

The background image shows a dark, textured, and rocky landscape in the foreground, possibly a volcanic field or a dry, cracked earth. In the distance, there's a hazy horizon line. The sky is filled with soft, white and grey clouds, creating a diffused light effect. The overall tone is somewhat somber and dramatic, fitting the theme of geothermal energy and reform.

Reforming Geothermal Regulation in NZ

Context, questions, and a call to arms...

**THE CHARACTERS AND EVENTS DEPICTED IN THIS
SPECTACLE ARE FICTITIOUS, ANY SIMILARITY TO ACTUAL
PERSONS, LIVING OR DEAD, IS PURELY COINCIDENTAL.**

CONTEXT

- Regs are hopelessly out-of-date and largely defunct
- Geothermal drilling grouped with petroleum and mining when DRI was established in 2002
- Heat pumps are not included in the program
- Following the 2008 financial crisis, the Obama administration passed the American Recovery and Reinvestment Act of 2009, which included provisions for energy efficiency retrofits.
- The Energy Independence and Security Act of 2007 established the Energy Star program, which promotes energy efficiency in buildings and appliances.
- The National Energy Policy Act of 2001 established the National Energy Policy Development Administration (NEPDAA), which was responsible for developing and implementing the nation's energy policy.
- The National Energy Policy Act of 2001 also established the National Energy Policy Development Council (NEPDC), which was responsible for advising the President on energy policy.
- The National Energy Policy Act of 2001 also established the National Energy Policy Development Task Force (NEPDTF), which was responsible for studying and recommending ways to improve the nation's energy policy.



Brian White's 2013 paper provides a good summary

http://nzgeothermal.org.nz/Publications/Industry_papers/Geothermal-HS-Regulations-Pike-River-inquiry.pdf

Discussions indicate that minds within MBIE are reasonably open at this stage, though there is frequent reference to safety cases, and the value of their thoroughness. There is strong aversion to simple clause deletions and tweaks of the current Geothermal Energy Regulations 1961. Ambiguities in the Geothermal Energy Regulations leave areas of uncertainty for both the regulator and the duty holder that expose them to reputational risk in the event of a disaster.



It's a fairly crowded regulatory environment today!

