

PAUL C. SATCHWELL

SUMMARY:

- Thirty-eight years international experience in engineering projects, consulting, and mining operations.
- Twenty-three years in engineering project and study management in copper, gold, and diamonds in North and South America, and Africa.
- Worked on client teams on major mining studies and projects executed by Amec, Fluor, Aker Kvaerner and Bechtel.
- Nine years with BHP Billiton in various roles, including three years senior engineering management at the Escondida mine.
- Twenty years resident and working in Chile.
- Fluent in English and Spanish.

EDUCATION:

- BSc Mineral Exploitation (Mining Geology). University of Wales, UK. 1975-78.
- MSc (Eng) - Mining Engineering. Queen's University, Canada. 1984-85.

EMPLOYMENT SUMMARY

2003-Present : Mining Technical Services International S.A. Consulting Mining Engineer and Study Manager, Chile.

2001-2002 Manager of Engineering. Escondida Mine, II Region, Chile.

2000-2001 Manager, Technical Services. Escondida Mine, II Region, Chile.

1997-2000 Project Manager. BHP Minerals Technical Services. Santiago, Chile.

1994-1996 Senior Mining Engineer, Project Manager. BHP Minerals, Copper Division. USA.

1992-1994 Mining Engineering Specialist. Bechtel Mining & Metals. USA.

1990-1992 Senior Mining Engineer. Mineral Resource Development, Inc. (MRDI). USA.

1988-90: Mine Geologist. Manville Sales Corporation. Diatomite Mine, USA.

1986-88: Mining & Computer Applications Engineer. B,C&W Inc. USA.

1981-84: Resident Mine Geologist. Southern Peru Copper Corporation, Cujone Mine, Peru.

1978-80: Mining Geologist. Roan Consolidated Mines Ltd. Luanshya, Zambia.

PROFESSIONAL AFFILIATION: Member, SME.

LANGUAGES: English (native). Spanish (fluent).

PERSONAL DATA: Age 59. USA and British passports, Chilean Permanent Resident.

EXPERIENCE SUMMARY: ENGINEERING AND STUDY MANAGEMENT

2015-16: Technical assistance to BHP Billiton's Full SaL project for the Spence Mine, Northern Chile

Prepared English-language documentation for the Definition Phase Study (DPS) and subsequent Execution Phase review (EPR), according to BHP Billiton Group Level Document (GLD) guidelines. Assisted with preparation of Investment Approval Request (IAR) and IPR presentation materials required to move the project from Definition to Execution phases.

2013-14: Zafranal Copper project, Peru, pre-feasibility study manager.

Developed scopes of work, managed and evaluated bids for pre-feasibility study engineering and environmental baseline study work. Scope included mine and associated infrastructure, 44ktpd concentrator, 10,000 tpy cathodes from oxide leach, tailings management, concentrate road transport, water and power supply, other project infrastructure, preparation of Canadian NI 43-101 compliant pre-feasibility study level document (Technical Report). Development of PFS schedules and budgets. Overall management of field operations in preparation for major drilling program, evaluation of contract drilling bids.

2012-13: BHP Billiton, Cerro Colorado Hypogene Project: Study Manager

Using engineering and cost estimation work performed by Amec, prepared capital and operating cost inputs for financial analysis. The selected case scope included mine, 130ktpd concentrator, tailings dam, tailings and concentrate pipelines, port facilities including concentrate dewatering, storage and ship loading, seawater desalination plant, water and power supply, and other project infrastructure. Prepared English-language Identification Phase study, presented study results to internal BHP Billiton Peer Review.

2010-11: Xstrata Las Bambas project, Peru. Owner's team Mining rep on EPCM

Engineering and technical between Bechtel, various consultants, Xstrata Santiago-based project team, and the Peru-based Xstrata copper technical services and operations development team. Technical review and oversight of Mine area project components, including: mine truck shop and maintenance facilities, mine electrical loop, mine area access roads, powder magazine, fuel station.

