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Exploration Management Drill Program Supervision/Staffing Geological Mapping Geochemistry
Target Delineation Property Evaluations Property Generation

Evaluation and Estimation of Copper Resources in the Kelvin Mineralized Zone, Kelvin Project, Pinal County, Arizona

The Kelvin copper deposit and project is located about 10 miles south of the Ray copper mine, the second largest copper mine in Arizona, and about 1 mile south of the Gila River. The Kelvin deposit represents a substantial but incompletely defined copper resource.

Most of the copper resource in the Kelvin deposit occurs in the Kelvin mineralized zone, an approximately 20 degree northwest-dipping, slab-like body of primary porphyry-style copper mineralization. This body occurs at depths below surface of 1640 feet to 2000 feet at the up dip southeast end of the body to 2000 feet to 2900 feet in the deepest drill intercepts in the northwest portion of the body. Drill hole cross sections define a higher grade core zone with a thickness of 120 to 200 feet that occurs within the mineralized body that appears to show good continuity between drill holes CS-J-1, CS-J-4, and CS-J-5 and the projection of this zone correlated with a thick interval of lower grade, less continuous mineralization in drill hole CS-J-2.

Based on five drill hole cross sections through the Kelvin mineralized zone, only three other holes were drilled deep enough to intersect the projected location of the Kelvin mineralized zone. These drill holes, CS-J-3, CS-J-6, and KM-J-9 close off the Kelvin mineralized zone to the southeast, south, and southwest, but it remains open to the west, northwest, north, northeast, and possibly the east. This interpretation is consistent with the previous interpretation of City Service's exploration geologist who noted that the mineralized zone appeared to thicken and deepen to the northwest and west. It is also consistent with the IP data that shows the zones of anomalous IP response migrating to the northwest and north at greater values of the electrode spacing.

Based on City Service's prior work and the cross sections, the Kelvin mineralized zone is interpreted a rotated slice of a typical, Arizona-style, Laramide porphyry copper deposit. The fault slice is bound above and below by shallowly west-dipping low angle faults interpreted as rotated normal faults or low angle detachment faults.

City Service geologists in their exploration work on the Kelvin property considered the exploration target to be an intact, cylindrically shaped, typical Arizona-style porphyry copper deposit that would have been rotated up to 90 degrees to the east about a north-south axis and now completely enclosed in the Precambrian Oracle granite. The data review and work conducted as part of evaluation and estimation of the Kelvin copper resources suggests a second model might be more appropriate. The outline form of the horizontal projection of the Kelvin mineralized zone suggests this second target concept.

If the Kelvin ore zone is assumed to extend to the halfway point between drill holes with intercepts and barren or only weakly mineralized drill holes like CS-J-2, and those four points are looked in map view as in Figure 1, they appear to form tight arc pointing southeast. This arc, as seen in Figure 1, can be interpreted as the southeast end of an ellipse with its long axis oriented northwest-southeast. An elliptical shape to the Kelvin mineralized zone would be consistent with the shape that would be expected if 60 degree west-dipping normal faults were to cut a slice from an originally cylindrical porphyry copper orebody, the typical form of the Lowell and Guilbert porphyry copper model.

Extensional normal faults in extensional terranes like the southwestern half of Arizona where the Kelvin property is located typically initiate with a 60 degree dip. Consequently, the initial faults cutting the Kelvin porphyry into slices would likely have this orientation, a dip of 60 degrees. If this were the case, the short axis of the ellipse would represent the radius of the intact porphyry copper system. The probable 60 degree original dip of the normal faults cutting a cylindrical body of intact porphyry copper mineralization means that the long axis of the resulting elliptical slice would be twice that of the short axis. If this structural interpretation is correct and the Kelvin mineralized zone is interpreted as an ellipse, it appears to have a

minor axis of 3072 feet. The geometry of this structural interpretation them means that the long axis of the ellipse would be about 6150 feet, implying significant mineralization could extend up to 4000' to the northwest down the dip of the Kelvin mineralized zone

The presence of only four drill intercepts of the Kelvin mineralized zone, only three of which are above 0.35% copper makes estimating the Kelvin resource using standard estimation techniques difficult. However, the hypothesized elliptical geometry for the Kelvin mineralized zone can also be used with the existing drill intercepts and the geologic model to constrain the estimated size of the copper resource present and make an estimate of the remaining exploration potential. To evaluate the resource present, the horizontal projection of the interpreted mineralized zone was divided into the blocks shown in Figure 2 and described in Table I according to the estimated probability that the existing drill intercepts could be projected into those zone. The estimation model assumes continuity within the Kelvin mineralized zone because reasonably good continuity can be expected in most well developed copper porphyry systems.

