

PROJECTS - Votorantim Cimentos



SAXUM Engineering Services for Itacamba Cemento S.A., Bolivia.



Itacamba Cemento S.A. has awarded Saxum the engineering of its green field Yacuses project, which involves a new cement plant in the northeastern area of Bolivia. Itacamba Cemento S.A. is owned by Votorantim Cimentos from Brazil, Cemento Molins S.A. from Spain and Cocca from Bolivia.

The new 2.000 TPD plant is located in the province of Germán Busch, 50 kilometers from the town of Puerto Suarez.

The green-field project required SAXUM's technical assistance to carry out the verification, adaptation and optimization of the electromechanical and civil/structural engineering for the plant and related main equipments, based on the original engineering designs by the Chinese equipment supplier. SAXUM is also involved in the RFI (Request For Information) support and assistance during the plant construction and erection.

Of relevant importance in the assistance service by SAXUM to Itacamba Cemento is not only the detailed knowledge of the engineering designs specifics, but also

the previous extensive experience of our professionals with the Chinese design standards. This experience was acquired in several previous projects in the Americas in which SAXUM was responsible for the engineering while the main equipment supplier was Chinese.

In Electrical Engineering, SAXUM's scope of work in this project included the development of the following:

- Short Circuit Study.
- Protection & Devices Coordination.
- Power Flow Analysis and Harmonic Distortion Analysis.
- Arc Flash Analysis.
- Motor starting Analysis.

SAXUM's scope of work also includes the review, sign-off and stamping of the electrical, instrumentation and control engineering by the main equipment supplier, which encompasses:

- Lighting system.
- Grounding and Lightning protection.
- Cable Trays System.

- Electrical rooms Arrangements.
- Typical electromechanical assembly and instrumentation diagrams.
- Single Line Diagram.
- Single Line Diagram of Lightning and panels
- Flowsheets.
- Architecture and philosophy of the control system.
- General specifications of I&C and assembly teams.
- List of instruments and I/O.
- Topology and design of Field Communication Network.

In civil and structural engineering, SAXUM's scope of work in the Itacamba Project includes:

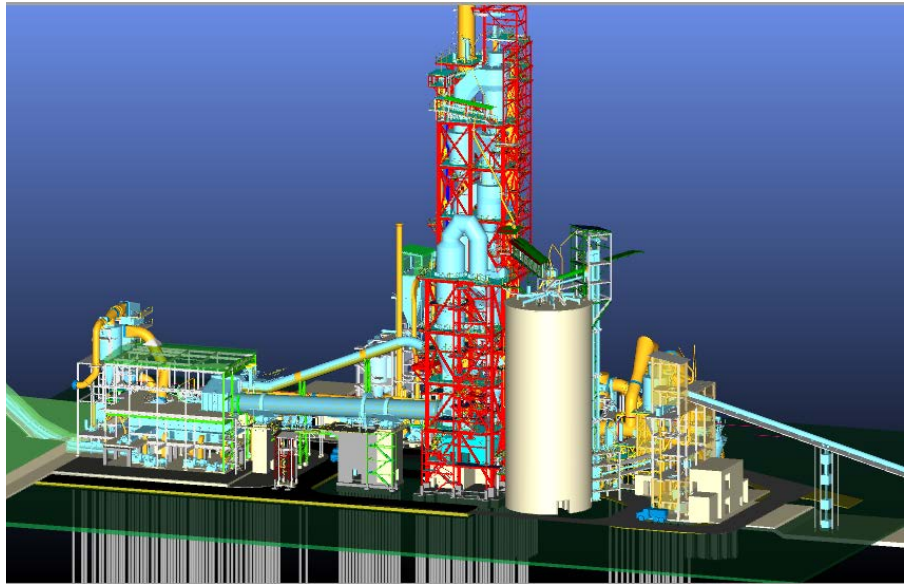
- Design of the foundation of the industrial buildings
- Civil engineering of all buildings on concrete
- Review of the structural designs by the equipment supplier, issue of final engineering documents
- Sign-off and stamp of all civil and structural engineering documents ■



SAXUM assists FLSmidth in Colombia

SAXUM's professional's staff, and its vast experience in the cement industry, is assisting FLSmidth Inc., the global supplier of the cement and minerals industries, in the development of the Detailed Civil and Structural Engineering of the steel components, foundations, silos and other structures, in the context of the Maceo Project.

Maceo is the new Cemex greenfield project, for a new 2800 TPD clinker plant, which is being erected in Antioquia, Colombia. The project goes from primary crushing to clinker feeding. SAXUM's scope of work also includes review of the shop drawings by others and structural engineering document stamping and sign-off by a Registered Engineer in Colombia. ■



SAXUM Engineering Services for the Lithium Carbonate Plant of Sales de Jujuy S.A., Argentina

Sales de Jujuy S.A. was founded in 2010 as the local operating company of the Olaroz joint venture project between the mining company Orocobre Limited, the Japanese trading company Toyota Tsusho Corporation (TTC) and the Mining Company of the province of Jujuy, Argentina, Jujuy Energia y Minería Sociedad del Estado (JEMSE).

