531	16	1.334	0.703
1	88599	10	1.627	0.774
1.2	56666	6	1.931	0.824
1.4	36666	4	2.287	0.830
1.6	28333	3	2.521	0.805
1.8	22600	2	2.733	0.769
2	18933	2	2.896	0.736
2.2	15400	2	3.080	0.695
2.4	12267	1	3.279	0.642
2.6	10000	1	3.454	0.581
2.8	7667	1	3.682	0.466
3	7067	1	3.746	0.426
3.2	6200	1	3.838	0.373
3.4	5200	1	3.941	0.315
3.6	4533	1	4.000	0.294
3.8	3867	0	4.056	0.281
MIN data VALUE =			0.140	
MAX data VALUE =			5.104	

APPENDIX 6

Range	*	20	40	60	80	100	
	-----*	-----+-----	-----+-----	-----+-----	-----+-----	-----+-----	
.0000 .1	999 *XXXX	XX.			*		
.2000 .3	999 *XXXX	XXXXXXXXXX	.		*		
.4000 .5	999 *XXXXXX		.		*		
.6000 .7	999 *XXXXX		.		*		
.8000 .9	999 *XXX		.		*		
1.0000 1.	999 *XX		.		*		
1.2000 1.	999 *X			.	*		
1.4000 1.	999 *			.	*		
1.6000 1.	999 *			.	*		
1.8000 1.	999 *			.	*		
2.0000 2.	999 *			.	*		
2.2000 2.	999 *			.	*		
2.4000 2.	999 *			.	*		
2.6000 2.	999 *			.	*		
2.8000 2.	999 *			.	*		
3.0000 3.	999 *			.	*		
3.2000 3.	999 *			.	*		
3.4000 3.	999 *			.	*		
3.6000 3.	999 *			.	*		
3.8000 3.	999 *			.	*		
	-----+	-----+-----	-----+-----	-----+-----	-----+-----	-----+-----	
	20	40	60	80	100		
RESOURC	>0.14	NS/BLOCK					
		Distribution of AUAVG by BENCH					
BENCH	NUMBER	MEAN	STD.	VOLUME	TONS	OZS	
5230	21	0.163	0.026	20999	1468	239	
5220	42	0.165	0.018	41997	2937	485	
5210	7	0.170	0.008	7000	489	83	
5160	37	0.666	0.142	36998	2587	1723	
5150	59	0.686	0.094	58996	4126	2830	
5140	52	0.669	0.145	51997	3636	2433	
5130	34	0.677	0.122	33998	2377	1610	
5050	10	0.223	0.053	9999	699	156	
5040	11	0.244	0.080	10999	769	188	
5030	14	0.229	0.076	13999	979	224	
5020	3	0.239	0.028	3000	210	50	
5010	44	0.394	0.180	43997	3077	1212	
5000	28	0.306	0.118	27998	1958	599	

APPENDIX 6

4990	106	0.201	0.078	105994	7412	1490
4980	35	0.240	0.059	34998	2447	587
4970	25	0.230	0.052	24999	1748	402
4960	65	0.229	0.036	64996	4545	1041
4950	17	0.190	0.034	16999	1189	226
4940	56	0.468	0.293	55997	3916	1833
4930	78	0.412	0.305	77995	5454	2247
4920	89	0.472	0.315	88995	6223	2937
4910	101	0.467	0.293	100994	7063	3298
4900	92	0.391	0.219	91994	6433	2515
4890	114	0.376	0.149	113993	7972	2997
4880	113	0.359	0.147	112993	7902	2837
4870	90	0.319	0.141	89995	6293	2008
4860	141	0.362	0.337	140992	9860	3569
4850	121	0.580	0.911	120993	8461	4907
4840	161	0.752	0.132	160990	11258	8466
4830	121	0.973	0.319	120993	8461	8233
4820	112	0.709	0.081	111993	7832	5553
4810	177	0.415	0.731	176989	12377	5136
4800	172	0.312	0.301	171990	12027	3753
4790	145	0.293	0.270	144991	10139	2971
4780	146	0.444	0.344	145991	10209	4533
4770	229	0.500	0.385	228986	16013	8007
4760	252	0.574	0.425	251985	17621	10115
4750	243	0.571	0.402	242985	16992	9702
4740	252	0.506	0.370	251985	17621	8916
4730	381	0.419	0.310	380977	26642	11163
4720	305	0.461	0.291	304982	21327	9832
4710	420	0.391	0.250	419975	29369	11483
4700	480	0.397	0.259	479971	33564	13325
4690	466	0.444	0.315	465972	32585	14468
4680	438	0.505	0.353	437974	30628	15467
4670	525	0.524	0.376	524968	36711	19237
4660	503	0.504	0.348	502970	35173	17727
4650	374	0.577	0.404	373978	26152	15090
4640	378	0.558	0.413	377977	26432	14749
4630	336	0.616	0.530	335980	23495	14473
4620	322	0.715	0.603	321981	22516	16099
4610	339	0.731	0.719	338980	23705	17328
4600	316	0.862	0.948	315981	22097	19047
4590	325	0.863	0.952	324981	22726	19612
4580	269	0.604	0.513	268984	18810	11361
4570	214	0.446	0.321	213987	14964	6674
4560	170	0.328	0.182	169990	11887	3899
4550	158	0.453	0.517	157991	11048	5005
4540	194	0.472	0.569	193988	13566	6403
4530	252	0.420	0.451	251985	17621	7401
4520	228	0.458	0.573	227986	15943	7302
4510	227	0.413	0.495	226986	15873	6556
4500	139	0.459	0.516	138992	9720	4461
4490	136	0.462	0.519	135992	9510	4394

APPENDIX 6

APPENDIX 7
1995 DATABASE
MEASURED RESOURCE (25 FT SEARCH)

APPENDIX 7

PANEL	SLICE	CUT #	TONS	CU YD	Au GRAD	OUNCES	
-50N	8	1	1654	919	0.243	402	
ON	9	1	1277	709	0.390	498	
ON	9	2	635	353	0.241	153	
ON	9	3	786	437	0.198	156	
ON	9	5	714	397	0.450	321	
50N	10	1	756	420	0.835	631	
50N	10	2	752	418	1.638	1232	
100N	11	1	828	460	0.523	433	
100N	11	2	836	464	0.157	131	
100N	11	3	793	441	0.379	300	
150N	12	1	623	346	0.170	106	
150N	12	2	679	377	0.218	148	
150N	12	3	875	486	0.464	406	
150N	12	4	630	350	0.209	132	
200N	13	1	803	446	0.158	127	
200N	13	2	3510	1950	0.235	825	
200N	13	3	436	242	0.169	74	
200N	13	4	543	302	0.160	87	
200N	13	5	1566	870	0.222	348	
250N	14	1	386	215	0.361	139	
250N	14	2	1180	656	0.225	266	
250N	14	3	1082	601	0.211	228	
300N	15	1	1378	766	0.307	423	
300N	15	2	1053	585	0.368	387	
350N	16	2	742	412	0.188	139	
350N	16	3	744	414	1.717	1277	
350N	16	4	990	550	0.309	306	
350N	16	5	963	535	0.203	195	
400N	17	1	743	413	0.214	159	
400N	17	2	1054	586	0.200	211	
400N	17	3	985	547	0.426	419	
400N	17	4	965	536	0.241	232	
400N	17	5	1187	659	0.225	267	
400N	17	6	1311	729	0.490	642	
450N	18	7	900	500	0.249	224	
450N	18	1	345	192	0.217	75	
450N	18	2	895	497	0.144	129	
450N	18	3	1087	604	0.146	159	
450N	18	4	929	516	0.952	884	
450N	18	5	866	481	6.988	6052	
500N	19	1	838	466	0.378	317	
500N	19	2	1444	802	0.159	230	
500N	19	3	760	423	0.142	108	
500N	19	4	1043	579	0.216	225	
500N	19	5	1309	728	0.188	246	
500N	19	6	601	334	0.234	141	
500N	20	1	977	543	0.297	290	
500N	20	2	494	274	0.321	158	
500N	20	3	243	135	0.410	99	
600N	1	6	3564	1980	0.555	1978	