Table I. Estimated Resource Blocks within the Kelvin Mineralized Zone According to the Resource Category and Estimated Probability Tonnage and Grade Is ±25% of the Stated Tonnage and Grade

Zone	Description of Zone Shown in Figure 2	Qualitative Resource Category	Estimated Probability (±25%)
DH	The area encircled by extending the mineralized drill intercepts 330' (100 meters) from each drill hole.	Drill Measured	90%
CS-J1		Drill Measured	
CS-J2		Drill Measured	
CS-J4		Drill Measured	
CS-J5		Drill Measured	
A	Triangular area enclosed by lines drawn between CS-J-4, CS-J-5, and CS-J-1	Drill Indicated	80%
B (includes area A)	Irregular area enclosed by lines drawn 330' (100 meters) outside the lines connecting CS-J-4, CS-J-5, and CS-J-1 and limited by the outer boundary of the ellipse	Drill Indicated	70%
C	Irregular area outside Area B within the southeast half of the ellipse limited by line Z-ZZ and ZZ-ZZZ drawn approximately 660' (200 meters) from the line drawn between CS-J-J and CS-J-4 and CS-J-4 and CS-J-2 respectively	Drill Inferred	60%
D		Drill Measured and Drill Indicated	70%
E	Area inside the smaller ellipse and northwest of line Z-ZZ and ZZ-ZZZ drawn approximately 660' from the lines drawn between CS-J-J and CS-J-4 and CS-J-4 and CS-J-2 respectively	Inferred Geologic Potential	25%

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Table II. Estimated Tonnage and Grade of Each Resource Block within the Kelvin Mineralized Zone

	Grade Category (> 0.35% Cu, > 40 ft)				Grade Category (0.20% to .35% Cu, > 40 ft)			
Zone	Area (ft^2)	Ave. Thickness (ft)	Average Cu Grade	Tonnage	Area (ft2)	Ave. Thickness (ft)	Average Cu Grade	Tonnage
DH J-1	342119.44	160	0.66%	4,447,552.7	342119.44	200.00	0.20%	5,559,440.9
DH J-4	342119.44	120	0.39%	3,335,664.5	342119.44	80.00	0.24%	2,223,776.4
DH J-5	332119.44	120	0.46%	3,238,164.5	332119.44	120.00	0.28%	3,238,164.5
Drill Hole Measured Subtotals			0.5194%	11,021,381.8			0.2319%	11,021,381.8
J-2	342119.44	0			342119.44	100.00	0.2435%	2,779,720.5
Summary of DH Proven Total: All Zones			0.3609%	24,822,484.1				
A	1384312.85	133.33	0.5189%	14,996,722.5	1384312.85	133.33	0.2323%	14,996,722.5
B (includes A Zone)	3540000	133.33	0.5189%	38,350,000.0	3540000	133.33	0.2323%	38,350,000.0
C	3470000	133.33	0.5189%	37,591,666.7	3470000	133.33	0.2323%	37,591,666.7
Total B+C			0.5189%	75,941,666.7			0.2323%	75,941,666.7
SE Ellipse Summary Total			0.3756%	151,883,333.3				
D	1420000				1420000	100.00	0.2515%	11,537,500.0
Resource Total - All Categories			0.3668%	163,420,833.3	**Contained Pounds Copper**			**1,198,964,518**
	14820033.83							
Additional Geologic Exploration Potential (from area of elliptical ore zone minus SE resource area (no extension to Zone D)		133.33	0.3756%	169,019,799				

Table II contains calculations carried out to four significant figures or more. Anything more than two significant figures in these calculated resource totals is a numerical illusion. Possible sources of error include but are not limited to lack of continuity in grade and thickness within the Kelvin mineralized zone, errors in drill hole locations, sampling and analytical variability and inaccuracies, measurement errors in determining areas of the horizontal projections of each of the resource blocks, scaling errors, and an incorrect interpretative model of the extent of the Kelvin mineralized zone.

