Journal of the Geological Survey of Brazil

Digital Supplement - Appendix

The Archean-Paleoproterozoic structural evolution of the Caraíba Cu-Deposit, northern São Francisco Craton, Brazil: A historical review of its understanding coevally with the development of a high-risk mining project

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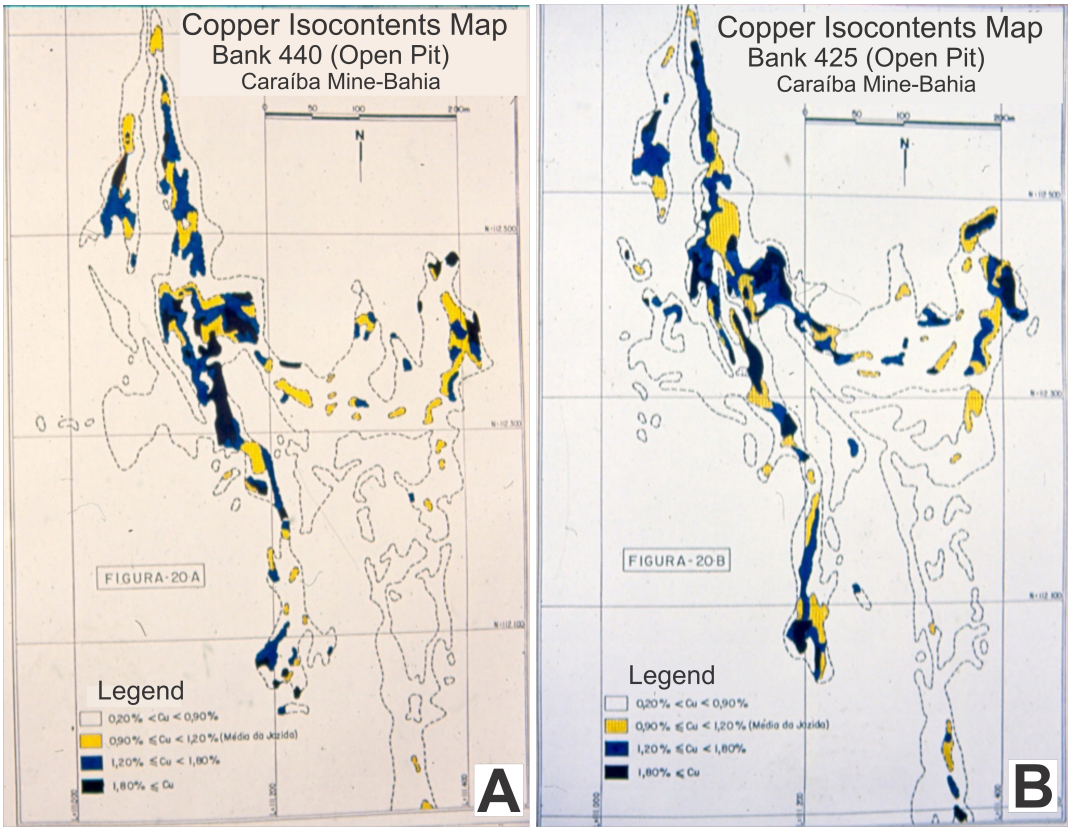
Appendix 2*

Encloses Figures A2-1 to A2-7



**Editor's note: This appendix contains figures that are scans of old, manually drawn geological maps and sections,which results in low-resolution images. However, given the importance of this record, the figures are kept in the appendix.*