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600N	1	10	2272	1262	0.180	409	
600N	1	5	1158	644	0.291	337	
600N	1	7	1231	684	0.173	213	
600N	1	9	964	536	0.161	155	
600N	1	11	1920	1067	0.144	276	
600N	1	1	2993	1663	0.589	1763	
600N	1	2	4398	2444	0.536	2357	
600N	1	3	2345	1303	0.207	485	
625N	2	3	1070	594	0.334	357	
625N	2	4	802	445	0.222	178	
625N	2	5	1121	623	0.182	204	
625N	2	1	691	384	0.180	124	
625N	2	2	1323	735	0.327	433	
650N	3	3	847	471	0.423	358	
650N	3	4	447	248	0.807	361	
650N	3	1	1967	1093	0.444	873	
650N	3	2	1074	597	0.596	640	
675N	4	2	1496	831	0.663	992	
675N	4	3	1244	691	0.230	286	
675N	4	1	689	383	0.428	295	
700N	5	4	757	421	0.727	550	
700N	5	6	413	229	0.280	116	
700N	5	1	726	403	1.433	1040	
700N	5	2	401	223	0.334	134	
700N	5	3	679	377	0.299	203	
725N	6	7	968	538	0.258	250	
725N	6	8	2337	1299	0.342	799	
725N	6	9	1076	598	0.252	271	
725N	6	10	1568	871	0.283	444	
725N	6	2	1477	821	0.593	876	
725N	6	3	1915	1064	0.498	954	
725N	6	5	3258	1810	0.206	671	
725N	6	6	271	151	0.373	101	
750N	7	6	944	525	0.422	398	
750N	7	7	621	345	0.156	97	
750N	7	8	350	194	0.186	65	
750N	7	9	702	390	0.205	144	
750N	7	10	1099	611	0.219	241	
750N	7	11	222	123	0.227	50	
750N	7	12	268	149	0.221	59	
750N	7	13	204	113	0.490	100	
750N	7	1	2707	1504	0.485	1313	
750N	7	2	1045	581	0.273	285	
750N	7	3	952	529	0.150	143	
750N	7	4	828	460	1.530	1267	
750N	7	5	802	446	0.168	135	
775N	8	6	2301	1279	0.519	1194	
775N	8	7	1184	658	0.442	523	
775N	8	8	1037	576	0.346	359	
775N	8	1	1724	958	0.619	1067	
775N	8	2	1730	961	0.494	855	

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775N	8	3	1535	853	1.017	1561	
775N	8	4	1710	950	0.357	610	
775N	8	5	725	403	0.183	133	
800N	9	4	1084	602	0.400	434	
800N	9	7	2590	1439	0.542	1404	
800N	9	8	2148	1194	0.720	1547	
800N	9	9	4524	2513	1.494	6759	
800N	9	5	1804	1002	1.146	2067	
800N	9	6	1080	600	0.226	244	
800N	9	1	2348	1305	4.197	9855	
800N	9	2	1681	934	0.263	442	
800N	9	3	1114	619	0.162	180	
825N	10	3	2787	1548	1.515	4222	
825N	10	4	1050	583	0.208	218	
825N	10	5	1862	1034	1.238	2305	
825N	10	6	3846	2137	0.890	3423	
825N	10	11	1481	823	0.317	469	
825N	10	12	2242	1246	0.946	2121	
825N	10	9	672	373	0.146	98	
825N	10	10	965	536	0.258	249	
825N	10	8	1118	621	1.713	1915	
825N	10	13	1154	641	0.233	269	
825N	10	14	2171	1206	0.748	1624	
825N	10	15	1012	562	0.403	408	
825N	10	1	938	521	0.679	637	
825N	10	2	1959	1088	0.926	1814	
850N	11	5	1881	1045	1.047	1969	
850N	11	6	3339	1855	0.482	1609	
850N	11	7	2518	1399	1.050	2644	
850N	11	10	1466	814	0.599	878	
850N	11	11	669	371	0.770	515	
850N	11	1	1885	1047	0.241	454	
850N	11	8	469	261	0.555	260	
850N	11	9	2803	1557	0.326	914	
850N	11	2	2124	1180	0.867	1842	
850N	11	3	2597	1443	1.372	3563	
850N	11	4	2292	1273	0.448	1027	
875N	12	4	3284	1825	0.353	1159	
875N	12	5	3132	1740	0.572	1792	
875N	12	6	2104	1169	0.421	886	
875N	12	7	994	552	0.471	468	
875N	12	9	3279	1822	0.487	1597	
875N	12	10	1859	1033	0.313	582	
875N	12	8	2253	1251	0.273	615	
875N	12	11	572	318	0.247	141	
875N	12	1	2165	1203	2.262	4897	
875N	12	2	1977	1098	1.142	2258	
875N	12	3	1100	611	0.674	741	
900N	13	4	1948	1082	0.280	545	
900N	13	5	5675	3153	0.669	3797	
900N	13	6	986	548	0.712	702	

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900N	13	14	1921	1067	0.336	645	
900N	13	1	1883	1046	0.323	608	
900N	13	2	917	509	0.473	434	
900N	13	3	456	253	0.292	133	
900N	13	7	1053	585	1.306	1375	
900N	13	8	770	428	0.162	125	
900N	13	9	1789	994	2.542	4548	
900N	13	10	1223	679	0.751	918	
900N	13	11	1086	603	1.375	1493	
900N	13	12	1613	896	0.705	1137	
900N	13	13	703	391	0.218	153	
925N	14	2	4985	2770	1.587	7911	
925N	14	3	3747	2082	0.301	1128	
925N	14	1	1029	572	0.141	145	
925N	14	4	1409	783	0.573	807	
925N	14	5	2743	1524	0.734	2013	
950N	15	5	1416	787	0.899	1273	
950N	15	9	949	527	0.508	482	
950N	15	10	572	318	0.209	120	
950N	15	11	326	181	4.216	1374	
950N	15	12	909	505	0.341	310	
950N	15	1	915	508	0.271	248	
950N	15	2	1353	751	0.307	415	
950N	15	6	495	275	0.344	170	
950N	15	7	986	548	0.229	226	
950N	15	8	2564	1424	0.562	1441	
975N	16	2	785	436	0.191	150	
975N	16	3	1527	849	0.364	556	
975N	16	1	1423	791	0.168	239	
1000N	17	1	1895	1053	0.153	290	
1000N	17	2	1867	1037	0.180	336	
1000N	17	3	1855	1031	0.346	642	
1000N	17	4	1920	1067	0.530	1017	
1000N	17	13	1450	806	0.161	233	
1000N	17	14	1353	752	0.214	289	
1000N	17	9	2807	1559	0.256	719	
1000N	17	10	1462	812	0.116	170	
1000N	17	11	2782	1546	0.299	832	
1000N	17	12	3078	1710	0.653	2010	
1050N	30	1	352	196	0.144	51	
1050N	30	2	1540	856	0.278	428	
1200N	33	1	210	117	0.173	36	
1250N	34	1	323	180	0.328	106	
1300N	35	1	419	233	0.435	182	
1400N	37	5	670	372	0.476	319	
1400N	37	6	327	182	0.310	101	
1400N	37	1	1720	822	0.160	275	
1400N	37	2	946	452	0.151	143	
1400N	37	3	1888	902	0.432	816	
1450N	38	2	1789	994	0.226	404	
1450N	38	3	1395	775	0.379	529	