**HSIE (Pipeline)
Regs1999**

**HSIE (Pressure Equipment, Cranes &
Passenger Ropeways) Regs 1999**

**HSAW (Petroleum Exploration &
Extraction) Regs 2016**

**Hazardous Substances & Noxious
Organisms Act 1996**

**HSAW (General Risk & Workplace
Management) Regs 2016**

**HSE Act 1992 and HSIE
Regs 1995**

Health & Safety At Work 2015

**HSAW (Major Hazard
Facilities) Regs 2016**

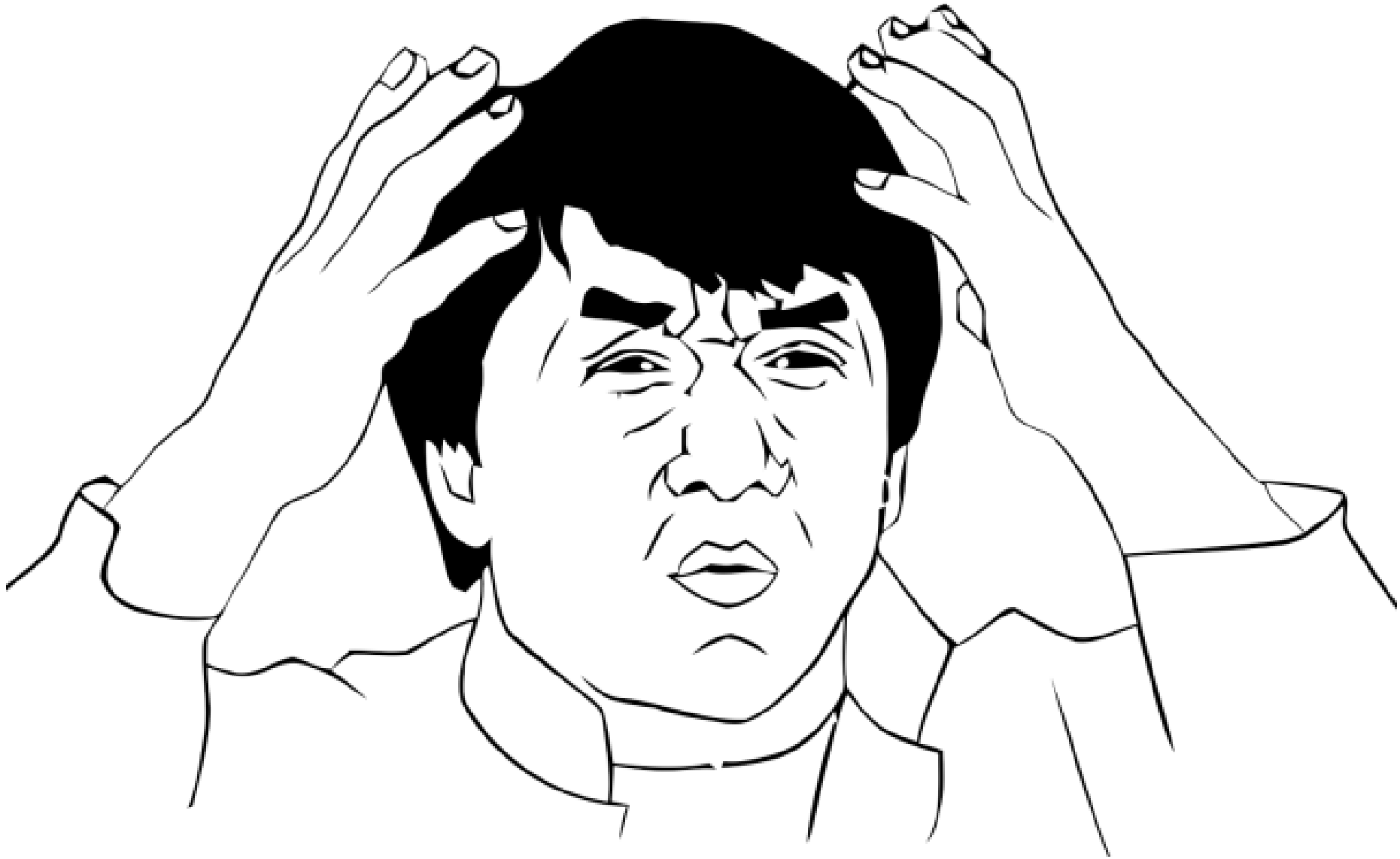
**Resource Management
Act 1991**

***Geothermal Regulations
201X ???***

**HSAW (Mining Operations &
Quarrying Operations) Regs 2016**

**HSAW (Infringement Offences
& Fees) Regs 2016**

**HSAW (Worker Engagement, Participation &
Representation) Regs 2016**



... what space is left for geothermal regulations?



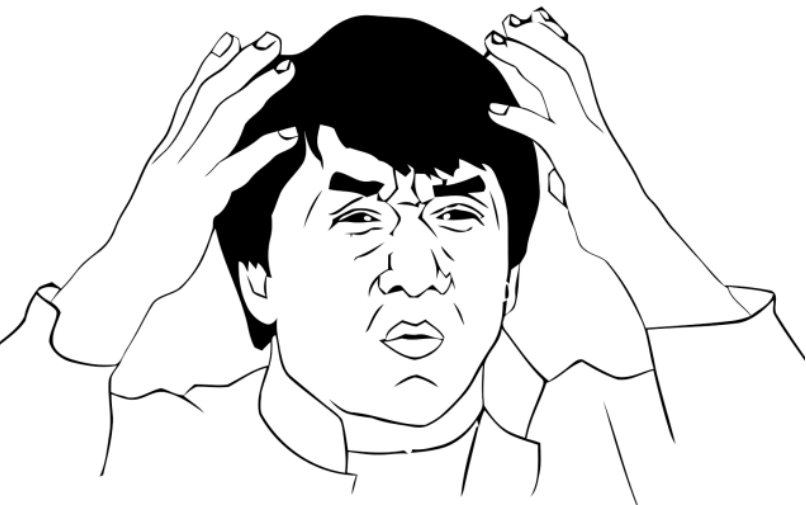
Suggest 2 lines of Inquiry:

**What's in the Geo Regs that
needs to survive?**

**What new controls (from
prevailing H&S regulation or
elsewhere) should be included?**

Brian's 2013 paper provides a good overview of the current Regulations and what remains in use today

Topic Area	My thoughts on what's required?	Comment
Inspectorate	<i>Required</i>	
Bore manager	Not required?	Superseded by obligations imposed on duty holders, directors, workers, etc .under general legislation
General Safety	Not required	Handle under general HSAW legislation
Hazardous Gas	Not required – a general hazard that needs to be recognised and managed	Regulate under HSNO and subsidiary regulation
Explosives	Not required.	Regulated under HSNO and subsidiary regulation
Consent to carry out works	<i>Required</i>	
Identification/Access /Security	Not required	Covered in NZS2403 – but...
Giving status to NZS2403	<i>Required</i>	Should add reference for Dept Of Labour “Health and Safety Guidelines for Shallow Geothermal Wells”
Notification Of Accidents	Not required	Handle under general HSAW legislation



Conclusion: there's not a lot needed to be carried over from the current Regs

So what of more recent regulation?

HHU indicate a similar regime to the Petroleum Regs would be appropriate

Why? Is that based on perceptions of risk?



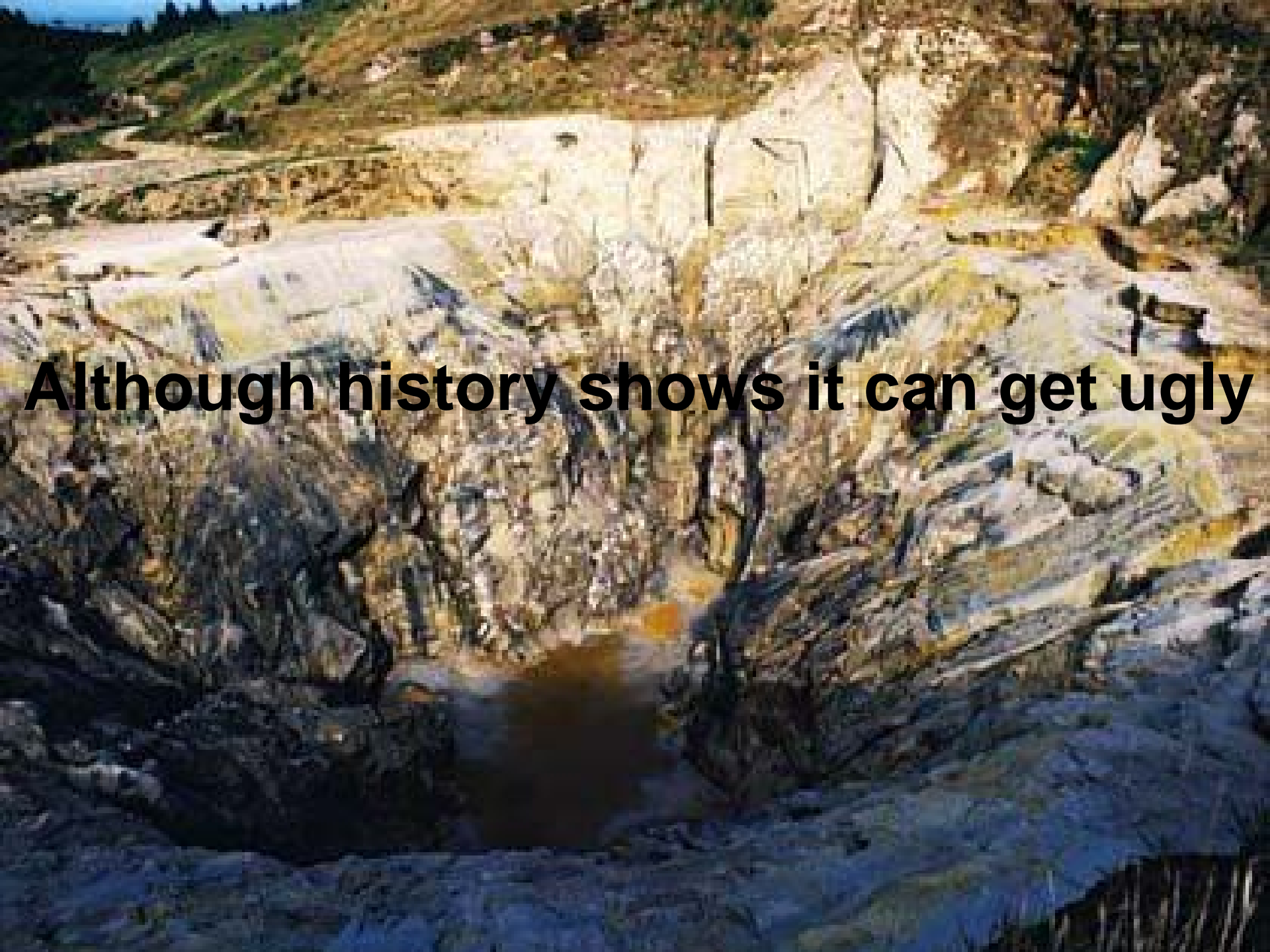
It's a long
way from this:





To this:





Although history shows it can get ugly

What's in the Petroleum Regs?

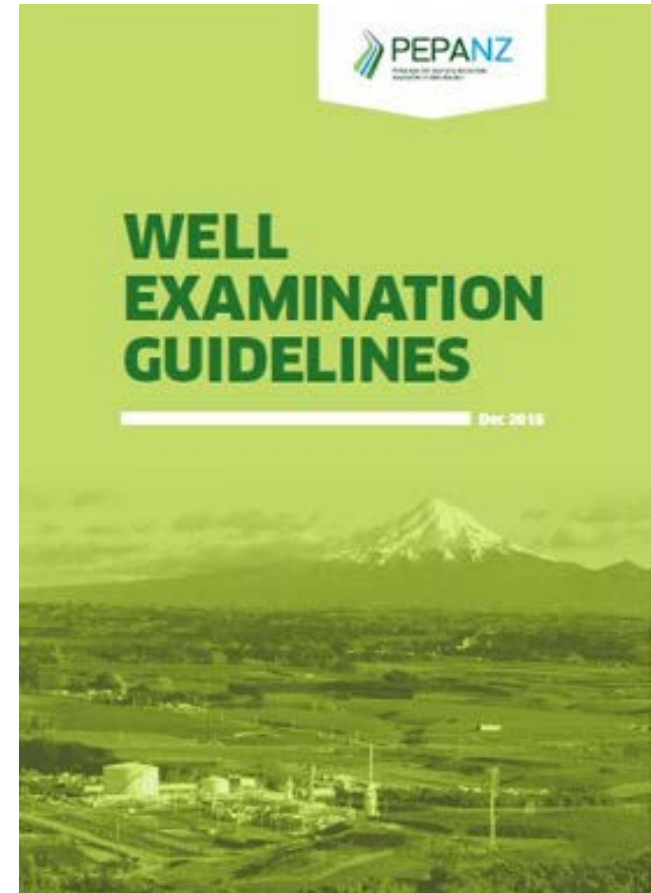
- Roles/Responsibilities/Duties
- Definition of “Installation”
 - Onshore facilities
 - Rigs
 - Scale of installations require varying levels of safety management
- Safety Case requirements
- Requirements relating to Well Operations
- Specific notifications regime
- Management of specific hazards
- Fees



Concepts we need to consider for inclusion in new Geothermal Regulations

- Specifically defined duty holders to supersede the Bore Manager?
- Process Safety & Safety Cases?
- Peer review as a requirement?
- Well Examination?

... and with this may come fees and compliance costs



This is all focussed on deep geothermal wells

Are we thinking broadly enough?