ISSN: 2595-1939
https://doi.org/10.29396/jgsb.2024.v7.n2.3
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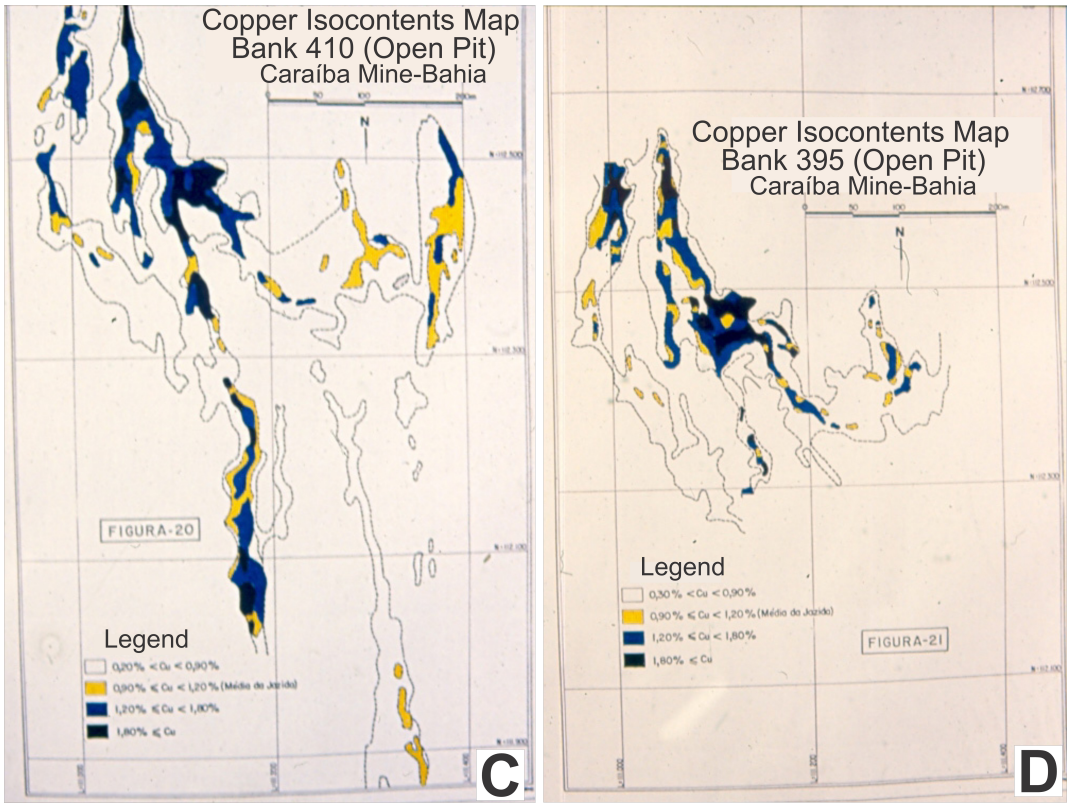

Figure A2-1: Copper content distribution on the surface of each of the four upper benches (Bench 440 in A; 425 in B; 410 in C; and 395 in D) of the Caraíba open pit. This figure is a Scanner image of original maps composing Figure 20 in the MSc Dissertation by D'el-Rey Silva (1984). Black, blue, and yellow colors represent ore with Cu grades >1.0%; >0.8%; and>0.45%, respectively. The colorless pattern indicates marginal ore with >0.20% Cu.

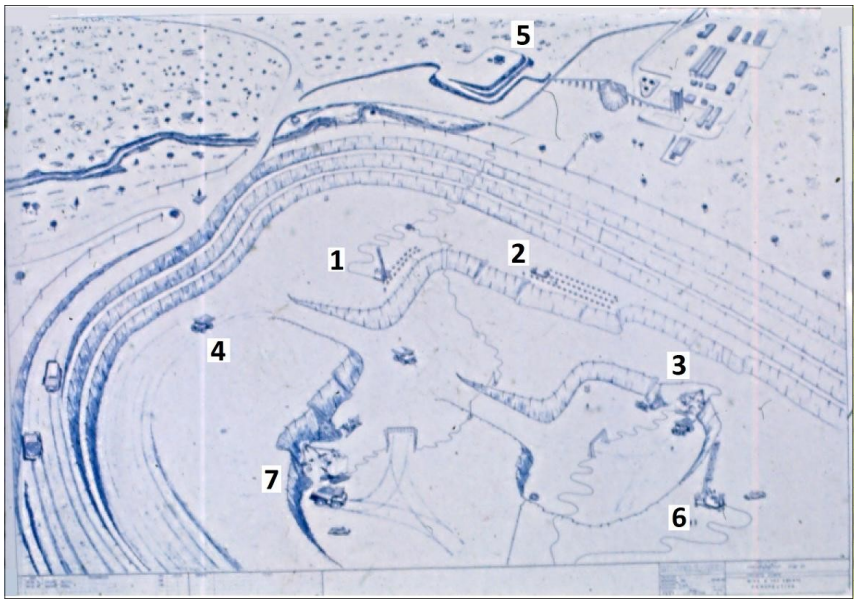

Figure A2-2: A Milder Kayser´s 3-D schematic representation of the open pit mining cycle comprised of steps 1-6. (1) - a slab of rocks would be ready for blasting after electrical drillers have perforated a set of tens of drill holes (each one with 25cm diameter and vertical length of 17m) displaced in a 3m X 3m grid and the mining engineers had loaded each one with a semi-liquid explosive; (2) - electrical shovels oaded out-of-road trucks with the blasted rock; (3) - if there is ore, the truck must transport the run-off-mine material (4) until the primary crusher (5); finally, the entire pile of blasted material was transported out of the open pit, and a new cycle was initiated with the drilling of another slab elsewhere in the mine (6).