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1450N	38	4	1089	605	0.163	177	
1450N	38	5	1673	930	0.202	338	
1450N	38	6	783	435	2.762	2163	
1450N	38	7	461	256	0.386	178	
1450N	38	1	2189	1046	0.350	766	
1500N	39	1	404	225	0.155	63	
1500N	39	2	1857	1032	0.159	295	
1500N	39	3	1966	1092	0.179	352	
1500N	39	5	368	204	0.194	71	
1500N	39	16	2659	1271	0.580	1542	
1500N	39	17	1897	907	0.309	586	
1500N	39	18	925	442	0.659	610	
1500N	39	20	646	309	0.263	170	
1500N	39	21	1212	579	2.270	2751	
1500N	39	22	668	319	0.689	460	
1500N	39	23	1264	604	0.677	856	
1500N	39	24	720	344	1.495	1076	
1500N	39	25	688	329	0.384	264	
1500N	39	26	1065	509	0.144	153	
1550N	40	4	786	437	0.467	367	
1550N	40	5	3101	1723	0.420	1302	
1550N	40	1	1977	945	0.351	694	
1550N	40	2	4837	2311	0.218	1054	
1550N	40	3	2855	1364	0.562	1604	
1600N	41	1	1539	855	0.541	832	
1600N	41	2	976	467	0.308	301	
1600N	41	4	1021	488	0.160	163	
1600N	41	5	604	289	0.211	127	
1600N	41	6	901	431	0.317	286	
1600N	41	7	942	450	0.263	248	
1600N	41	8	4266	2038	0.239	1019	
1600N	41	9	917	438	0.153	140	
1600N	41	10	1039	497	0.171	178	
1600N	41	11	1610	769	4.545	7315	
1600N	41	12	1673	800	0.234	392	
1600N	41	13	962	460	0.875	842	
1600N	41	14	990	473	1.061	1050	
1650N	42	3	893	496	0.219	195	
1650N	42	4	1626	903	0.246	400	
1650N	42	5	678	377	0.159	108	
1650N	42	6	537	299	0.440	236	
1650N	42	7	1615	897	0.321	518	
1650N	42	8	2131	1184	0.517	1102	
1650N	42	1	941	450	0.150	141	
1650N	42	2	1034	494	0.289	299	
1650N	42	9	2138	1022	0.227	485	
1650N	42	10	1005	480	0.186	187	
1700N	43	1	602	288	0.170	102	
1700N	43	2	1128	539	0.399	450	
1700N	43	3	1855	887	0.449	833	
1700N	43	5	921	440	0.241	222	

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1750N	44	2	963	535	0.492	474	
1750N	44	1	531	254	0.161	85	
		POLYS	TONS	CU YDS	Au GRAD	TOTAL OUNCES	
1994 CUMMULATIVE		224	348360	189318	0.592	206183	
1995 CUMMULATIVE		256	359048	195259	0.576	206915	
% DIFFERENCE		114%	103%	103%	97%	100%	

APPENDIX 8
1995 DATABASE
INDICATED RESOURCE (50 FT SEARCH)

APPENDIX 8

1995 DATA FROM 600N TO 1000N ONLY (MEASURED AND INDICATED)						
SLICE	MODE	CUT #	TONS	CU YD	Au GRAD	OUNCES
1	21	8	5132	2851	0.555	2848
1	21	9	3348	1861	0.180	603
1	45	4	1703	947	0.291	496
1	45	5	1460	812	0.173	253
1	45	6	3152	1751	0.144	454
1	45	7	1161	646	0.161	187
1	67	1	5778	3211	0.589	3403
1	67	2	6109	3393	0.536	3274
1	67	3	3467	1926	0.207	718
2	45	3	1674	930	0.334	559
2	45	4	802	445	0.222	178
2	45	5	1401	778	0.182	255
2	67	1	1366	759	0.180	246
2	67	2	2420	1344	0.327	791
3	45	4	447	248	0.807	361
3	45	5	1341	745	0.423	567
3	67	1	2727	1515	0.444	1211
3	67	2	1445	803	0.596	861
4	45	2	2253	1252	0.663	1494
4	45	3	1985	1103	0.230	457
4	67	1	1450	806	0.428	621
5	45	4	441	245	1.175	518
5	45	5	555	308	0.280	155
5	45	6	420	233	0.279	117
5	67	1	726	403	1.433	1040
5	67	2	729	405	0.334	243
5	67	3	1053	585	0.299	315
6	45	6	2337	1299	0.342	799
6	45	7	1357	754	0.258	350
6	45	8	1076	598	0.252	271
6	45	9	2418	1343	0.283	684
6	67	1	465	258	0.373	173
6	67	2	4724	2624	0.206	973
6	67	3	1637	910	0.593	971
6	67	4	2879	1599	0.498	1434
7	45	6	1416	787	0.422	598
7	45	7	621	345	0.156	97
7	45	8	702	390	0.205	144
7	45	9	1099	611	0.219	241
7	45	10	222	123	0.227	50
7	45	11	268	149	0.221	59
7	45	12	350	194	0.186	65
7	45	13	362	201	0.490	177
7	67	1	3918	2177	0.485	1900
7	67	2	1469	816	0.273	401
7	67	3	1262	701	0.150	189
7	67	4	923	513	1.530	1412
7	67	5	889	494	0.168	149

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8	45	7	4336	2409	0.519	2250	
8	45	8	2087	1160	0.442	922	
8	45	9	1893	1052	0.346	655	
8	67	1	2663	1479	0.619	1648	
8	67	5	2696	1498	0.357	962	
8	67	6	1163	646	0.183	213	
8	67	10	3464	1924	0.494	1711	
8	67	11	945	525	1.615	1526	
8	67	12	599	333	0.419	251	
9	21	7	1673	929	0.400	669	
9	21	8	694	385	0.315	219	
9	21	9	7341	4078	1.494	10967	
9	21	10	2963	1646	0.720	2133	
9	21	12	936	520	1.048	981	
9	21	13	958	532	0.263	252	
9	45	4	1080	600	0.226	244	
9	45	5	2291	1273	1.146	2625	
9	67	1	2764	1536	5.532	15290	
9	67	2	2340	1300	0.263	615	
9	67	3	1646	914	0.162	267	
9	67	11	1217	676	0.190	231	
10	21	3	1349	749	0.492	664	
10	21	4	2203	1224	0.317	698	
10	21	9	1281	711	0.612	784	
10	21	10	4472	2484	0.551	2464	
10	21	11	1112	618	0.208	231	
10	21	12	795	442	0.558	444	
10	21	16	2304	1280	1.994	4594	
10	21	19	1499	833	1.864	2794	
10	21	20	1125	625	2.249	2530	
10	21	22	2236	1242	1.309	2927	
10	22	1	1243	690	0.146	181	
10	22	2	1429	794	0.258	369	
10	45	5	618	343	0.265	164	
10	45	6	2171	1206	0.748	1624	
10	45	7	1459	811	0.233	340	
10	45	8	1711	950	0.403	690	
10	45	21	495	275	4.609	2281	
10	67	14	2198	1221	0.679	1492	
10	67	15	1415	786	0.951	1346	
10	67	17	631	351	1.479	933	
10	67	18	537	298	0.325	175	
11	21	6	599	333	1.871	1121	
11	21	7	1971	1095	0.240	473	
11	21	9	1222	679	1.462	1787	
11	21	10	1864	1035	0.599	1117	
11	21	11	1267	704	0.770	976	
11	21	13	1306	725	0.639	835	
11	21	16	1273	707	0.499	635	
11	21	17	576	320	1.686	971	
11	21	18	1318	732	0.241	318	

