

C U R R A G H R E S O U R C E S I N C.

INTER-OFFICE MEMORANDUM

August 6, 1989

TO: Max Wheaton, Chief Surveyor-Faro Mine
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 Gregg Jilson, Vice president, exploration

FROM: Lee Pigage, Senior Geologist

SUBJECT: Grum Coordinate Systems

INTRODUCTION

The Grum deposit is elongate in a NW-SE direction due to northwest-plunging phase two folds. All surface and underground exploration drilling was completed on vertical cross sections with strike orientation along azimuth 042.

PC-MINE software requires that the mine and geological model be oriented parallel to the local orthogonal coordinate grid system used for the mineral deposit being modelled. In the case of Grum the most advantageous local coordinate system would be oriented parallel to the exploration drill grid and to the general elongation of the deposit.

1987 LOCAL COORDINATE GRID

For modelling purposes with the Grum deposit, a new coordinate system was created in 1987 to correspond to this orientation. This new grid system was tied to survey control station 1404 (earlier named VG4) located on the Blind Creek road between the Grum and Vangorda areas. Station VG4 was assigned the following coordinates in the new coordinate system.

Grid Northing:	5,000.00 N
Grid Easting:	3,500.00 E
Elevation:	1,300.062 meters A.S.L.

Horizontal and vertical units for this grid are meters. Elevations correspond exactly to the elevation datum established in the 1979 Anvil District Orthophoto survey completed by Northwest Surveys.

UTM - 1987 LOCAL GRID CONVERSION

UTM coordinates for station VG4 are as follows:

UTM Northing:	6,904,623.172
UTM Easting:	593,847.979
Elevation:	1,300.062 meters A.S.L.

The following equations convert between the 1987 Grum model coordinate system and the UTM coordinate system.

MODEL -> UTM

$$\text{UTMN} = N_0 + S_h * (\text{GridN} * \cos(x) + \text{GridE} * \sin(x))$$

$$\text{UTME} = E_0 + S_h * (\text{GridE} * \cos(x) - \text{GridN} * \sin(x))$$

$$\text{UTMElevation} = \text{GridElevation}$$

where $N_0 = 6,898,674.069$
 $E_0 = 595,197.633$
 $S_h = 0.99959853$
 $x = 47.7741667 \text{ degrees} = 0.833816 \text{ radians}$

SUGGESTION

Surface development in the Grum pit area is only in its initial stages. The Grum geological model will continue to have an overall northwest-southeast orientation to take full advantage of the greater geological continuity in that direction. I would like to suggest that the local grid for the Grum deposit correspond exactly to the model grid created in 1987 and described above.

By using this previously established local grid, only two grids would be required for Grum (the local grid and the UTM grid). The local grid would be parallel to the existing geological cross sections and to the geological mine model. This would avoid the proliferation of grids as has happened with the Faro deposit because the geology and engineering groups would be using the same local grid.

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