

Mariela Zuñiga

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Mariela Zuñiga Sanchez is a Process Metallurgist with 3 and half years of experience in metallurgical process design for concentrators and over 5 years of experience on consulting, research, process development and on-site work, in places including Chile and Canada. In the last two years the focus has been in grinding circuit design at a “front end” to feasibility study level and troubleshooting, with participation in drill core sample selection, batch and pilot plant testing, equipment sizing, liners and grinding media consumption, throughput and cost estimation. Mrs. Zuniga holds a M.A.Sc. degree from the University of British Columbia.

ACHIEVEMENTS

- Received award “Roberto Ovalle Aguirre”. This prize is given by the “Chilean Institute of Engineers” for the best thesis projects in the most prestigious engineering universities in Chile.
- Graduated as a Metallurgical Engineer from University of Concepción with “Maximum Distinction”.

PUBLICATIONS

M. Zuñiga, D. Barratt (2014), “Comminution Testwork in a Geometallurgical Plan and Assessment of Confidence in Projections of Mill Feed Rates”, GEOMET 2014, Santiago, Chile.

M. Zuñiga, E. Asselin (2013), “Reductive leaching of limonitic laterites using ferrous sulphate”, TMS 2013 142nd Annual Meeting & Exhibition, San Antonio, Texas, USA.

M. Zuñiga, E. Asselin and F. Parada L (2010), “Leaching of a limonitic laterite in ammoniacal solutions with metallic iron”, Hydrometallurgy, Volume 104, Issue 2, Pages 260–267.

M. Zuñiga, E. Asselin and F. Parada L (2010), “Leaching of a limonitic laterite in ammoniacal solutions with metallic iron”, Metallurgical Engineer Thesis, University of Concepcion, Chile.

M. Zuñiga., E. Asselin (2009), “Leaching of a limonitic laterite in ammoniacal solutions with metallic iron”, paper presented during COM 2009, Sudbury, Ontario, Canada.

EXPERIENCE

2013 – Present day

Process metallurgist, DJB Consultants Inc., Vancouver, BC, Canada

OCI Trona, OCI Chemical Corporation (USA): 2013 - Review and analysis of grinding operations data for the selection of equipment for a potential expansion.

Aguas Teñidas, MATSA (Spain): Review of comminution test results, grinding operations flowsheet for selection of equipment for the addition of a new grinding line using ball mills.

Radomiro Tomic, Codelco, (Chile): 2013 - Review of pilot test work. 2014 - Review of mill sizes and simulations for estimations of specific power consumption and throughput predictions.

Twin Metals, Twin Metals Minnesota, (USA): 2013 - Grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing, comminution test work, balls & liners consumption calculations.

Michiquillay, Anglo American (Peru): 2013 - Review of comminution test work and grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing, comminution test work and balls & liners consumption calculations.

Dominga, Andes Iron (Chile): 2014 - Participation of grinding sample selection, QC and QA laboratory test work, review of comminution test and pilot test results, grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing, and balls & liners consumption calculations.

Quellaveco, (Peru): 2014- 2015 - Review of grinding sample selection and test work results, grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing, comminution test work. Grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing, comminution test work.

Las Bambas, (Peru): 2015 - 2016 – Review of geotechnical and geological logs. Geometallurgical drillcore inspection program for testing of comminution samples (UCS, PLT, Bond work indices, SMC, JK SimMet, SPI, etc). Testwork flowsheet development and review of testing program, sample selection per grinding interval, sample selection for lithological composites, etc. Grinding simulations with in-house software Millpower2000 for throughput prediction using comminution test work data.

Manto Verde, (Chile): 2016 – Review of geotechnical and geological logs. Review of grinding sample (composites) selection and test work results, grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing using comminution test work data.

Collahuasi, (Chile): 2015 - 2016 – Review of grinding sample selection and test work results, grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing using comminution test work data for the 4th Line Expansion.

Radomiro Tomic, Codelco, (Chile): 2016 – Review of geotechnical and geological logs, grinding sample selection and test work results, grinding simulations with in-house software Millpower2000 for throughput prediction, mill sizing using comminution test work data for the first 15 years.

2008 – 2013

September 2010 – January 2013

Research Assistant, The University of British Columbia, Canada.

- Reductive leaching of limonitic laterites using ferrous sulphate in ammoniacal media.
- Alkaline sodium sulphide leaching of enargite and tetrahedite to produce clean copper concentrates.
- Oxidative acid leaching of residues from enargite alkaline leaching to recover copper.
- Experience with various analytical methods; AAS, SEM, TEM, XRF, XRD.

July 2008 – September 2010

Visiting Scholar, The University of British Columbia, Vancouver, BC, Canada

- Conduct research on alternatives for direct reduction of limonitic laterite for nickel and cobalt leaching. Metallic iron used as main reducer.

March 2008 – June 2008

University of Concepción, Chile

Neutralization of residual acid streams for Empresa Nacional de Minería de Chile (ENAMI). Bench scale testing followed by pilot plant campaign.

January 2008 – March 2008

El Peñon (Yamana Gold), Antofagasta, Chile.

- Conducted on site testing on samples from new deposits from El Peñon:
 - o Set grinding parameters.
 - o Settling and filtration parameters mainly for tailing samples.
 - o Cyanide destruction using hypochlorite.

- Participated in plant operation and maintenance:
 - o Grinding area.
 - o Thickening and leaching.
 - o Counter current decantation.

EDUCATION

September 2015

The University of British Columbia, Materials Engineering, Canada
Master of Applied Science, Hydrometallurgy

- “Reductive leaching of limonitic laterite using ferrous sulphate in ammoniacal media”.

March 2002 – July 2009

Metallurgical Engineering, University of Concepción, Chile. Six year B.Sc. program focused on:

- Minerals processing (crushing, grinding, flotation, thickening, filtration, separation, etc.)
- Pyrometallurgy (roasting, smelting, converting)
- Hydrometallurgy (leaching, solution purification, etc)

SPECIAL SKILLS

Languages:

- Spanish (mother language), English.

Computer Skills:

- Equipment selection and sizing, mass and heat balance using Excel and HSC software, grinding simulations using Millpower2000.

International Experience:

- Chile, Canada

REFERENCES

Dr. Edouard Asselin
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