CLIENTS PEOPLE PERFORMANCE

Financial Assurance Provisions
re:
Land filling of Ash at the Yallourn Power Station Site

CLIENTS PEOPLE PERFORMANCE

Introduction

- EPA financial assurance requirements
- Cover risks associated with the landfiling of ash

Scope of Financial Assurance

- Address remedial, rehabilitation and aftercare elements associated with land filling of ash
- Ash is currently land filled in the Western Basin, a former open cut coal pit

CLIENTS PEOPLE PERFORMANCE

Remediation

- Remediation covers costs that may be incurred to address pollution or events that may lead to pollution during both the land fill operation and after its closure.
- It will be called upon to prevent and remediate any pollution on and/or off site, and to prevent a recurrence during the assurance period
- Remedial Action (EPA Formula) = $200,000 + (16 x typical waste tonnage received / year)
    - TRUenergy would need to set aside **$3,880,000**
- Formula does not consider the specifics of the site. Yallourn Power Station is not a large commercial landfill facility with declining assets and large potential environmental obligations
- An alternative is to use a quantitative risk assessment of events and associated remedial costs to ensure the 95% confidence limit on remedial action costs
- Considers differing conditions and requirements of individual sites

CLIENTS PEOPLE PERFORMANCE

• The Risk Assessment Process

Remedial Action Components (Failure mode events)

- Excess Dust
- Groundwater Contamination
- Subsidence / Failure of Landfill Batters
- Landfill Cap Erosion / Failure
- OH&S Conditions – Fire

Potential causes and consequences for each component have also been determined

(Show example of cause and consequence calculations and subsequent event tree)

CLIENTS PEOPLE PERFORMANCE

Failure Mode Event Tree

- A failure mode event tree grows through incorporating identified remedial factors and their estimated risks
  - "tiered" branches of an event tree is when risks are concurrently assigned. This reflects an event not necessarily being reliant on the event it is grouped with
- Estimates of the number of times the causes of the events may occur each year are at the start of each event tree (risk of occurrence in times per year)
- Each event is assigned a probability and remedial cost to calculate the risk of occurrence and associated cost
- The collective probability of each branch equals 1
- The cumulative probability is calculated by multiplying each probability along each branch
- Associated cost is additive
- The risk per year is calculated by multiplying the times per year the various causes will occur by the cumulative probability for each branch

CLIENTS PEOPLE PERFORMANCE

Monte Carlo Analysis

- Provides a 95th percentile estimate of the remedial cost inherent with the landfill
- Random selection of variables to simulate a real life situation
- 95th percentile cost for each event tree is calculated using cumulative probability, risk and associated costs
- These were summed to find a 95th percentile remediation cost (worst – case)

Variables

- Landfill operating period of 12 years and aftercare period of 30 years
- Potential landfill remediation events
- Number of times 'various cause' will occur for each event
- Individual probabilities of each event

CLIENTS PEOPLE PERFORMANCE

Potential Remediation Costs

- Five simulations were run, using the Monte Carlo Analysis and remediation requirements
- The 95th percentile remediation cost ranged from **$621,000** to **$690,000**
- Mean cost was found to be **$300,000**
- Remedial component of **$750,000** for the Financial Assurance would be conservative as a worst-case cost

Sensitivity Analysis

- The effect of each following variable on the model was determined:
  - Number of iterations in the Monte Carlo simulation
  - Number of potential causes per year
  - Estimated remedial cost of worst-case scenarios

- Sensitivity analysis:
  - The model is sensitive to the probability assigned to worst-case scenario events.
  - A 10% increase in the number of causes per year can cause a 75% increase in the 95th percentile remedial cost.
    - therefore it is important to conservatively estimate the probability of events with a high remedial cost in order to ensure the model accurately represents risk
  - If the cost of worst-case scenario for each failure mode is doubled, the average remedial cost is increased by only 12%
    - therefore the model is not considered to be sensitive to the estimation of the costing of remedial actions

CLIENTS PEOPLE PERFORMANCE

Rehabilitation

- A mine rehabilitation plan was prepared for the site for Yallourn Energy in 2002
- Rehabilitation cost for the ash disposal area were calculated in that plan as **$871,450**
- This cost was based on the rehabilitation of 98 hectares
  - (Refer to Spreadsheet in Report)

GHD CLIENTS PEOPLE PERFORMANCE

Aftercare

- Aftercare costs associated with land filling activities at the Yallourn Power Station site were calculated as **$836,278**
  - (Refer to Spreadsheet in Report)

CLIENTS PEOPLE PERFORMANCE

Means of Providing Financial Assurance

- Financial Assurance will cover remedial, rehabilitation and aftercare components for the land filling of ash at TRUenergy's Yallourn site

- The Financial Assurance will be covered through a combination of bank guarantee, provisions in the rehabilitation plan and an insurance policy