

**Preliminary Technical Programme**  
**MAPLA - MANTEMIN 2010**

1-3 September, Sheraton Santiago Hotel & Convention Center, Chile

**Wednesday, 1 September**

**16:00-19:00** Participant registration. Foyer.

**18:00-18:30** Authors' and session chairs' coordination meeting. O'Higgins conference room.

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**Inauguration Ceremony. San Cristobal Lecture Halls B & C.**

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**19:00-20:00** Words of Welcome. *Carlos Barahona*, MAPLA – MANTEMIN 2010 Executive Director

**Keynote Lecture: The Importance of Maintenance in Mining and Its Impact on the Mining Business**

*Esteban Molina*, MANTEMIN 2010 Chairman, Codelco, Andina Division, Chile

*Carlos Zapata*, MAPLA 2010 Chairman, Minera Escondida, Chile

**20:00-21:30 Welcoming Cocktail, courtesy of *Metso*. Foyer.**

**Thursday, 2 September**

**San Cristobal Lecture Halls B & C**

**08:20-08:30** Programme presentation and updates. *Álvaro Endo*, MAPLA – MANTEMIN 2010 Technical Coordinator

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**Plenary Session 1**

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**Chair:** **Edmundo Mares, Minera Barrick, Perú**

**08:30-09:15 SAG Mill #4 Stator Rewind at Minera Escondida Laguna Seca Concentrator Plant**  
*Edwin Orcha and Nelson Cavour*, Minera Escondida, Chile.

**09:15-10:00 Predictive Maintenance: Optimizing CBM Decisions**  
*Andrew Jardine*, Department of Mechanical and Industrial Engineering, University of Toronto, Canada.

**10:00-10:50 Poster session and coffee break, courtesy of *Finning CAT*. San Cristobal Ballroom A and foyer.**

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**MAPLA 2010**  
**San Cristóbal Lecture Hall C**

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**Session 1: Maintenance Management**

**Chair:** Rubén Barrientos, Anglo American, Chile

10:50-11:10 **Structure of Maintenance Information**  
*Mario Troffé*, Skanska Servicios de Operación y Mantenimiento, Argentina.

11:10-11:30 **Improvement Maintenance Applied to 1400 x 1400 Roller Press**  
*Jorge Toledo*, CAP Minería, Compañía Minera del Pacífico Minas El Romeral, Chile.

11:30-11:50 **Presentation to be confirmed**

11:50-12:10 **SAG Motor Ring Maintenance**  
*Alcides Sandoval*, Codelco, Andina Division, Chile.

12:10-12:30 **Low Mill Pump Selection Criteria Through Reliability and Maintainability**  
*Carlos Morales*, Ingeniería La Cumbre, Chile.

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**MANTEMIN 2010**  
**San Cristóbal Lecture Hall B**

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**Session 2: Maintenance Management**

**Chair:** Jaime Neyra, Kinross Gold Corp., Chile

10:50-11:10 **Best Maintenance Practices Associated with Fluid Contamination Control**  
*Juan Espergue* and *Patricio Castillo*, Minera Spence, Chile. Presented by *Pablo Toledo*.

11:10-11:30 **TBO Analysis for Major Components**  
*Edson Poblete* and *Gonzalo Navarro*, Komatsu, Chile.

11:30-11:50 **Centralised Planning and Balanced Scorecard Applied to Bucyrus Equipment Services**  
*Elizabeth Torrejón*, Bucyrus, Chile.

11:50-12:10 **Management to Improve the Availability and Reliability for Lubrication in Mining Shovels**  
*Jeannette Silva* and *Freddy Galleguillos*, Bel-Ray, Chile. Presented by *Juan Carlos Droguett*.

12:10-12:30 **Improvement of Brake System Reliability on Caterpillar 797B Trucks**  
*Manuel Cifuentes* and *Marcelo Zamorano*, Minera Escondida, Chile.

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12:30- 14:00 Lunch, *courtesy of FLSmidth*. Pedro de Valdivia Ballroom.