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11	22	1	3360	1867	0.241	810	
11	45	8	469	261	0.555	260	
11	45	12	3747	2082	0.345	1293	
11	67	3	742	412	2.730	2026	
11	67	4	1931	1073	0.491	948	
11	67	5	3472	1929	0.448	1555	
11	67	14	648	360	2.423	1570	
11	67	15	655	364	0.439	288	
11	67	19	956	531	0.743	710	
11	67	20	981	545	1.377	1351	
11	67	21	1184	658	0.637	754	
12	21	8	1653	918	0.471	779	
12	21	9	2726	1514	0.421	1148	
12	21	10	2441	1356	0.401	979	
12	21	11	4415	2453	0.353	1558	
12	21	14	683	379	1.014	693	
12	21	15	774	430	0.606	469	
12	22	4	5742	3190	0.487	2796	
12	22	5	3737	2076	0.313	1170	
12	45	6	833	463	0.247	206	
12	45	7	3212	1784	0.273	877	
12	67	1	1995	1108	0.674	1345	
12	67	2	1629	905	0.739	1204	
12	67	3	2983	1657	2.262	6748	
12	67	12	698	388	2.855	1993	
12	67	13	739	410	0.237	175	
13	21	8	2512	1396	0.336	844	
13	21	9	7258	4032	0.669	4856	
13	21	12	2551	1417	0.280	714	
13	21	14	810	450	0.313	254	
13	21	18	736	409	1.111	818	
13	22	1	3571	1984	0.323	1153	
13	22	2	1565	870	0.473	740	
13	22	3	814	452	0.292	238	
13	45	10	998	554	1.136	1134	
13	45	11	946	526	0.162	153	
13	45	13	818	454	0.157	128	
13	45	15	512	285	2.456	1257	
13	45	16	1006	559	6.296	6334	
13	45	17	868	482	0.193	168	
13	67	4	984	547	1.868	1838	
13	67	5	496	275	0.666	330	
13	67	6	1939	1077	0.705	1367	
13	67	7	1295	719	0.218	282	
13	67	19	1287	715	0.294	378	
13	67	20	477	265	1.397	666	
14	21	2	6115	3397	1.587	9705	
14	21	3	4531	2517	0.301	1364	
14	22	1	1959	1088	0.141	276	
14	67	4	2039	1133	0.573	1168	
14	67	5	3950	2194	0.734	2899	

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15	21	6	597	332	0.288	172	
15	21	7	572	318	0.209	120	
15	21	8	650	361	0.358	233	
15	21	9	735	408	2.801	2059	
15	21	10	1053	585	0.341	359	
15	21	11	352	195	0.954	336	
15	21	12	345	192	1.171	404	
15	22	1	1745	970	0.271	473	
15	22	2	2235	1242	0.307	686	
15	67	3	698	388	0.344	240	
15	67	4	986	548	0.229	226	
15	67	5	3093	1718	0.562	1738	
16	21	2	1084	602	0.191	207	
16	21	3	1527	849	0.364	556	
16	22	1	2763	1535	0.168	464	
17	22	1	3427	1904	0.153	524	
17	22	2	2763	1535	0.180	497	
17	22	3	2043	1136	0.346	707	
17	22	4	2898	1609	0.530	1536	
17	22	9	2189	1217	0.161	352	
17	22	10	2171	1206	0.214	465	
17	67	5	4547	2527	0.256	1164	
17	67	6	1465	812	0.116	170	
17	67	7	2783	1546	0.299	832	
17	67	8	5195	2887	0.653	3392	
			POLYS	TONS	CU YDS	Au GRAD	OUNCES
1994 Measured and Indicated			112	323805	179889	0.634	205202
1995 Measured and Indicated			175	324727	180399	0.630	204635
% DIFFERENCE			156%	100%	100%	99%	100%
1995 DATA FOR ENTIRE DEPOSIT							
PANEL	SLICE	CUT #	TONS	CU YD	Au GRAD	OUNCES	
-50N	8	1	4741	2634	0.243	1152	
ON	9	3	4242	2357	0.390	1654	
ON	9	5	1270	706	0.241	306	
ON	9	6	2186	1214	0.198	433	
ON	9	7	2130	1183	0.450	959	
50N	10	1	2682	1490	1.638	4393	
50N	10	2	2825	1570	0.835	2359	
100N	11	1	2397	1332	0.379	908	
100N	11	2	2353	1307	0.157	369	
100N	11	3	2551	1417	0.523	1334	
150N	12	1	1259	699	0.209	263	
150N	12	2	1749	972	0.464	812	
150N	12	3	1358	754	0.218	296	
150N	12	4	1246	692	0.170	212	
200N	13	1	4615	2564	0.222	1025	
200N	13	2	872	484	0.169	147	

APPENDIX 8

200N	13	3	7020	3900	0.235	1650	
200N	13	4	1377	765	0.160	220	
200N	13	5	2927	1626	0.158	462	
250N	14	2	3023	1679	0.211	638	
250N	14	3	2360	1311	0.225	531	
250N	14	4	934	519	0.361	337	
300N	15	1	3132	1740	0.368	1153	
300N	15	2	4287	2382	0.307	1316	
350N	16	1	2633	1463	0.203	534	
350N	16	2	2290	1272	0.188	431	
350N	16	3	2802	1556	0.309	866	
350N	16	4	2266	1259	1.717	3891	
400N	17	1	3554	1975	0.490	1741	
400N	17	3	3626	2014	0.225	816	
400N	17	4	2791	1550	0.426	1189	
400N	17	5	2771	1540	0.200	554	
400N	17	6	1989	1105	0.214	426	
400N	17	7	3372	1873	0.241	813	
450N	18	1	2938	1632	0.144	423	
450N	18	2	2245	1247	0.146	328	
450N	18	3	2426	1348	0.249	604	
450N	18	4	1439	799	0.217	312	
450N	18	5	2551	1417	6.988	17826	
450N	18	6	2894	1608	0.952	2755	
500N	19	6	1742	968	0.233	406	
500N	19	3	2332	1296	0.216	504	
500N	19	4	3411	1895	0.159	542	
500N	19	5	2083	1157	0.378	787	
500N	19	7	1929	1072	0.142	274	
500N	19	1	2901	1612	0.188	545	
550N	20	3	485	269	0.410	199	
550N	20	2	987	548	0.321	317	
550N	20	1	3075	1708	0.297	913	
600N	1	8	3422	1901	0.555	1899	
600N	1	9	2232	1241	0.180	402	
600N	1	4	1136	632	0.291	330	
600N	1	5	974	542	0.173	168	
600N	1	6	2102	1167	0.144	303	
600N	1	7	774	431	0.161	125	
600N	1	1	3852	2141	0.589	2269	
600N	1	2	4073	2262	0.536	2183	
600N	1	3	2312	1284	0.207	478	
625N	2	3	1674	930	0.334	559	
625N	2	4	802	445	0.222	178	
625N	2	5	1401	778	0.182	255	
625N	2	1	1366	759	0.180	246	
625N	2	2	2420	1344	0.327	791	
650N	3	4	447	248	0.807	361	
650N	3	5	1341	745	0.423	567	
650N	3	1	2727	1515	0.444	1211	
650N	3	2	1445	803	0.596	861	

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675N	4	2	2253	1252	0.663	1494	
675N	4	3	1985	1103	0.230	457	
675N	4	1	1450	806	0.428	621	
700N	5	4	441	245	1.175	518	
700N	5	5	555	308	0.280	155	
700N	5	6	420	233	0.279	117	
700N	5	1	726	403	1.433	1040	
700N	5	2	729	405	0.334	243	
700N	5	3	1053	585	0.299	315	
725N	6	6	2337	1299	0.342	799	
725N	6	7	1357	754	0.258	350	
725N	6	8	1076	598	0.252	271	
725N	6	9	2418	1343	0.283	684	
725N	6	1	465	258	0.373	173	
725N	6	2	4724	2624	0.206	973	
725N	6	3	1637	910	0.593	971	
725N	6	4	2879	1599	0.498	1434	
750N	7	6	1416	787	0.422	598	
750N	7	7	621	345	0.156	97	
750N	7	8	702	390	0.205	144	
750N	7	9	1099	611	0.219	241	
750N	7	10	222	123	0.227	50	
750N	7	11	268	149	0.221	59	
750N	7	12	350	194	0.186	65	
750N	7	13	362	201	0.490	177	
750N	7	1	3918	2177	0.485	1900	
750N	7	2	1469	816	0.273	401	
750N	7	3	1262	701	0.150	189	
750N	7	4	923	513	1.530	1412	
750N	7	5	889	494	0.168	149	
775N	8	7	4336	2409	0.519	2250	
775N	8	8	2087	1160	0.442	922	
775N	8	9	1893	1052	0.346	655	
775N	8	1	2663	1479	0.619	1648	
775N	8	5	2696	1498	0.357	962	
775N	8	6	1163	646	0.183	213	
775N	8	10	3464	1924	0.494	1711	
775N	8	11	945	525	1.615	1526	
775N	8	12	599	333	0.419	251	
800N	9	7	1673	929	0.400	669	
800N	9	8	694	385	0.315	219	
800N	9	9	7341	4078	1.494	10967	
800N	9	10	2963	1646	0.720	2133	
800N	9	12	936	520	1.048	981	
800N	9	13	958	532	0.263	252	
800N	9	4	1080	600	0.226	244	
800N	9	5	2291	1273	1.146	2625	
800N	9	1	2764	1536	5.532	15290	
800N	9	2	2340	1300	0.263	615	
800N	9	3	1646	914	0.162	267	
800N	9	11	1217	676	0.190	231	

