Building a New Ash Repository Over a Former Coal Mine
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Outline

• Site and project description
• Site investigation and evaluation
• Design
• Environmental plans
• Construction
Project Site and Vicinity
Site Description

- Lamberts North immediately east of existing Mount Piper Ash Repository (Area 1)
- Delta owns entire Lamberts North property
- However, Centennial Coal will work southern portion until November 2015
- Lithgow and Lidsdale coal seams
- Shallow bord and pillar mining since 1940’s
- Subsequent open-cut mining via roof-lifting to remove Lithgow pillar remnants and mine Lidsdale Seam
Area 1 Ash Repository
“Dirty Water” Pond
Huon Gully
Overview of Lamberts North
Open-cut Areas
Scope of Work

- Hydrogeological and geotechnical investigation
- Groundwater modeling
- Design drawings and specifications
- Construction Environmental Management Plan (CEMP)
- Operational Environmental Management Plan (OEMP)
Expedited Schedule

- CDM Smith awarded contract: May 2012
- Design complete: September 2012
- Bids received: November 2012
- Construction started: December 2012
- Construction to be completed: May 2013
- Ash placement to begin: June 2013
Geotechnical Evaluation

• Review of previous mining activities
• Field investigation
  – 3 geotechnical borings
  – 5 groundwater monitoring wells
  – 5 test pits in mining spoils in Lamberts North
  – Collection of bulk fly ash and bottom ash samples from Area 1
• Geotechnical laboratory testing of spoils and ash
• Stability analyses
  – 4H:1V ash side slopes
  – 10-meter-wide berms every 10 m of height
  – Crest at El. 460 m
Geotechnical Evaluation Results

• No voids encountered in borings performed within Lamberts North footprint
• 2-meter voids found in some borings outside of footprint
• Stability analyses showed adequate factors of safety
• Site considered suitable for ash placement
• Site meets the requirements of the Conditions of Approval
Groundwater Evaluation

• Groundwater monitoring wells installed and sampled
• Groundwater model developed for shallow and deep aquifers
• Maximum groundwater level (MGL) at El. 912.5
• Bottom of ash to be at least 4 m above MGL
• Sediment pond and ash pond to be lined and kept at least 1 m above MGL
Project Components

• Regrade site by cut-and-fill using existing spoil from open-cut mining operations
• Place fill to at least 4 m above maximum groundwater level
• Construct lined sediment pond and ash pond
• Construct perimeter bund on north and east sides of ash placement area
• Construct haul road using bottom ash
• Develop water management system to keep and re-use “dirty water” on site
• Divert clean, off-site stormwater away from the placement area
Original Design Layout
CEMP Components

- Noise management
- Groundwater management
- Soil and surface management
- Air quality management
- Flora and fauna management
- Aboriginal heritage management
- Ash placement plan
Sensitive Receivers for Noise
Land Use
Groundwater Monitoring Locations
Catchment Areas
Figure 4-1 Concept Water Management System at Lamberts North
Surface Water Quality Monitoring Sites
Air Quality
Sensitive Receivers
and Monitoring Locations
Vegetation and Threatened Flora Species
Aboriginal Heritage Sites
Ash
Transportation
Route Options
Proposed Haul Road
Construction in Huon Gully
Huon Gully
Huon Gully
Stormwater Diversion Channel
Cut and Fill Activity
Cut and Fill Activity
Final Grading
Ash Pond and Sediment Pond
Ash Pond and Sediment Pond
Questions?