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**MAPLA 2010**  
**San Cristobal Lecture Hall C**

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**Session 3: Best Practices and Advanced Techniques**

**Chair:** Edwing Pulvermüller, Minera Maricunga, Chile

14:00-14:20 **Online Condition Monitoring for Electric Induction Motors**

*Nicolás Zorotovic, Conecta, Chile.*

14:20-14:40 **Transparent Lubricants for Mill Operations Under Hydrodynamic Working Conditions**

*Lincoyán Castillo, Bel-Ray, Chile.*

14:40-15:00 **Continuous Improvement Processes for Mill Liners**

*Patricio Muñoz, Minera Escondida, Chile.*

15:00-15:20 **Mill Relining Process Technology**

*Wiston Rocher, Russell Mineral Equipment, Chile.*

15:20-15:40 **SAG Mill #3 Crown Change at Minera Escondida Los Colorados Concentrator Plant**

*Rodrigo Alonso and Julio Villagrán, Minera Escondida, Chile.*

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**Session 4: Best Practices and Advanced Techniques**

**Chair:** Arnaldo Burdiles, Minera Candelaria, Chile

14:00-14:20 **Automatic Lubrication System for Padlock Pins**

*Eduardo Merchán, Gerardo Brausewetter and Víctor Martínez, Minera Bajo de la Alumbrera, Argentina.*

14:20-14:40 **Modification to the Grader Turntable Bolt Anchoring System Model 24H**

*José Cuesta, Minera Escondida, Chile.*

14:40-15:00 **Exhaust Temperature Differences in Diesel Engines**

*Cristian Contreras and Eduardo Carvajal, Minera Escondida, Chile.*

15:00-15:20 **Re-Design of Rock Extractor Device for Komatsu HD 785 Trucks**

*Michael Rojas, Universidad de Antofagasta, Chile.*

15:20-15:40 **Midas Alarm Management on a Bucyrus 495 HR Shovel Fleet**

*Raúl Quiroga, Minera Escondida, Chile.*

**16:00- 16:20** Poster session and coffee break, *courtesy of Finning CAT.* San Cristobal Ballroom A and foyer.

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**San Cristóbal Lecture Hall C**

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**Session 5: Advanced Techniques**

**Chair: To be confirmed**

16:20-16:40 **Non-Destructive Testing: Tube Inspection Using Advanced NDT Techniques**

*Tom Shumka* and *Mathieu Beauchesne*, Global Inspections-NDT, Canadá.

16:40-17:00 **Crack Detection and Weld Scan Using Electromagnetic Technique**

*Tom Shumka*, Global Inspections-NDT, Chile.

17:00-17:20 **Trended Conditioning Monitoring for High Production Equipment**

*Francisco Ramírez*, Maestranza Diesel, Chile.

17:20-17:40 **Wind Energy in Chile: A Challenge of Innovating in Asset Management**

*Francisco Comparini*, SKF, Chile.

17:40-18:00 **Designing a Method for Bulk Solid Materials Transfer**

*Fernando Kanacri* and *Cristian Arriagada*, Sistemas de Transporte de Materiales, Chile.

18:00-18:20 **Optimising Replacement Intervals for Pelton Drums**

*Rodrigo Mendoza* and *Rodrigo Pascual*, Pontificia Universidad Católica de Chile.

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**Session 6: Maintenance Management**

**Chair: To be confirmed**

16:20-16:40 **Optimising the Management of Consumable Spare Parts for Critical Components**

*Gabriela Vargas* and *Rodrigo Pascual*, Pontificia Universidad Católica de Chile.

16:40-17:00 **Shovel Fault Analysis in Mining**

*Raúl Henríquez*, Universidad de Antofagasta, Chile.

17:00-17:20 **Simple Selection Method for Determining Critical Machines in a Fleet**

*Jorge Heredia*, Minera Escondida, Chile.

17:20-17:40 **Reliability Applied to Production Equipment Fleets in Underground Mining Using SAP-PM Data**

*Pedro Rojas* and *Cristián Gaete*, Codelco, Andina Division, Chile.

17:40-18:00 **The Route Towards Excellence in Maintenance**

*Ron Galisky*, GMC Global, Chile.

18:00-18:20 **Maintenance Management Using BSi PAS 55 Asset Management Standard**

*José Durán*, The Woodhouse Partnership, Venezuela.

**18:20- 22:00 Cocktail and Welcome Dinner, courtesy of *Weir Minerals*. Pedro de Valdivia Ballroom and foyer.**

**Friday, 3 September**

**San Cristobal Lecture Halls B & C**

**08:20-08:30** Programme presentation and updates. *Álvaro Endo*, MAPLA – MANTEMIN 2010 Technical Coordinator

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**Plenary Session 2**

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**Chair:** **Guillermo Cavalli**, Codelco El Teniente Division, Chile

**08:30-09:15 Maintenance Management and Sustainability: An Historical Perspective**

*José Antonio Botín*, Department of Underground Mineral Resources Exploitation, Universidad Politécnica de Madrid, Spain.