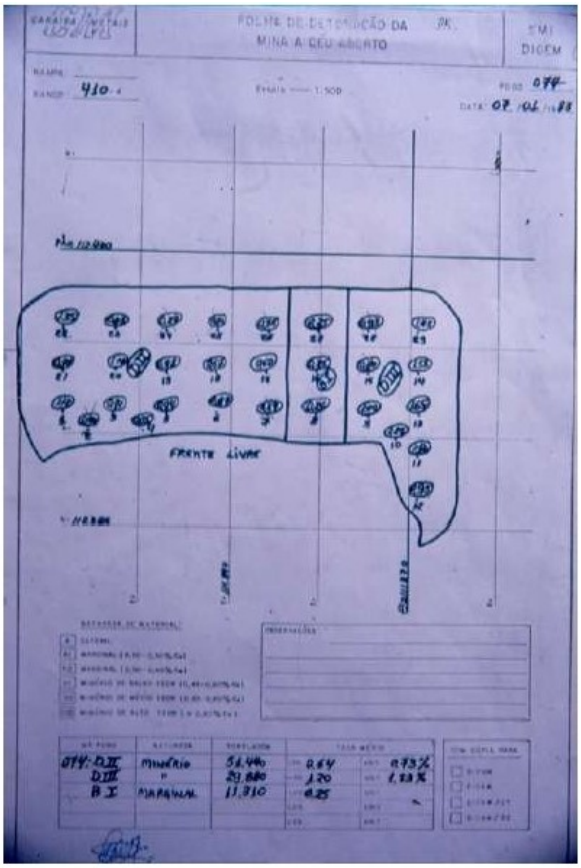

Figure A2-3: Scanner image of the official map issued on 07/01/1983 under the responsibility of the Mine Geology Division for a particular blast in bench 410 of the Caraíba open pit. Note the square grid of coordinates. The free face of the bench is the lower segment of the thicker line surrounding the bench slab. Inside the slab, each hole is positioned with the respective Cu grade. In the example, the Cu% data allowed splitting the bench into three slices, each one with an average grade, as informed in the table of the lower part of the document.

