Project Development South America Region

Bob Drabik - EGM PDSA
4 October 2012
Agenda

• Project Development Division overview, team and resources
• Project development challenges
• Xstrata - Bechtel Strategic Alliance
• Standard Concentrator Application
• Other Supplier Alliances

Antapaccay Concentrator  Las Bambas Concentrator Mass Earthworks  Antapaccay 40 ft. SAG mill
Project Development Division overview
Greenfield and Brownfield projects in South America

• Project Development South America Region leading:
  – **Antapaccay Project, Peru**: in EPC/EPCM Execution with Bechtel – now being commissioned
  – **Las Bambas Project, Peru**: in EPC/EPCM Execution with Bechtel – in construction
  – **El Pachón Project, Argentina**: Final feasibility study update with Bechtel - nearing completion
  – **Agua Rica Project, Argentina**: Feasibility study with Fluor - target Q2 2013 completion
  – **Lomas Bayas Sulphides Project, Chile**: Pre-feasibility study with Bechtel - target Q4 2012 completion
  – **Coroccohuyco Project, Peru**: Scoping study with AMEC - completed, looking at various options
  – **JV Support**: Antamina Major Projects & Collahuasi Phase 2 and 3 Projects - ongoing
Project Development South America team
Based in Santiago, Chile

Overall organisation led by Bob Drabik
Executive General Manager PDSA

PDSA Project teams
- Antapaccay - Project Director Max Combes
- Las Bambas - Project Director Joe Albright
- El Pachón - General Manager Xavier Ochoa
- Agua Rica - GM Projects Dave Dicaire
- JVs - GM JV Support Tony Maycock

Core team common support across all projects
- General Manager Finance
- Finance Managers
- Study Managers
- Cost Estimating Specialist
- Process Specialist
- SD Manager
- HR Manager
Project Development has the right people
Strong and experienced owner’s teams

- Experience and depth across all projects
- Xstrata Copper owner’s team has directly relevant project experience
  - EGM PDSA – 35 years
  - PD Las Bambas – 39 years
  - PD Antapaccay – 17 years
  - GM El Pachón – 16 years
  - GM Projects – 31 years
  - GM JV Support – 40 years
  - Next level of managers (engineering, commercial, business, project controls, finance, site) – average over 20 years each of project experience
  - 270 project development staff across all projects with various levels of experience
- Bechtel team has key management on our projects that average 25 years experience each
Project development challenges

Identification and management of challenges

• Xstrata Copper recognised many of the key project development challenges in 2007:
  – Social licence and community pressures, particularly in Peru
  – Government relations
  – Environmental and Social Impact Assessments
  – Permits to construct and access areas for infrastructure
  – Remote locations to construct in and transport people and equipment to
  – Simultaneous and sequential projects in execution in Peru
  – Massive infrastructure development requirements (water supply, power, roads, rail, ports)
  – Availability of sufficient resources to design and build projects in hot markets
  – Sufficient project management skills to control mega-projects
  – Availability of key materials and mining equipment to support projects
  – Cost pressures as global and regional economies heat up causing general and mining related escalation

• Created Project Development Division separate from operations to address these challenges

• Established clear division of responsibility and accountability to manage the challenges
Clear division of responsibilities
Operations and Projects

South American Operations
- ESIA application and response
- Permits
- Community relations
- Sustainable development
- Government interface
- Operational readiness
- Production ramp-up

Project Development Division
- Engineering, Procurement, Construction
- Project controls
- Traffic and logistics
- Change management
- Document management
- Quality of workmanship
- Quality of performance
Xstrata – Bechtel Strategic Alliance

Essential for Standard Concentrator, Synergies and Integration

• Established in Q4 2007
• 10 year Alliance for Replicable Copper Concentrators
• Studies completed or underway so far:
  – Standard Concentrator Feasibility Study – completed
  – Antapaccay Feasibility Study – completed, project now being commissioned
  – Las Bambas Feasibility Study - completed, project now in construction
  – Tampakan Feasibility Study – completed, working through ESIAAs and resettlement
  – El Pachón Final Feasibility Study Update – nearing completion
  – Frieda River Pre-feasibility completed and Feasibility Study - being completed
  – Lomas Bayas Sulphides Pre-feasibility study – nearing completion
• Projects in Execution so far:
  – Antapaccay Project – first of the Replicable Copper Concentrators
  – Las Bambas Project – second of the Replicable Copper Concentrators
Xstrata – Bechtel Strategic Alliance

Brings benefits in current environment

- Secures access to large experienced pool of engineering resources and experienced project management skills
- Concurrently supports multiple projects at various development stages
- Retains key staff from project to project and enhances career opportunities across projects – plus continuity of people and knowledge
- Transfer resources from one project to next as required – integrates teams
- Xstrata Copper one of Bechtel’s major clients in South America
- Consistent approach across all projects – many synergies being captured
- Replication efficiencies and savings both in time and cost across;
  - Engineering, Procurement, Construction, Commissioning (start-up and ramp-up)
- Apply lessons learned from one project to next – learning curve shorter
- Key mitigant for some of the risks other projects are experiencing in mining
Standard Concentrator

First in copper industry

- **Standard concentrator:**
  - Divided into adjustable modules
  - Primary crusher, grinding area, flotation area, concentrate and tailings area, re-grind and filter plant
  - Truck shop, warehouse, offices, camps
  - One grinding line or two grinding lines
  - Enclosed or open air structures

- **Each mine is unique, each ore is unique, but:**
  - Standard Concentrator philosophy applied as default base case
  - Customize only when adds NPV
  - Look for opportunities to replicate
  - Apply where it makes sense

Antapaccay – 70 ktpd plant layout

Antapaccay Concentrator – as constructed
Standard Concentrator

Design evolves

- Standard Concentrator applied to Las Bambas modified from Antapaccay
  - Antapaccay has one SAG mill, two ball mills, one primary crusher
  - Las Bambas has two SAG mills, two ball mills, two primary crushers
  - Flotation circuit for Las Bambas is twice Antapaccay’s in capacity
- Next Standard Concentrator was applied to El Pachón
  - Two SAG mill, four ball mills, two primary crushers, concentrator will be enclosed for high Andes climatic conditions

Extract from 3D model Las Bambas

Las Bambas 140 Ktpd plant layout
Standard Concentrator
Extends to equipment suppliers

• Alliance approach extended to key manufacturers of mining equipment
  – Standardises equipment across multiple projects
  – Part of Standard Concentrator approach and philosophy
  – Cost and time savings through replication
  – Takes equipment off critical path through early order capability
  – Xstrata Copper becomes major customer, provides various opportunities
• First Supplier Alliance established with FL Smidth for all SAG mills, ball mills and primary crushers in Q1 2008
• Next Alliance established with Siemens for all mill Gearless Motor Drives in Q1 2008
• Expanded Alliances where possible and created additional Alliances through 2010
  – Metso for Pebble Crushers and Apron Feeders
  – Siemens for Gas Insulated Switchgear
  – FL Smidth for Flotation Cells, then cyclones
  – Thyssen Krupp Robins for Overland Conveyors
  – Twenty further Alliances established
Conclusions so far

• Xstrata Copper recognised the project challenges, planned well in advance to execute a number of major projects in South America
• Assembled experienced strong teams with right skills to manage and execute the mega-projects
• Xstrata - Bechtel Alliance provides overall project management capabilities, track record, experienced people for replicable copper concentrators
• Standard Concentrator replication and approach saves time and money
• Innovative Supplier Alliances saves time and money

View of Antapaccay grinding area  Las Bambas concentrator platform  Antapaccay overland conveyor and stacker
Questions