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825N	10	3	1349	749	0.492	664	
825N	10	4	2203	1224	0.317	698	
825N	10	9	1281	711	0.612	784	
825N	10	10	4472	2484	0.551	2464	
825N	10	11	1112	618	0.208	231	
825N	10	12	795	442	0.558	444	
825N	10	16	2304	1280	1.994	4594	
825N	10	19	1499	833	1.864	2794	
825N	10	20	1125	625	2.249	2530	
825N	10	22	2236	1242	1.309	2927	
825N	10	1	1243	690	0.146	181	
825N	10	2	1429	794	0.258	369	
825N	10	5	618	343	0.265	164	
825N	10	6	2171	1206	0.748	1624	
825N	10	7	1459	811	0.233	340	
825N	10	8	1711	950	0.403	690	
825N	10	21	495	275	4.609	2281	
825N	10	14	2198	1221	0.679	1492	
825N	10	15	1415	786	0.951	1346	
825N	10	17	631	351	1.479	933	
825N	10	18	537	298	0.325	175	
850N	11	6	599	333	1.871	1121	
850N	11	7	1971	1095	0.240	473	
850N	11	9	1222	679	1.462	1787	
850N	11	10	1864	1035	0.599	1117	
850N	11	11	1267	704	0.770	976	
850N	11	13	1306	725	0.639	835	
850N	11	16	1273	707	0.499	635	
850N	11	17	576	320	1.686	971	
850N	11	18	1318	732	0.241	318	
850N	11	1	3360	1867	0.241	810	
850N	11	8	469	261	0.555	260	
850N	11	12	3747	2082	0.345	1293	
850N	11	3	742	412	2.730	2026	
850N	11	4	1931	1073	0.491	948	
850N	11	5	3472	1929	0.448	1555	
850N	11	14	648	360	2.423	1570	
850N	11	15	655	364	0.439	288	
850N	11	19	956	531	0.743	710	
850N	11	20	981	545	1.377	1351	
850N	11	21	1184	658	0.637	754	
875N	12	8	1653	918	0.471	779	
875N	12	9	2726	1514	0.421	1148	
875N	12	10	2441	1356	0.401	979	
875N	12	11	4415	2453	0.353	1558	
875N	12	14	683	379	1.014	693	
875N	12	15	774	430	0.606	469	
875N	12	4	5742	3190	0.487	2796	
875N	12	5	3737	2076	0.313	1170	
875N	12	6	833	463	0.247	206	
875N	12	7	3212	1784	0.273	877	

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875N	12	1	1995	1108	0.674	1345	
875N	12	2	1629	905	0.739	1204	
875N	12	3	2983	1657	2.262	6748	
875N	12	12	698	388	2.855	1993	
875N	12	13	739	410	0.237	175	
900N	13	8	2512	1396	0.336	844	
900N	13	9	7258	4032	0.669	4856	
900N	13	12	2551	1417	0.280	714	
900N	13	14	810	450	0.313	254	
900N	13	18	736	409	1.111	818	
900N	13	1	3571	1984	0.323	1153	
900N	13	2	1565	870	0.473	740	
900N	13	3	814	452	0.292	238	
900N	13	10	998	554	1.136	1134	
900N	13	11	946	526	0.162	153	
900N	13	13	818	454	0.157	128	
900N	13	15	512	285	2.456	1257	
900N	13	16	1006	559	6.296	6334	
900N	13	17	868	482	0.193	168	
900N	13	4	984	547	1.868	1838	
900N	13	5	496	275	0.666	330	
900N	13	6	1939	1077	0.705	1367	
900N	13	7	1295	719	0.218	282	
900N	13	19	1287	715	0.294	378	
900N	13	20	477	265	1.397	666	
925N	14	2	6115	3397	1.587	9705	
925N	14	3	4531	2517	0.301	1364	
925N	14	1	1959	1088	0.141	276	
925N	14	4	2039	1133	0.573	1168	
925N	14	5	3950	2194	0.734	2899	
950N	15	6	597	332	0.288	172	
950N	15	7	572	318	0.209	120	
950N	15	8	650	361	0.358	233	
950N	15	9	735	408	2.801	2059	
950N	15	10	1053	585	0.341	359	
950N	15	11	352	195	0.954	336	
950N	15	12	345	192	1.171	404	
950N	15	1	1745	970	0.271	473	
950N	15	2	2235	1242	0.307	686	
950N	15	3	698	388	0.344	240	
950N	15	4	986	548	0.229	226	
950N	15	5	3093	1718	0.562	1738	
975N	16	2	1084	602	0.191	207	
975N	16	3	1527	849	0.364	556	
975N	16	1	2763	1535	0.168	464	
1000N	17	1	2285	1269	0.153	350	
1000N	17	2	1842	1023	0.180	332	
1000N	17	3	1362	758	0.346	471	
1000N	17	4	1932	1073	0.530	1024	
1000N	17	9	1460	812	0.161	235	
1000N	17	10	1448	804	0.214	310	

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1000N	17	5	3032	1685	0.256	776	
1000N	17	6	977	542	0.116	113	
1000N	17	7	1856	1031	0.299	555	
1000N	17	8	3464	1925	0.653	2262	
1050N	30	2	5973	3319	0.278	1660	
1050N	30	1	704	391	0.144	101	
1200N	33	1	809	449	0.173	140	
1250N	34	1	1364	758	0.328	447	
1300N	35	1	1909	1060	0.435	830	
1400N	37	2	1456	809	0.310	451	
1400N	37	1	3064	1702	0.476	1458	
1400N	37	3	6532	3121	0.160	1045	
1400N	37	4	3594	1717	0.151	543	
1400N	37	5	7225	3452	0.432	3121	
1450N	38	4	2825	1570	2.762	7803	
1450N	38	5	6182	3434	0.202	1249	
1450N	38	7	6790	3772	0.226	1535	
1450N	38	8	5551	3084	0.379	2104	
1450N	38	2	1991	1106	0.495	986	
1450N	38	3	3819	2121	0.163	622	
1450N	38	1	8207	3921	0.350	2872	
1500N	39	11	807	449	0.155	125	
1500N	39	8	6368	3538	0.159	1013	
1500N	39	9	7623	4235	0.179	1365	
1500N	39	12	1499	833	0.194	291	
1500N	39	1	7280	3478	0.144	1048	
1500N	39	2	5237	2502	0.677	3545	
1500N	39	3	4722	2256	0.263	1242	
1500N	39	5	6932	3312	0.659	4568	
1500N	39	6	12020	5743	0.309	3714	
1500N	39	7	8640	4128	0.580	5011	
1500N	39	13	9513	4545	2.270	21594	
1500N	39	14	6518	3114	0.689	4491	
1500N	39	15	2920	1395	1.495	4365	
1500N	39	16	2796	1336	0.384	1074	
1550N	40	4	12348	6860	0.420	5186	
1550N	40	5	3011	1673	0.467	1406	
1550N	40	1	13146	6281	0.562	7388	
1550N	40	2	19013	9084	0.218	4145	
1550N	40	3	8060	3851	0.351	2829	
1600N	41	12	5439	3022	0.541	2942	
1600N	41	1	2903	1387	1.061	3080	
1600N	41	2	7365	3519	0.234	1723	
1600N	41	3	5132	2452	0.153	785	
1600N	41	4	6237	2980	0.171	1067	
1600N	41	5	18149	8671	0.239	4338	
1600N	41	6	3619	1729	0.263	952	
1600N	41	7	3600	1720	0.317	1141	
1600N	41	8	2185	1044	0.211	461	
1600N	41	9	3893	1860	0.160	623	
1600N	41	11	3719	1777	0.308	1146	