2009-10: Newmont Mining Company, Ahafo North Gold Project, Ghana: Study Director

Managed Stage 2 (Conceptual) study of a potential gold project in Ghana, responsible for scope development and presentations to obtain project approvals. Managed multiple technical areas associated with the study, including Geology and Resource Estimation, Open Pit and Underground Mining, Process Metallurgy, Environmental & Social Responsibility (ESR), Land Access and Compensation, Capital and Operating cost estimates, and Financial modeling of project alternatives. Prepared study report.

2004-08: BHP Billiton Ekati diamond project, NWT Canada. Life-of-Mine Project Study Manager

Managed team of Ekati engineers and outside consultants working on plan and documentation for life-of-mine operations, according to BHP Billiton guidelines. Also worked on various development studies for new open pits.

2003-04: BHP Billiton, Spence project Feasibility study and detailed engineering: Owner's team Mining rep

Worked with Spence Owners team in Aker Kvaerner offices in Santiago. Managed feasibility study level mine planning work performed in Santiago by NCL Consultores. Developed mine fleet and operating cost estimates, input to mine infrastructure requirements (truck shop, mine loop), coordinated major mine equipment fleet selection effort with Chile-based vendors, participated in internal and external project peer review efforts. Prepared mining chapter of study report.

2001-02: Escondida Mine, Engineering Manager

As part of the Escondida Management team, responsible for eighty-five Escondida professional and technical staff working in geology, resource estimation, mine planning, slope stability, pit dewatering and various mine-related engineering projects. Responsible for over a hundred contract employees, mostly involved with drilling and sampling programs. Chairman and organizer of the Escondida Owners' technical committee which included owners' representatives from Rio Tinto, BHP Billiton and JRC.

2000-01: Escondida Mine: Manager of Technical Services

Responsible for pit dewatering, slope stability and miscellaneous projects which included the development of a drainage tunnel, and a conditional simulation risk evaluation of the five-year mine plan.

1997-2000: BHP Copper, Escondida Norte Project: Pre-feasibility Study manager

Developed and evaluated multiple project options, including process methodology and scale of production, working with Fluor Daniel.

OTHER PROJECTS AND STUDIES

2012: BHP Billiton Pampa Norte, Equipment Replacement Study

Review existing mining equipment replacement policy at the Cerro Colorado and Spence operations. Proposed a consistent approach for the operations, maximizing realistic equipment life and optimizing future planned replacements with respect to remaining mine life at each operation.

2011- 12, BHP Billiton Pampa Norte, Competent Persons report for Reserves and Mining area

Upgraded existing documentation using a new table of contents, developed English-language documents prepared to meet BHP Billiton reserve reporting requirements.

2011- 12, BHP Billiton, Spence Hypogene Project Selection Phase Study (SPS)

Preparation of Mining chapter for this study, working in conjunction with engineers from the project, to deliver a document that met BHP Billiton corporate requirements.

2010-11, Mining review of Quadra FNX Sierra Gorda project

Performed detailed review of mine design, mine plan, equipment fleet and mine operating cost estimate for this Cu-Mo project in Northern Chile.

2008-09, BHP Billiton Spence Hypogene Project Identification Phase Study (IPS)

Worked with client's team to prepare a conceptual level Study to examine the potential of the primary (hypogene) resource at Spence. Work included cost analyses, pit optimization, mine

scheduling and economic analysis of project options. Co-editor of the Study Report, assisted with preparation of material to support approval for advancement to the next stage.

2008, Rio Tinto's La Granja Project, Peru

Provided support to Fluor Chile on mining aspects of the Conceptual Study, including coordination of technical work being provided by Metalica Consultores in the areas of mine equipment fleet estimation, pit optimization and NPV-optimized mine scheduling.

1985-94: Consulting and engineering experience on various mining studies and projects in locations including Zambia, Peru, United States, Mexico, Panama and Chile.

Mine geology, ore reserves estimation, mine planning, equipment selection & fleet sizing, cost estimation, financial analysis, engineering and feasibility studies, life-of-mine and strategic planning. Included work for Fluor Daniel, Bechtel and MRDI.

1978-90: Mining and geology experience at operating mines in Africa, South and North America.

Including: Zambian copper belt, Southern Peru Copper Corporation, Manville Sales Corporation (diatomaceous earth).