**09:15-10:00 The Challenge of Incorporating New Technologies in Caving**

*Ernesto Arancibia*, Codelco, Chile.

**10:00-10:50** Poster session and coffee break, *courtesy of Shell*. San Cristobal Ballroom A and foyer.

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**MAPLA 2010**  
**San Cristobal Lecture Hall C**

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**Session 7: Maintenance Management, Best Practices and Advanced Techniques**

**Chair:** **Jorge Morales**, Minera Antamina, Peru

**10:50-11:10 Boliden Harjavalta Oy Outsourced Maintenance: Expectations and Experience**

*Pekka Tuokkola*, Boliden Harjavalta, Finlandia.

**11:10-11:30 Study of Maintenance Software Perceptions and Preferences in the Chilean Industry**

*Edith Carmona* and *Fredy Kristjanpoller*, Universidad Técnica Federico Santa María, Chile.

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**Session 8: Best Practices and Advanced Techniques**

**Chair:** **Eduardo Merchán**, Minera Alumbra, Chile

**10:50-11:10 Maintenance Interval Extension from 250 to 500 hrs on CAT 797B Trucks**

*Mauricio Letelier*, *Cristian Contreras* and *David Pohl*, Minera Escondida, Chile.

**11:10-11:30 Increase in the Useful Life of Electric Drive Systems for 797 MEL-Finning Trucks**

*Sebastián Astudillo*, Minera Escondida, Chile.

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11:30-11:50 **Leak Detection in Acid Tower by Acoustic Emission (AE) and Other Non-Destructive Testing (NDT) Means**  
*Afshin Sadri* and *Pawel Gebski*, Hatch, Canada; *David Rojas*, Codelco Norte, Chile; *Guido Zamorano*, *Mario Escudero* and *Juan Araya*, Hatch Ingenieros y Consultores, Chile.

11:50-12:10 **Performance of the MIG/MAG Welding Process in Thermal Pulsed Mode in the Over-Head Position**  
*Jorge Aguirre* and *Víctor Vergara*, Universidad de Antofagasta, Chile.

12:10-12:30 **Non-Destructive Testing: Crack Detection on Crown Gears Using Advanced Eddy Current Techniques**  
*Tom Shumka*, Global Inspections-NDT, Chile.

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11:30-11:50 **P&H MAX: A Way to Ensure Maximum Performance with No Effort**  
*Jorge Gim* and *Camilo Sánchez*, P&H MinePro Services, Chile.

11:50-12:10 **Reliability and Efficiency of Shell Tactic EMV Automatic Multipurpose Lubrication**  
*Werner Rettig*, Shell, Chile.

12:10-12:30 **Nanotechnology Applied to Diesel Motors: Tests and Results**  
*Flavio Román*, Anglo American, Chile.

**12:30- 14:00 Lunch. Pedro de Valdivia Ballroom.**

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**Session 9: Maintenance Management and Advanced Techniques**

**Chair:** **Jorge Toledo**, Minera Del Pacífico, Chile

14:00-14:20 **Maintenance Programming Management Using Graphic Analysis of Shutdown Sequencing**  
*Adolfo Arata*, *Pablo Viveros* and *Rodrigo Mena*, Universidad Técnica Federico Santa María, Chile.

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**Session 10: Maintenance Management and Best Practices**

**Chair:** **To be confirmed**

14:00-14:20 **Real-Time Condition Monitoring for Mining Equipment**  
*Cristian González*, Pontificia Universidad Católica de Chile.

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- 14:20-14:40 **Optimising Plant Shutdowns: Scope, Timing and Possible Reduction with Cost-Risk Focus**  
*José Durán*, The Woodhouse Partnership, Venezuela.
- 14:40-15:00 **Sustainability: A Requirement in Business**  
*Genaro Pérez*, IXC Consultores, Chile.
- 15:00-15:20 **The New Maintenance Contract from Global Services: LX-SX-EW Maintenance Supervision**  
*Luis Alvarado* and *José Oyanadel*, Codelco Norte, Chile.
- 15:20-15:40 **Maintenance Process Optimisation Within a Systemic Vision of Business**  
*Jorge Morales* and *William López*, Compañía Minera Antamina, Peru.
- 15:40- 16:00 **Power Rectifier Electric Drive Change in Minera Escondida**  
*Álvaro Álvarez*, Minera Escondida, Chile.