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1600N	41	13	7056	3371	4.545	32068	
1600N	41	14	2886	1379	0.875	2525	
1650N	42	11	7862	4368	0.517	4065	
1650N	42	12	4653	2585	0.321	1494	
1650N	42	13	1196	665	0.440	526	
1650N	42	14	4109	2283	0.246	1011	
1650N	42	15	2192	1218	0.159	349	
1650N	42	16	3203	1779	0.219	701	
1650N	42	7	3684	1760	0.150	553	
1650N	42	8	7951	3799	0.227	1805	
1650N	42	9	3799	1815	0.186	707	
1650N	42	10	4069	1944	0.289	1176	
1700N	43	1	1203	575	0.170	205	
1700N	43	2	3600	1720	0.399	1436	
1700N	43	4	6938	3315	0.449	3115	
1700N	43	5	3541	1692	0.241	853	
1750N	44	1	1061	507	0.161	171	
1750N	44	2	3357	1604	0.492	1652	
		POLYS	TONS	CU YDS	Au GRAD	TOTAL OUNCES	
1994 CUMMULATIVE		224	788785	419676	0.558	439883	
1995 CUMMULATIVE		289	770581	409560	0.561	432307	
% DIFFERENCE		129%	98%	98%	101%	98%	

APPENDIX 9
1995 DATABASE
INFERRRED RESOURCE (70 FT SEARCH)

APPENDIX 9

PANEL	SLICE	CUT #	TONS	CU YD	Au GRAD	OUNCES
-50N	8	1	5992	3329	0.243	1456
ON	9	2	2130	1183	0.450	959
ON	9	3	2186	1214	0.198	433
ON	9	4	1270	706	0.241	306
ON	9	5	4242	2357	0.390	1654
ON	9	6	3183	1768	0.181	576
50N	10	1	2825	1570	0.835	2359
50N	10	2	2682	1490	1.638	4393
100N	11	2	3170	1761	0.523	1658
100N	11	3	3069	1705	0.157	482
100N	11	4	3058	1699	0.379	1159
150N	12	1	1246	692	0.170	212
150N	12	2	1358	754	0.218	296
150N	12	3	1749	972	0.464	812
150N	12	4	1259	699	0.209	263
200N	13	1	2927	1626	0.158	462
200N	13	2	7020	3900	0.235	1650
200N	13	3	872	484	0.169	147
200N	13	4	4615	2564	0.222	1025
200N	13	5	1377	765	0.160	220
200N	13	6	2320	1289	0.236	548
200N	13	7	546	304	0.199	109
200N	13	8	2258	1254	0.154	348
250N	14	1	934	519	0.361	337
250N	14	2	2360	1311	0.225	531
250N	14	3	3023	1679	0.211	638
300N	15	1	5193	2885	0.307	1594
300N	15	2	3132	1740	0.368	1153
350N	16	1	2802	1556	0.309	866
350N	16	2	2789	1550	1.717	4789
350N	16	3	2903	1613	0.188	546
350N	16	4	2633	1463	0.203	534
400N	17	1	3372	1873	0.241	813
400N	17	2	2296	1276	0.214	491
400N	17	3	2771	1540	0.200	554
400N	17	4	2791	1550	0.426	1189
400N	17	5	3804	2113	0.490	1864
400N	17	6	3626	2014	0.225	816
450N	18	1	3714	2063	0.144	535
450N	18	2	2245	1247	0.146	328
450N	18	3	2894	1608	0.952	2755
450N	18	4	2426	1348	0.249	604
450N	18	5	2551	1417	6.988	17826
450N	18	6	2200	1222	0.217	477
500N	19	1	2007	1115	0.234	470
500N	19	2	1929	1072	0.142	274
500N	19	3	2083	1157	0.378	787
500N	19	4	3411	1895	0.159	542
500N	19	5	2332	1296	0.216	504
500N	19	6	2901	1612	0.188	545

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550N	20	1	3650	2028	0.297	1084
550N	20	2	987	548	0.321	317
550N	20	3	485	269	0.410	199
600N	1	4	2655	1476	0.180	478
600N	1	5	3957	2199	0.555	2196
600N	1	6	1136	631.5	0.291	330
600N	1	8	974	541.5	0.173	168
600N	1	9	2760	1533	0.144	397
600N	1	10	774	430.5	0.161	125
600N	1	1	4073	2262	0.536	2183
600N	1	2	4608	2560.5	0.589	2714
600N	1	3	2858	1587	0.207	592
625N	2	4	2143	1191	0.334	716
625N	2	5	802	445	0.222	178
625N	2	6	1401	778	0.182	255
625N	2	2	1810	1006	0.180	326
625N	2	3	2844	1580	0.327	930
650N	3	3	1724	958	0.423	729
650N	3	4	447	248	0.807	361
650N	3	1	2727	1515	0.444	1211
650N	3	2	1445	803	0.596	861
675N	4	2	2805	1558	0.663	1860
675N	4	3	2033	1130	0.230	468
675N	4	1	1942	1079	0.428	831
700N	5	4	677	376	0.280	190
700N	5	6	856	476	0.727	622
700N	5	1	726	403	1.433	1040
700N	5	2	974	541	0.334	325
700N	5	3	1369	760	0.299	409
725N	6	5	1357	754	0.258	350
725N	6	6	2337	1299	0.342	799
725N	6	7	1076	598	0.252	271
725N	6	8	2959	1644	0.283	837
725N	6	1	5944	3302	0.206	1224
725N	6	2	3602	2001	0.498	1794
725N	6	3	1637	910	0.593	971
725N	6	4	655	364	0.373	244
750N	7	6	1724	958	0.422	728
750N	7	7	661	367	0.490	324
750N	7	8	621	345	0.156	97
750N	7	9	702	390	0.205	144
750N	7	10	1099	611	0.219	241
750N	7	11	222	123	0.227	50
750N	7	12	268	149	0.221	59
750N	7	13	350	194	0.186	65
750N	7	1	4755	2642	0.485	2306
750N	7	2	1469	816	0.273	401
750N	7	3	923	513	1.530	1412
750N	7	4	889	494	0.168	149
750N	7	5	1262	701	0.150	189
775N	8	7	1184	658	0.442	523

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775N	8	8	5328	2960	0.519	2765
775N	8	9	2510	1394	0.346	868
775N	8	1	3571	1984	0.619	2210
775N	8	2	1535	853	1.017	1561
775N	8	3	3467	1926	0.494	1713
775N	8	4	2951	1639	0.357	1054
775N	8	5	1435	797	0.183	263
800N	9	4	1673	929	0.400	669
800N	9	7	2590	1439	0.542	1404
800N	9	8	3326	1848	0.720	2395
800N	9	9	8651	4806	1.494	12925
800N	9	5	1080	600	0.226	244
800N	9	6	2291	1273	1.146	2625
800N	9	1	4630	2572	4.197	19432
800N	9	2	2334	1297	0.263	614
800N	9	3	1985	1103	0.162	322
825N	10	3	4611	2561	0.946	4362
825N	10	4	2193	1219	0.317	695
825N	10	10	3079	1710	1.515	4665
825N	10	11	1112	618	0.208	231
825N	10	12	2992	1662	1.238	3704
825N	10	13	5991	3328	0.890	5332
825N	10	1	1790	995	0.146	261
825N	10	2	1713	952	0.258	442
825N	10	5	2171	1206	0.748	1624
825N	10	6	1459	811	0.233	340
825N	10	7	2239	1244	0.403	902
825N	10	14	1118	621	1.713	1915
825N	10	8	2519	1400	0.679	1710
825N	10	9	3014	1674	0.926	2791
850N	11	5	1474	819	0.770	1135
850N	11	6	1866	1037	0.599	1118
850N	11	8	2523	1402	1.050	2649
850N	11	9	1881	1045	1.047	1969
850N	11	10	3914	2174	0.482	1887
850N	11	4	4265	2370	0.241	1028
850N	11	7	5024	2791	0.345	1733
850N	11	11	469	261	0.555	260
850N	11	1	3471	1928	0.448	1555
850N	11	2	3878	2154	1.372	5321
850N	11	3	3608	2004	0.867	3128
875N	12	3	2038	1132	0.471	960
875N	12	4	2687	1493	0.421	1131
875N	12	5	3937	2187	0.572	2252
875N	12	10	4415	2453	0.353	1558
875N	12	1	6802	3779	0.487	3313
875N	12	2	4380	2433	0.313	1371
875N	12	6	3887	2159	0.273	1061
875N	12	11	891	495	0.247	220
875N	12	7	2362	1312	0.674	1592
875N	12	8	3069	1705	1.142	3505

