Your Career as a Geologist at Bechtel

Alumni Student Careers Forum
Earth and Planetary Science
325 McConne Hall
October 22, 2008

Presenter:
Peter Yen
Bechtel - San Francisco

Alumni Student Careers Forum

Logistics

– Emergency Evacuation
– Safety Message
– Why is safety part of the company culture?
Your Career as a Geologist at Bechtel

• Engineering geologists, Geohydrologists, GIS, and other Geo-specialists.
• Roughly 200 Geotechnical, Hydraulic and Environmental Scientists/Engineers.
GLOBAL PROJECT HIGHLIGHTS (March 2008)
Proyecto Plan Desarrollo Andina –Fase 1

**Rock Anchoring -Andina Copper Concentrator Expansion Project**
- Located 80 miles NE of Santiago
- Elevation 10,000 ft.
- Underground Mine and Copper Concentrator for Codelco Chile
- Bechtel Chile Ltda., Design-Build Project
Proyecto Plan Desarrollo Andina –Fase 1

Size of Caverns

- Crushing Cavern  64W x 106H (ft)
- Grinding Cavern  90W x 123H (ft)
- Flotation Cavern  81W x 85H (ft)
Proyecto Plan Desarrollo Andina –Fase 1

- **Crushing Cavern**
  - Roof 128 Pretensioned Bolts
  - Walls 374 Pretensioned Bolts

- **Grinding Cavern**
  - Roof 160 Pretensioned Bolts
  - Walls 348 Conventional Bolts

- **Flotation Cavern**
  - Roof 208 Pretensioned Bolts
  - Walls 352 Conventional Bolts
Proyecto Plan Desarrollo Andina –Fase 1
Technical Evaluation of Alternative Routes

• APPROACH
  1. Division of alignment into broad physiographic provinces (Eastern Lowlands, Basin Ranges, Altiplano, Western Cordilleras, Western Coastal Region/Desert).
  2. Evaluate major hazard categories in each province (Seismicity, Volcanism, Quaternary Faulting, Unstable Foundation Conditions).
  3. Identify the zone of influence of each hazard type within the zone.
Technical Evaluation of Alternatives

• APPROACH (cont’d)
  5. Use a matrix for evaluation of hazard rating and length of pipeline subject to hazard.
  6. Incorporate hazard rating maps into the GIS system.
  7. Normalize hazard rating into engineering criteria.
  8. Select preferred alternative route.
Fault Rupture

Landslides
Route Optimization Process

Optimized Route: Route Date 19-Nov-03

Process for GIS

STEP 1
ASSEMBLE DATA MAP LAYERS
(Digitized into GIS)

STEP 2
STABILITY CRITERIA MATRIX
EVALUATION (GIS query loops)

STEP 3
CRITERIA SCORE ZONATION MAPS
(Assign scores to map zones)

STEP 4
SUM CRITERIA SCORES &
CORRELATE TO
SUSCEPTIBILITY CLASSES
(Final GIS map)

Final Landslide Hazard Map
Los Bronces Copper Concentrator Chile

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Los Bronces Copper Concentrator 80-miles NE of Santiago Chile

Figure N4 : Planta concentración Vista hacia Oriente
Figura 3: Mapeo de línea de detalle

Línea de detalle
Thank You!!
Your Career as a Geologist at Bechtel....

- **www.Bechtel.com**
  - Senior Geologist
  - Staff Geologist, Position # 50403811

- Internships
- Externships

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