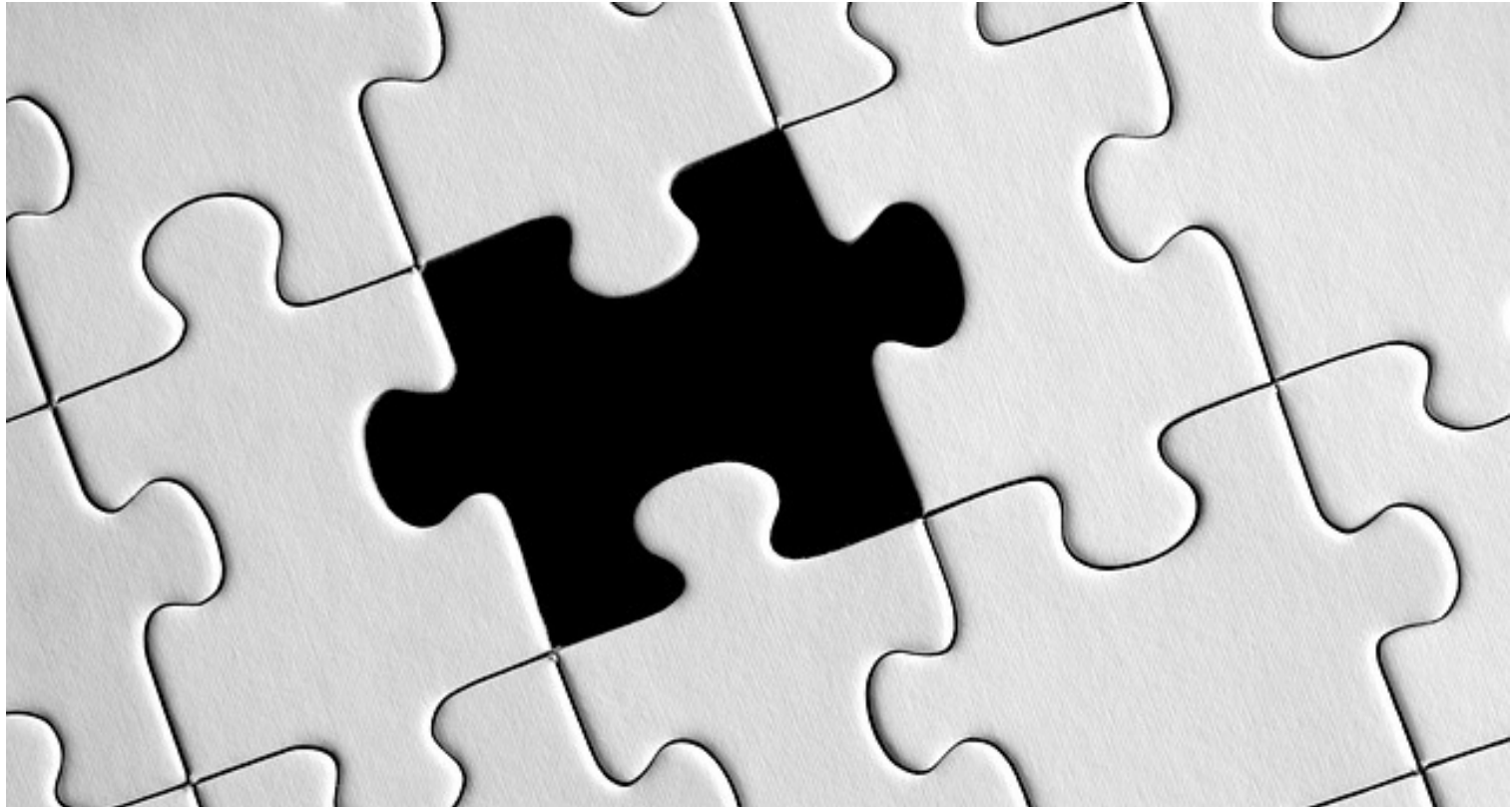
Who are the rest of our industry and what do they need that isn't dealt with elsewhere?







Are there any gaps that we should be thinking about?



Conclusion: Options

- a) Repeal 1961 Geo Regs and not replace with new regulation
- b) Petroleum Regs lite
- c) Add-ons to other legislation/regulation to address gaps
- d) “Lean mean” new regulation that addresses only the gaps
- e) New topic areas to address broader interests across the geothermal industry?

What do people think?

Conclusion: Next steps

- Survey members
 - Define different facets of the industry and current applicable regulation
 - Needs for future
- Working group
 - Volunteers
- Engagement outside industry to identify best practices?
- Present findings to MBIE by way of pre-Submission positioning paper
- Timing: Pre-Christmas 2017?