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875N	12	9	2977	1654	2.262	6734
900N	13	5	2512	1396	0.336	844
900N	13	6	7259	4033	0.669	4856
900N	13	10	2985	1658	0.280	836
900N	13	14	1988	1105	0.712	1415
900N	13	11	4703	2613	0.323	1519
900N	13	12	1669	927	0.473	789
900N	13	13	1157	643	0.292	338
900N	13	7	3190	1772	2.542	8109
900N	13	8	946	526	0.162	153
900N	13	9	1544	858	1.306	2016
900N	13	1	2701	1500	0.751	2028
900N	13	2	1086	603	1.375	1493
900N	13	3	1295	719	0.218	282
900N	13	4	1943	1079	0.705	1370
925N	14	4	5135	2853	0.301	1546
925N	14	5	6677	3709	1.587	10596
925N	14	1	2771	1539	0.141	391
925N	14	2	2565	1425	0.573	1470
925N	14	3	4729	2627	0.734	3471
950N	15	2	1416	787	0.899	1273
950N	15	3	1053	585	0.341	359
950N	15	4	326	181	4.216	1374
950N	15	5	572	318	0.209	120
950N	15	6	949	527	0.508	482
950N	15	9	2352	1307	0.271	637
950N	15	10	2759	1533	0.307	847
950N	15	1	854	474	0.344	294
950N	15	7	3093	1718	0.562	1738
950N	15	8	986	548	0.229	226
975N	16	1	1399	777	0.191	267
975N	16	2	1527	849	0.364	556
975N	16	3	3820	2122	0.168	642
1000N	17	5	2751	1529	0.153	421
1000N	17	6	1842	1023	0.180	332
1000N	17	7	1362	758	0.346	471
1000N	17	8	2342	1301	0.530	1241
1000N	17	9	1800	1001	0.214	385
1000N	17	10	1781	990	0.161	287
1000N	17	1	3926	2181	0.256	1005
1000N	17	2	1856	1031	0.299	555
1000N	17	3	4380	2433	0.653	2860
1000N	17	4	977	542	0.116	113
1050N	30	1	7970	4428	0.278	2216
1050N	30	2	704	391	0.144	101
1200N	33	1	1134	630	0.173	196
1250N	34	1	1977	1098	0.328	648
1300N	35	1	2652	1473	0.435	1154
1400N	37	4	4056	2253	0.142	576
1400N	37	5	1743	968	0.310	540
1400N	37	6	4373	2429	0.476	2082

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1400N	37	7	9117	4356	0.160	1459
1400N	37	8	5505	2630	0.151	831
1400N	37	9	8634	4125	0.432	3730
1450N	38	2	8279	4600	0.226	1871
1450N	38	3	5551	3084	0.379	2104
1450N	38	5	2985	1658	0.495	1478
1450N	38	6	3999	2222	2.762	11045
1450N	38	7	4424	2458	0.163	721
1450N	38	9	7528	4182	0.202	1521
1450N	38	10	9379	4481	0.350	3283
1500N	39	1	1499	833	0.194	291
1500N	39	2	807	449	0.155	125
1500N	39	3	6368	3538	0.159	1013
1500N	39	4	7623	4235	0.179	1365
1500N	39	5	10816	6009	0.440	4759
1500N	39	17	7962	3804	0.144	1147
1500N	39	18	5237	2502	0.677	3545
1500N	39	19	2920	1395	1.495	4365
1500N	39	20	2796	1336	0.384	1074
1500N	39	21	9513	4545	2.270	21594
1500N	39	22	4722	2256	0.263	1242
1500N	39	23	2784	1330	0.219	610
1500N	39	24	6518	3114	0.689	4491
1500N	39	25	6932	3312	0.659	4568
1500N	39	26	12020	5743	0.309	3714
1500N	39	27	8640	4128	0.580	5011
1550N	40	4	4239	2355	0.467	1980
1550N	40	5	16935	9409	0.420	7113
1550N	40	1	9360	4472	0.351	3285
1550N	40	2	19013	9084	0.218	4145
1550N	40	3	14948	7142	0.562	8401
1600N	41	1	7723	4290	0.541	4178
1600N	41	2	5358	2560	0.308	1650
1600N	41	3	4822	2304	0.252	1215
1600N	41	4	5337	2550	0.160	854
1600N	41	5	3083	1473	0.211	651
1600N	41	6	3993	1908	0.317	1266
1600N	41	7	3619	1729	0.263	952
1600N	41	8	18149	8671	0.239	4338
1600N	41	9	5132	2452	0.153	785
1600N	41	10	6237	2980	0.171	1067
1600N	41	11	7365	3519	0.234	1723
1600N	41	12	7056	3371	4.545	32068
1600N	41	13	2886	1379	0.875	2525
1600N	41	14	2903	1387	1.061	3080
1650N	42	11	4239	2355	0.150	636
1650N	42	5	1196	665	0.440	526
1650N	42	6	4653	2585	0.321	1494
1650N	42	7	9581	5323	0.517	4953
1650N	42	8	4109	2283	0.246	1011
1650N	42	9	2822	1568	0.159	449

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1650N	42	10	3866	2148	0.219	847
1650N	42	1	5410	2585	0.186	1006
1650N	42	2	10683	5104	0.227	2425
1650N	42	4	5325	2544	0.289	1539
1700N	43	1	3998	1910	0.174	696
1700N	43	2	8391	4009	0.449	3768
1700N	43	3	4339	2073	0.241	1046
1700N	43	4	4322	2065	0.151	653
1700N	43	5	4173	1994	0.367	1532
1700N	43	6	4469	2135	0.399	1783
1700N	43	7	1203	575	0.170	205
1750N	44	1	1061	507	0.161	171
1750N	44	2	4249	2030	0.492	2090
1900N	47	1	9331	4458	0.147	1372
1900N	47	2	14823	7082	0.376	5573
1900N	47	3	5626	2688	0.170	956
2000N	49	1	6553	3131	0.244	1599
1994 CUMMULATIVE	241	945250	500568	0.522	493144	
1995 CUMMULATIVE	271	937157	496586	0.530	496761	
% DIFFERENCE	112%	99%	99%	102%	101%	

APPENDIX 10

1994 BLOCK MODEL

***COMPARISON OF THE PREDICTED GRADES AND THICKNESS
WITH THOSE INTERCEPTED IN THE 1995 CONFIRMATION
DRILLING***

HECLA MINING COMPANY - ROSEBUD PROJECT
1995 SOUTH ZONE UNDERGROUND IN-FILL DRILLING PROGRAM

DRILL HOLES VS. BLOCK MODEL (0.14 Au cut-off applied)

