

Correction of a third party risk analysis for drinking water reservoirs and water supply at the Town of Turner Valley, Alberta

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| Project Locations: | Town of Turner Valley |
| Client(s): | Alberta Environmental Review Board |
| Date Completed: | 2008 |
| Project Budget: | \$ 21,000 |



One of two water reservoirs for water supply of the Town of Turner Valley

Summary of project

For the purpose of the hearing of the Alberta Environmental Review Board an established third party had supplied to the Town of Turner Valley a simplistic risk analysis with the conclusion that the failure probability of the water supply system would be $3.78 \times 10^{-25}/\text{yr}$. In other words, the water supply system, including the reservoirs, was claimed to be totally foolproof under all conceivable conditions. WDA showed that the fault trees used did not reflect the systems installed, that the probabilities assigned to individual events did not reflect the realities at the site, and that the third party neglected the role of common events in calculating the failure probabilities. WDA determined the failure probability to be in the order of $4 \times 10^{-5}/\text{yr}$. The Board subsequently rejected the third party report.

Similar evaluation services can be applied to CO₂ storage.

Services Provided

- * By more realistic determination of individual failure probabilities and by inclusion of common events (taken from the nuclear industry) the third party's fault tree was recalculated and shown to be overly optimistic by far.
- * WDA can provide similar advice in subsurface storage (CO₂ and other fluids) with respect to building realistic fault trees and realistic estimation of failure probabilities.

Deliverables or Results

- * Submission of a report.