Understanding Table II

Table II shows the resource calculated for different resource blocks. For example, the DH resource category consisted of the mineralized zones intersected in the four drill holes projected up to a distance 330 feet (100 meters) from the drill hole. The DH resource blocks are partially contained within Zone A resource block and partially within the Zone B block (outside of Zone A) and is totally included in Zone B which also includes Zone A.

The higher grade resource of 38.35 Mt grading 0.519% copper in Zone B is contained within the overall combined high grade plus low grade resource total of 76.7 million tons grading 0.3756% copper. Similarly the total estimated high grade resource of 75.94 million tons in Zone B and Zone C combined is contained within the combined high grade plus low grade resource of 151 million tons grading 0.3756 % copper in Zones B and Zone C combined.

Speculations on Property and District Exploration Potential

The additional geologic exploration potential listed in the final row of Table II represents the remainder of the inferred elliptical area of the Kelvin mineralized zone outside of the area of influence of the drill holes (assumed to be 330 to 660 feet or 100 to 200 meters) and outside of the resource area of blocks A through D. This estimate assumes the Kelvin zone maintains the same thickness and average grade down dip to the northwest.

Unquantifiable exploration potential also exists. A number of ore grade drill intercepts occur above the Kelvin zone, many in drill holes too shallow to cut the Kelvin zone. Most probably reflect the presence of high angle, mineralized structural zones because no continuity is seen from one hole to another. Nevertheless, a guesstimate is that there is potential for 1-5 million tons grading > 0.35% Cu and 5-10 million tons grading 0.2% to 0.35% Cu. Some of the drill intercepts indicate the potential for significant molybdenum credit within some of these zones.

The real upside exploration potential of the Kelvin porphyry system is for the discovery of additional mineralized fault slices. Based on the structural model described previously, there should be at least 2 and perhaps as many as 5 additional slices. One or more of these slices could contain a supergene enrichment zone that originally formed in the Eocene. The recent discovery of the Resolution porphyry in the Superior district 25-30 miles to the northeast of Kelvin exemplifies the upside potential. The Resolution porphyry is buried beneath post-mineral volcanics but is upright and intact (unfaulted). The resource total at Resolution is in excess of 1.5 billion tons and include at least 500 milllion tons of supergene enriched mineralization grading 1.5% Cu that dates from the Eocene. If the fault-bound, Kelvin mineralized zone block has the interpreted geometry, then the total resource in the block could be as much as 320,000,000 tons. Three to six fault slices of the same size would equal a resource of 960 to 1.92 billion tones, nearly equal the size of the Resolution discovery.

Minability of the Kelvin Copper Resource

The calculated Kelvin resources described previously is a resource estimate only, not a minable reserve estimate and is not an adequate basis for mine planning. Additionally, it makes no statement regarding either the technical or economic feasibility of mining the Kelvin mineralized zone. The model of the Kelvin mineralized zone constructed as part of the resource calculation process does, however, provide a basis for the location of the additional drilling needed to further define the Kelvin mineralized zone and evaluate the zone's grade and continuity and evaluate the interpretative model of the Kelvin deposit presented in this report

March 28, 2005
Kenneth N. Shonk
Registered Professional Geologist, Wyoming #3098

Currently Signed and Dated this ~~21st~~ day of March, 2008

By _____
Kenneth N. Shonk

STATE OF ARIZONA)
PINAL) ss.
County of ~~Maricopa~~)

This instrument was acknowledged and executed before me, this 21st day of March, 2008 by Kenneth N. Shonk, and he acknowledged that he executed the same for the purpose set forth herein.
AFFIDAVIT OF SIGNATURE ONLY.

My commission expires: JUNE 9, 2010

OFFICIAL SEAL
DEBRA KAYE WAGNER
NOTARY PUBLIC - State of Arizona
PINAL COUNTY
My Comm. Expires June 9, 2010

_____
Notary Public