January 23, 1996

Hole ID	Drill Holes					Block Model				
	From	To	Thickness	Au (opt)	GxT	From	To	Thickness	Au (opt)	GxT
D-95-95	60.0	75.0	15.0	0.171	2.6	63.0	125.0	62.0	0.635	39.4
D-96-95	36.0	71.0	35.0	0.354	12.4	50.0	112.5	62.5	0.389	24.3
D-97-95	90.0	94.6	4.6	0.191	0.9	51.0	96.0	45.0	0.504	22.7
D-98-95	33.7	78.0	44.3	0.497	22.0	35.5	97.5	62.0	0.386	23.9
D-99-95	75.8	81.0	5.2	0.355	1.8	63.0	126.0	63.0	0.745	46.9
	102.8	130.0	27.2	0.269	7.3					
D-100-95	57.3	60.7	3.4	0.174	0.6	54.0	66.5	12.5	0.212	2.7
	70.0	80.0	10.0	0.407	4.1					
	110.0	125.0	15.0	1.088	16.3	104.0	154.5	50.5	1.617	81.7
D-101-95	64.0	102.0	38.0	0.599	22.8	55.0	120.0	65.0	0.736	47.8
D-102-95	74.0	145.0	71.0	2.515	178.6	89.0	134.0	45.0	2.687	120.9
	193.0	203.6	10.6	0.144	1.5	185.0	208.0	23.0	0.319	7.3
D-103-95	63.0	111.0	48.0	0.473	22.7	58.0	128.0	70.0	1.022	71.5
D-104-95	15.0	45.0	30.0	0.267	8.0					0.0
	61.0	80.8	19.8	0.526	10.4	60.5	65.0	4.5	0.481	2.2
	144.4	149.2	4.8	0.159	0.8	151.0	180.0	29.0	0.200	5.8
	175.0	185.8	10.8	0.628	6.8					0.0
D-105-95	20.0	38.0	18.0	0.466	8.4	3.0	15.0	12.0	0.451	5.4
	77.0	104.0	27.0	0.422	11.4	50.0	62.0	12.0	0.537	6.4
	129.0	201.0	72.0	0.377	27.1	77.0	189.0	112.0	0.449	50.3
D-106-95	78.4	89.5	11.1	0.150	1.7	0.0	138.5	138.5	0.612	84.8
	113.2	206.0	92.8	1.363	126.5					
	221.0	224.0	3.0	0.145	0.4	200.0	262.0	62.0	0.761	47.2
D-107-95	61.0	164.8	103.8	0.657	68.2	75.5	186.0	110.5	0.896	99.0
D-108-95	41.0	44.4	3.4	0.222	0.8			0.0		0.0
	80.0	84.8	4.8	1.752	8.4	82.0	113.0	31.0	0.202	6.3
	115.6	118.1	2.5	0.590	1.5			0.0		0.0
D-109-95	0.0	30.0	30.0	0.356	10.7	0.0	9.0	9.0	0.628	5.7
	71.0	87.0	16.0	0.847	13.6	84.0	124.0	40.0	0.464	18.5
	142.0	146.0	4.0	0.243	1.0			0.0		0.0
D-110-95	71.0	135.0	64.0	0.446	28.5	65.5	115.0	49.5	0.554	27.4
	164.0	216.0	52.0	0.565	45.0	164.0	176.5	12.5	0.155	1.9
						189.0	251.0	62.0	1.322	82.0
D-111-95	87.2	120.0	32.8	1.711	56.1	80.0	131.0	51.0	0.984	50.2
D-112-95	80.0	104.0	24.0	0.720	17.3			0.0		0.0
	120.0	170.0	50.0	1.334	66.7	130.5	150.5	20.0	0.799	16.0
D-113-95	5.0	181.0	176.0	0.931	163.9	4.5	27.0	22.5	0.268	6.0
	195.0	202.0	7.0	0.214	1.5	67.0	160.0	93.0	0.537	49.9
						181.0	200.0	19.0	0.567	10.8
D-114-95	10.0	47.4	37.4	0.225	8.4	25.0	37.5	12.5	0.653	8.2
	90.4	115.0	24.6	1.047	25.8	86.5	147.5	61.0	0.980	59.8
	140.0	145.0	5.0	0.354	1.8					
	172.5	210.6	38.1	0.975	37.1	172.0	184.5	12.5	0.575	7.2
						258.0	293.0	35.0	0.409	14.3
D-115-95	0.0	25.0	25.0	0.402	10.2	16.0	19.0	3.0	0.289	0.9
	71.0	76.0	5.0	0.234	1.2					
	106.0	115.7	9.7	0.720	7.0	123.5	141.0	17.5	0.334	5.8
D-116-95	4.5	33.0	28.5	0.220	6.3	37.5	113.0	75.5	0.906	68.4
	90.0	120.0	30.0	0.588	17.6					
D-117-95	10.0	33.4	23.4	0.209	4.9	59.5	121.5	62.0	0.775	48.1
	157.0	186.6	31.6	5.396	170.5	196.5	233.5	37.0	0.429	15.9

Hole ID	Drill Holes					Block Model				
	From	To	Thickness	Au (opt)	GxT	From	To	Thickness	Au (opt)	GxT
D-118-95			no intercepts >= 0.14 Au opt			92.0	172.0	80.0	0.850	68.0
D-119-95			no intercepts >= 0.14 Au opt					no blocks >= 0.14 Au opt		
D-120-95			no intercepts >= 0.14 Au opt			63.0	100.0	37.0	0.734	27.2
						115.5	127.0	11.5	1.057	12.2
D-121-95	46.0	160.0	114.0	0.474	54.0	58.5	180.5	122.0	0.390	47.6
D-122-95	6.0	34.5	28.5	0.445	12.7	109.5	148.0	38.5	0.237	9.1
	106.5	118.3	11.8	0.725	8.6					
	138.7	146.7	8.0	0.152	1.2					
D-123-95	10.0	35.0	25.0	0.331	8.3	105.0	120.0	15.0	1.084	16.3
	108.0	116.0	8.0	0.242	1.9					
D-124-95	76.0	93.0	17.0	0.703	12.0	23.5	108.0	84.5	0.210	17.7
	183.8	227.0	43.2	1.345	58.1	203.5	228.5	25.0	0.519	13.0
D-125-95			no intercepts >= 0.14 Au opt					no blocks >= 0.14 Au opt		
D-126-95	41.1	46.0	4.9	0.294	1.4	22.5	35.5	13.0	0.275	3.6
	93.4	103.0	9.6	0.501	4.8	61.5	113.0	51.5	0.166	8.5
	158.0	197.5	39.5	0.569	22.5	164.5	217.0	52.5	0.382	20.1
D-127-95	38.0	58.0	20.0	0.368	7.4	126.5	142.0	15.5	0.855	13.3
	129.6	148.6	19.0	0.765	14.5					
D-128-95	73.0	90.0	17.0	0.848	14.4	45.0	97.0	52.0	0.292	15.2
	200.0	245.0	45.0	0.245	11.0	176.0	225.5	49.5	0.751	37.2
D-129-95	102.0	141.0	39.0	0.673	26.2	121.5	133.5	12.0	0.160	1.9
	251.0	259.5	8.5	0.377	3.2	231.5	268.5	37.0	0.630	23.3
D-130-95	73.0	98.0	25.0	0.230	5.8	56.0	88.5	32.5	0.235	7.6
	173.8	185.0	11.2	0.503	5.6	188.0	212.0	24.0	0.716	17.2
D-131-95	65.0	105.0	40.0	0.230	9.2	64.0	88.5	24.5	0.224	5.5
	165.0	196.0	31.0	0.280	8.7	188.0	212.0	24.0	0.716	17.2
	233.5	246.0	12.5	0.305	3.8					
TOTALS		2022.9		1564.2				2568.0		1674.9
WEIGHTED AVERAGE GRADE			0.773						0.652	

PERCENT DIFFERENCE (drill holes / block model)

Ore Footage Drilled: 79% of block model

Grade * Thickness: 93% of block model

Weighted Avg Grade: 119% of block model

Block Model is exaggerating thickness by approximately 5.5% as compared to domain boundaries:

PERCENT DIFFERENCE (drill holes / block model)

Ore Footage Drilled: 83% of block model

Grade * Thickness: 99% of block model