In December 2014, after seven years of planning and construction, Sales de Jujuy S.A. started production of primary lithium carbonate in its plant located in the pro-

vince of Jujuy, Argentina. Currently the plant has a capacity of 17,500 metric tons of battery grade lithium carbonate available to clients globally. Recently, Sales de Jujuy S.A. retained SAXUM for two relevant projects:

- Development of Conceptual and Detailed Engineering for CO₂ Recovery: Current plant operation consumes CO₂ in its purifying stage. To increase process efficiency, Sales de Jujuy SA required from SAXUM the complete engineering for gas recovery and re-injection, inclu-

ding the dimensioning of all involved equipments and, finally, the evaluation of gas consumption.

- Steam System Optimization: considering the fact that a boiler furnace was recently installed in the plant to satisfy the process thermal demand, Sales de Jujuy S.A. required from SAXUM the definition of the thermal energy balance and, based on this, the evaluation of the most appropriate procedure for incorporating the new steam generator to the system. ■



SAXUM's Senior Process Engineer: Mr. Roberto Fernandez

Roberto earned a Chemical Engineering degree at the Universidad Nacional del Litoral, Argentina. He also obtained a Master's degree in Business Administration at the FUNCER Business School, also in Argentina. He is a registered professional engineer with more than 30 years of experience in the cement industry and worked for Holcim (Minetti Group) Argentina as a Process Engineer, Process Control Responsible and Production Res-

ponsible, for most of his career. His extensive experience includes coordination and integration of policies and objectives for technical management, planning and coordination of investment projects and budgets for maintenance, repair, replacement, product quality improvement and diversification, and planning and coordination of technical, organizational, training and audit support and mining schemes of non-renewable mineral re-

sources. As Senior Process Engineer of SAXUM, Roberto is responsible for the quality of the technical assistance in the operation and process optimization for the cement and mining industries. In addition, Roberto has a deep knowledge of cement projects, production management and detailed process analysis capabilities and will provide effective solutions and invaluable skills to SAXUM. ■



Basic Engineering for the Lindero gold mine project in Salta, Argentina.

Lindero is a green-field project for a heap-leach gold mine which involves an open pit. Its initial production will be 15,000 TPD, which will increase to 18,750 TPD during the first year of operation; average annual production will be 109,000 ounces of gold during the first nine years.

Lindero, owned by the Canadian company Goldrock Mines Corp. , is to be developed as an EPCM project. To achieve this objective, SAXUM was appointed by Goldrock for the development of Phase 1 of the EPCM project, which consists on Conceptual and Basic engineering, Capital and Operation Cost Estimates and Procurement Assistance Services.

The SAXUM team faced several challenges and constraints during this project, not only in the development to meet the technical requirements of working at 3,800 meters above sea level (masl), but also to overcome the most important challenge, which was to achieve an optimized solution to the point that would allow Goldrock to meet their goals within the Argentine political and economic situation of 2015.

SAXUM was awarded with the mechanical, piping, civil/structural, electrical and automation engineering for the entire project. The layout for the crushing plant was completely redesigned, including the primary, secondary and a High Pressure Grinding Rolls tertiary crusher looking to minimize the amount of steel structure by taking advantage of the geography and the natural terrain. This was performed in close collaboration with world-known equipment suppliers present in the Argentine market.

Civil/structural work at the crushing plant is, in terms of volume, and therefore cost, the biggest item in the project, and our team went the extra mile looking for optimal and optimized solutions, to allow safe structures with the minimum material consumption. The Piping engineering for this project included the development of a 13 km pipeline to supply water from wells located in a remote area. The Electrical, Instrumentation, Control and Automation engineering for

this project also presented several challenges, such as the selection of appropriate equipment regarding the site's environmental conditions, especially the altitude, as well as the design a robust system that would meet the latest safety standards with available standard components.

To accomplish these goals the engineering for the bidding packages was developed in more detail than usual; during this process SAXUM was in close contact with the world's leading electrical equipment companies with presence in Argentina.

For Automation, a Distributed Control System was proposed based on a design which included a central control room with HMI screens in each of the electrical rooms; in addition, MV switchgears, protection relays and other elements were incorporated through the communication bus IEC 61850.

Engineering services were also developed for the Truck Shop, the camp, warehouses, admin building and the refinery.

SAXUM developed a detailed list of materials and costs for all the engineering disciplines, to allow Goldrock to define the project Capex; all this cost analysis was reflected in forms and reports for easy reading and evaluation. ■

MARKET NEWS



SAXUM presented at the XXXII FICEM Technical Congress in Mexico DF.

During August 31 to September 2, Mexico DF hosted the annual Inter-American Cement Federation (FICEM) Technical Congress. More than 300 participants representing engineering and production areas of cement companies of Latin America and the Caribbean and major global suppliers of technology and services for the cement industry were presented. SAXUM was present at the event, exhibiting their skills and experience and strengthening ties with customers and colleagues.

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