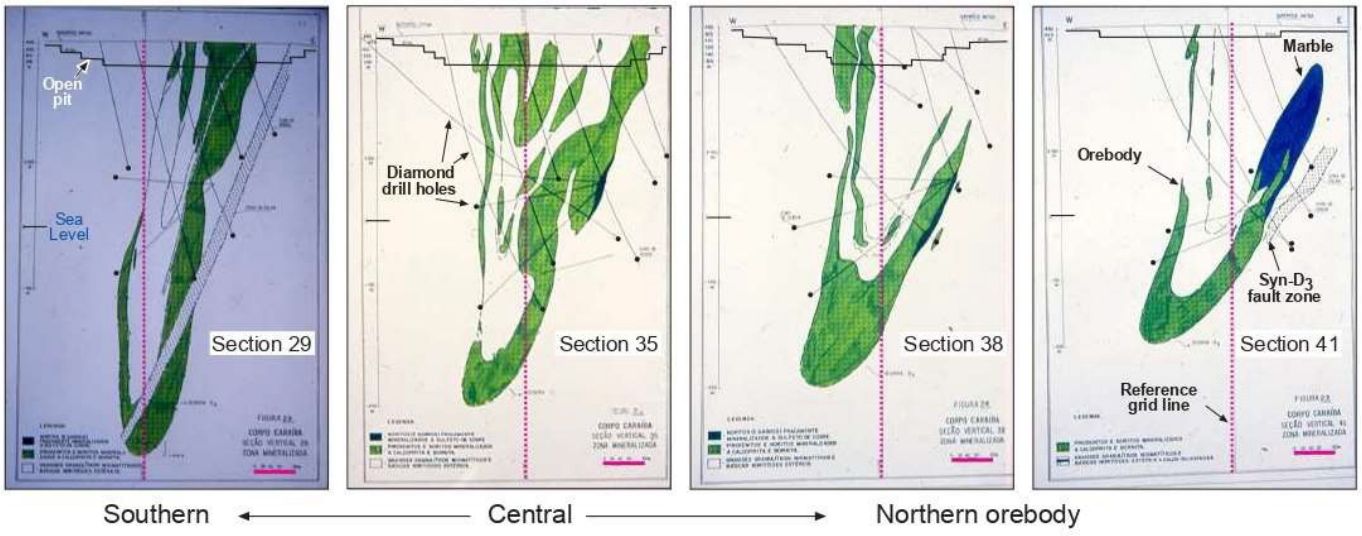

Figure A2-4: A left-to-right series of vertical geological sections displaying the shape of the mineralized layers across the Caraíba orebody, according to the existing data by the end of 1984 (adapted from D'el-Rey Silva, 1984). The sections 29, 35, 38, 41 correspond to the wider part of the Caraíba orebody. F_2 hinges were interpreted close to the surface on the basis of the repetition of layers on the surface (Fig. 10B) and on vertical views, such as in sections 35 to 41. Note the same reference grid line (red dotted) in all cross-sections.

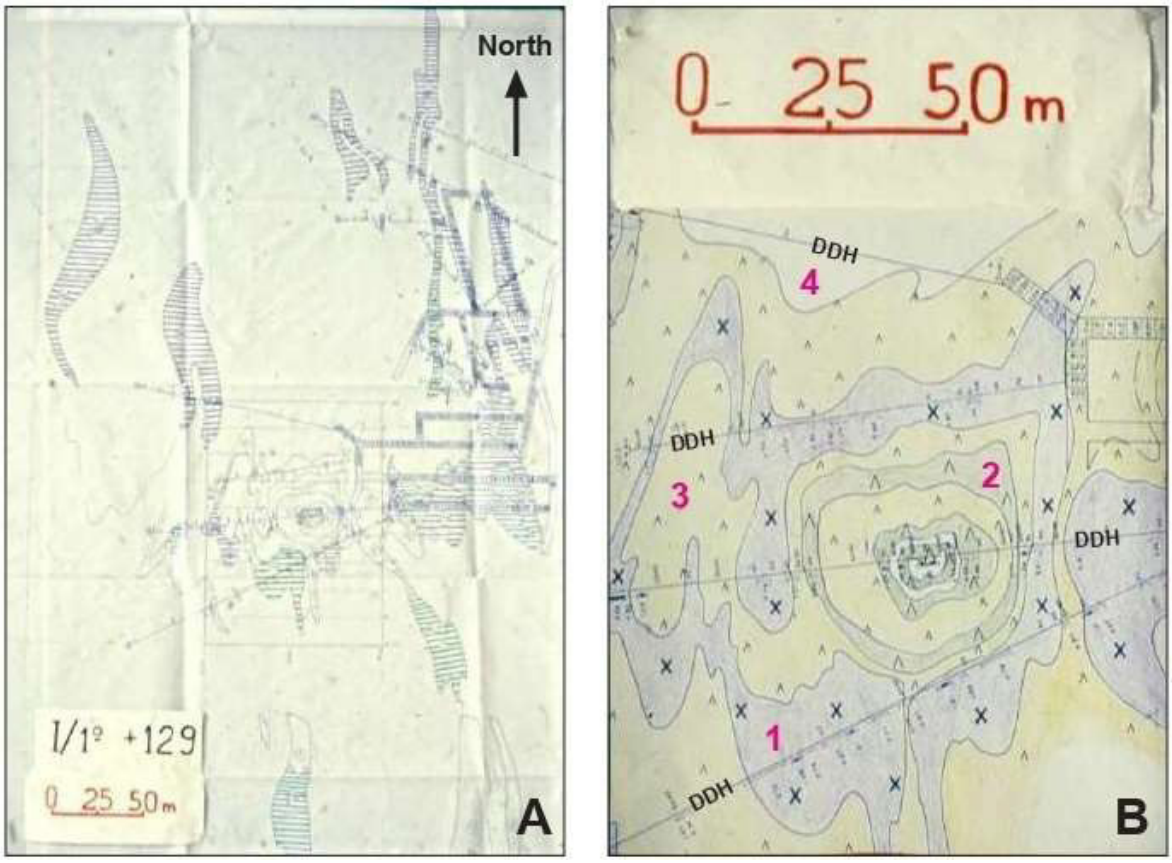

Figure A2-5 A-B: Summary maps displaying the mineralized layers across the Caraíba orebody, accrding to new data from underground galleries and drill holes in 1988. A – Map for surface 129 m above sea level. B – Detail of the central part of the map in A. The numbers in red (1, 2, and 3) stand respectively for hypersthenite, melanorite, and norite plus hyperite, whereas 4 stands for Cu-barren country rocks. DDH means horizontal Diamond Drill Hole.

