Clyde Dam case study, New Zealand

Japan-Taiwan-New Zealand annual seismic hazard workshop fieldtrip to Clyde FGF area, 2018

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Clyde PSHA: Baker et al (2013) based evaluation

Damsite <2km from Dunstan Fault, & >50 FGFs within c. 4km of the dam site
PBR fragility curve
All hazard curves
Passed hazard curves

PASS = Hazard curves that would shake the FGFs down with <95% probability in 24 kyr
Failed hazard curves

FAIL = Hazard curves that would shake the FGFs down with ≥95% probability in 24 kyr
Conclusions

- Safety Evaluation Earthquake (SEE) motions for dam site reduced by ~20%

- Importance of undertaking evaluation based on multiple PBRs (representative, or ensemble fragility)

- Importance of considering differences between retrospective & prospective hazard: ask the question “what part of the logic tree have the PBRs not experienced?”
Trona Pinnacles: FGFs near Ridgecrest eqks

2019 damage minor cf earlier events: Many FGFs survived, & many FGFs MORE fragile post earthquake