

# Resume

PAULO ROBERTO CABRAL DE MELO

Director

Consalt Consultoria Mineral Ltda.

## SUMMARY

Mr. Cabral has over 34 years of experience in drilling projects for salt wells, well completion, underground cavity development in salt layers, and solution mining for brine production for chlor-alkali plants. He was the General Manager for Braskem S.A. (former Salgema Mineração Ltda) in Maceió, Alagoas, Brazil. At Braskem, Mr. Cabral was responsible for the solution mining operation from 1976 to 2007 and supervised the drilling of 35 brine production wells, 1,200 meters deep, vertical and directional (MWD). Since 2007 he formed and is the Director of Consalt Consultoria Mineral Ltda. having participated in several studies for solution mining of potash in Brazil and Argentina. Mr. Cabral is retained as a consultant by Braskem attending workover operations, sonar report analysis, and making recommendations on setting depths for suspended strings.

## PROFESSIONAL EXPERIENCE

Consalt Consultoria Mineral Ltda., Maceio, Brazil

Director (January 2007 &ndash; present)

As director of Consalt Consultoria Mineral Ltda, provided consulting through contracts with the following companies:

- &bull; Braskem S.A. (Sergipe, Brazil) &ndash; Since 2007 contracted as a consultant for the brine filed activities.
  - &bull; Petrobras S.A. &ndash; feasibility study for gas storage in salt cavities offshore Brazil together with Sabine Storage & Operations, Inc.
  - &bull; Vale S.A. (Sergipe, Brazil) &ndash; consulting services for the pilot plant for the solution mining of carnallite and technical classes for Vale engineers. Contracted since 2007. Responsibilities include drilling, completion and workover management, well start up, overseeing cavity development, assisted in preparation of operational procedures, and assisted in the preparation of drilling, workover and sonar contracts.
  - &bull; Vale (Neuquén, Argentina, ex-RTZ) &ndash; Assisted in the preparation of operation manuals for the KCl (silvinit) production plant.
  - &bull; Bunge Fertilizantes (Amazon, Brazil and Neuquén, Argentina) &ndash; Preliminary feasibility study for producing KCl via solution mining.
  - &bull; MBAC Fertilizer Corp (Sergipe and Bahia, Brazil) &ndash; Currently providing consulting services on the feasibility of exploiting potassium salts.
  - &bull; Brinsa S.A. (Colombia) &ndash; Operational procedures for the optimization of NaCl production from salt cavities in domal salt. Review of sonar surveys.
  - &bull; Talon Metals Corp (Sergipe, Brazil) &ndash; Report on the advantages and disadvantages of exploiting KCl (Silvinit/Carnallite).
  - &bull; Atacama Minerals (Bahia, Brazil) &ndash; Preliminary feasibility study for exploitation of KCl via solution mining.
  - &bull; Soros Fund Management LLC (Sergipe, Brazil) &ndash; With Geopex\*, Brazil participated in the evaluation of geological and geophysical information, presented by third parties to the Fund, pertaining to concessions of potash salts. This work provided technical support to analysts deciding on future investments.
- Other contracts together with Geopex for small mining companies in Brazil.
- \* Geopex Consultoria is an associate company that has expertise in Brazilian evaporite basins (former geologist and geophysicist from Petrobrás).

Braskem S.A.

General Manager (1976-2006)

Braskem S.A. was the first company in S. America to produce salt by solution mining and to use abandoned salt cavities for waste disposal (calcium/magnesium slurry resulting from brine treatment). Braskem started operations in 1975 and has since produced more than 20 million tons of net salt (sodium chloride) via solution mining. 800,000 ton/year brine production for chlor-alkali plants located in Alagoas and Bahia.

During this period, managed the brine field and worked together with several international consulting companies contracted by Braskem S.A. (Texas Brine Inc, PB-KBB Inc., Fenix & Scisson, Sofregaz US, GeoStock US). Responsibilities included well drilling, completion and workover operations, operational procedures, cavity development, setting of suspended strings, blanket control, sonar reviews, exploration work for new production areas, preparing the Mining Plan (medium an long term) to assure salt reserves for the chlor-alkali plant, waste disposal in inactive cavities (pioneer in S. America), budget preparation.

Attended Solution Mining Research Institute (SMRI) meetings in the USA, Poland, Italy, France, Portugal and the 8th

World Salt Symposium in The Hague, Netherlands in 2000.

## EDUCATION

BSc. Mining Engineer/Safety Engineer graduated in 1973 at Federal University of Pernambuco State &ndash; Brazil.

## PUBLICATIONS

- SMRI &ndash; Spring Meeting in Syracuse, NY, 2005 &ndash; Salt Solution Mining &ndash; A Case History, with Alex Cardoso (Braskem) and José Pereira (Sabine Storage & Operations, Inc.).
- SMRI &ndash; Fall Meeting Houston, Texas, 1992 &ndash; co-author with Álvaro Maia da Costa &ldquo; Stress Analysis and Sizing of Cavern Mined by Dissolution of Halite of the Evaporitic Basin Alagoas/Sergipe in Brazil.
- &ldquo;Solution Mining of Salt, Technical and Environment Consideration&rdquo; presented in Brazil (several universities), Chile (Society Chilean Mining Engineer, Vina del Mar), Spain (Catalunia University, Barcelona), Venezuela (Maracaibo), and Colombia (Brinsa).
- Author, together with Renato Senna (Geopex) and Carvalho Pinto (PhD &ndash; Colorado School of Mines) of the Halite Chapter in the 2nd Edition of the Hand Book of Rock & Industrial Minerals, CETEM, Brazil (unique in the Portuguese language).