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- 14:20-14:40 **BICC Project Applied in Maintenance Management**  
*Dianne Pizarro*, Minera Escondida, Chile.
- 14:40-15:00 **Best FLAC Maintenance Practices for Mining Equipment**  
*Marcelo Tapia*, Minera Escondida, Chile.
- 15:00-15:20 **Methodology for Improving the Reliability of a Critical Extraction Truck Component**  
*Daniel Alfaro*, Komatsu, Chile.
- 15:20-15:40 **Elimination of Yoke Defects on Caterpillar 793 Trucks**  
*Andrés Fuica* and *Fae Eva*, Minera Escondida, Chile.
- 15:40- 16:00 **Presentation to be confirmed**

**15:40- 16:20 Poster session and coffee break. San Cristobal Ballroom A and foyer.**

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- Session 11: Best Practices and Advanced Techniques**
- Chair:** **Cristián Vásquez**, Minera Candelaria, Chile
- 16:20-16:40 **Overhaul and Upgrade of AF14 – 120MN Apron Feeders**  
*José Arriagada* and *Pablo González*, Metso Minerals, Chile.

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- Session 12: Advanced Techniques and Safety in Maintenance**
- Chair:** **To be confirmed**
- 16:20-16:40 **Mine Rovers ‘Saving Lives’: Manipulative Hydraulic Mining Tools**  
*Manuel Medel* and *Marcelo Medel*, Conymet, Chile.

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- 16:40-17:00 **Continuous Improvement Processes for Mill Liners**  
*Patricio Muñoz, Minera Escondida, Chile.*
- 17:00-17:20 **Improving the Efficiency of Heat Exchange in Gyratory Primary Crushers**  
*Benedito Macias, Eliomar Matias, Zacarias da Paixao, Ernane Meireles and Adilson Gonçalves, Vale, Brasil.*
- 17:20-17:40 **Assembly and Disassembly of Inferior Concaves**  
*Roberto Bally, Barrick Gold Corporation, Argentina.*
- 17:40-18:00 **Online Monitoring and Safety Protection for Reciprocating Pumps**  
*Alex Adriazola, SKF, Chile.*

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- 16:40-17:00 **Maintenance Quality and Safety Through Total Loss Control**  
*Janett Guerrero, Bucyrus International, Chile.*
- 17:00-17:20 **Implementation of a New Auxiliary Stair Design on Shovel Fleets**  
*Gonzalo Viñas, Manuel Cifuentes and Yerko Fuentes, Minera Escondida, Chile.*
- 17:20-17:40 **PLC Controlled Irrigation System on CAT 777 Water Trucks**  
*Leonardo Rioseco, Minera Escondida, Chile.*
- 17:40-18:00 **Magnetic Filtration Applied in Tandem to CAT 16H Motor Graders**  
*Flavio Román, Anglo American, Chile.*

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**Closing Ceremony. San Cristobal Lecture Hall C.**

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**18:00-18:20 Event outcome and final comments.** Organising Committee MAPLA – MANTEMIN 2010

*Carlos Zapata, MAPLA 2010 Chairman*

*Esteban Molina, MANTEMIN 2010 Chairman*

*Carlos Barahona, MAPLA – MANTEMIN 2010 Executive Director*

*Álvaro Endo, MAPLA – MANTEMIN 2010 Technical Coordinator*

**18:20- 20:00 Farewell Reception. Foyer.**

**Poster Presentations. San Cristóbal Ballroom A.**

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**MAPLA**     **Control Using Proportional Valves in Oleohydraulic Operations and Its Maintainability**  
*Francisco Vildósola, Maestranza Diesel, Chile.*

**Optimising Replacement Intervals for Pelton Drums**  
*Rodrigo Mendoza and Rodrigo Pascual, Pontificia Universidad Católica de Chile.*

**MANTEMIN**     **Redesign of Rock Extractor Device for Komatsu HD 785 Trucks**  
*Michael Rojas, Universidad de Antofagasta, Chile.*

**Real-Time Condition Monitoring for Mining Equipment**  
*Cristian González, Pontificia Universidad Católica de Chile.*

**Optimising the Management of Consumable Spare Parts for Critical Components**  
*Gabriela Vargas and Rodrigo Pascual, Pontificia Universidad Católica de Chile.*

**Reliability and Efficiency of Shell Tactic EMV Automatic Multipurpose Lubrication**  
*Werner Rettig, Shell, Chile.*