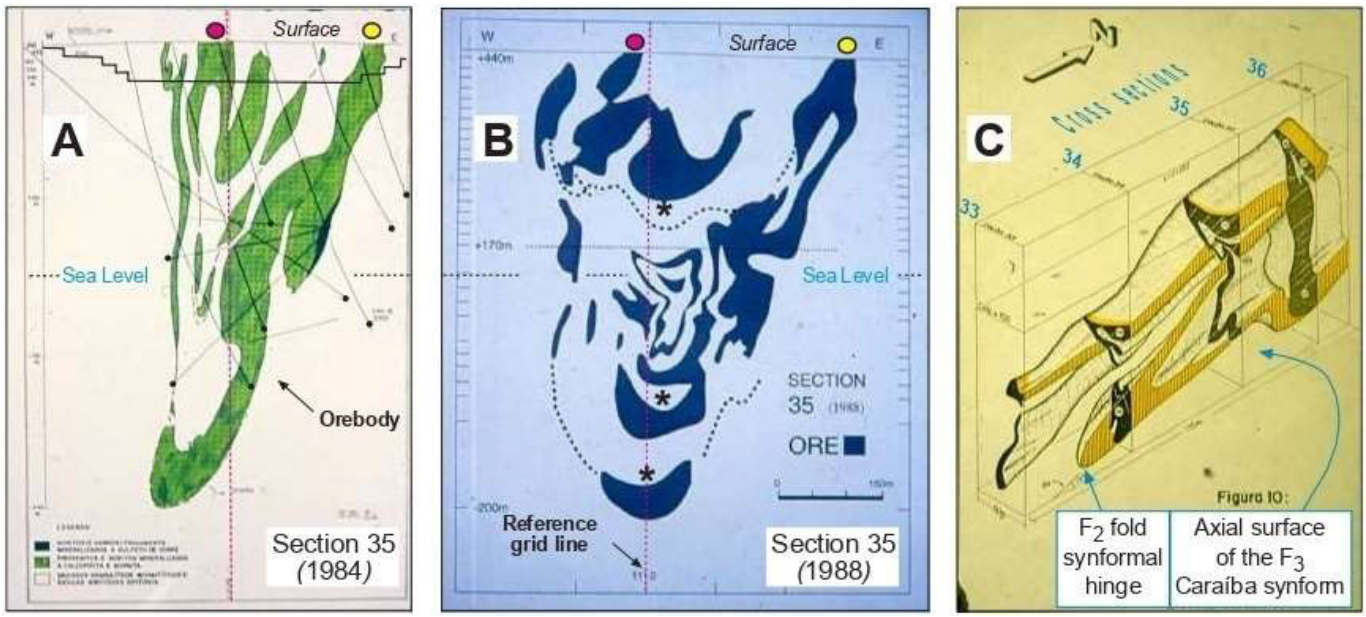

Figure A2-6 A-C: Evolution of the geological sections at Caraíba. The two first diagrams correspond, respectively, to the geological section 35 in 1984 (A; D'el-Rey Silva, 1984) and in 1988 (B; D'el-Rey Silva et al., 1988). Based on the same diamond drill holes available in 1988, the interpretation of F_2 hinges (some shown by red and yellow circles), as well as F_3 hinges (black stars), changed, but respecting the theory upon F_3 x F_2 folding interference pattern type 2 (Ramsay, 1967) at Caraíba. The block diagram (C) shows the asymmetric F_2 folds duplicating the mineralized layers (yellow ornament) on a vertical longitudinal section coincident with the F_3 Caraíba Synform axial surface between sections 33-36.

Figure A2-7: A 3-D translucid view of the Caraíba F_3 synform on space, based in the drawing of the most updated vertical geological sections across the Caraíba orebody, obtained on 1998, on transparent sheets of plastic material. Nothe the South-plunging fold hinge.