

THE ROLE OF PEER REVIEW PANELS IN THE MANAGEMENT OF THE WAIKATO GEOTHERMAL RESOURCE

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ABSTRACT

The Waikato Regional Council is responsible for the sustainable management and regulation of activities within more than 70% of New Zealand's high temperature geothermal systems.

In 1992, the Waikato Regional Council introduced the concept of Geothermal Peer Review Panels to assist Council to manage the different geothermal systems under development within the Waikato Region. The operative Waikato Regional Policy Statement (2007) states that Council "will establish a peer review panel of independent experts for each system, which will advise the Council..." Further to this, Peer Review Panels are also required by the Resource Consent conditions in place on the five Waikato Geothermal Systems currently being developed; Wairakei-Tauhara, Ohaaki, Mokai, Rotokawa and Ngatamariki.

With the increasing interest and demands on geothermal resources and the obligations and objectives of Council to manage these resources effectively and sustainably, the Council decided to independently review the operations and effectiveness of the Peer Review Panel processes. Bay of Plenty and Northland Regional Councils also participated in the review.

Based upon brief interviews with stakeholders and other information the review concluded that the Peer Review Panels are largely effective in fulfilling the role expected of them by each Council. However, the review identified some issues concerning the peer review process generally, largely concerning the governance, management, and administration of the process.

This paper outlines the rationale for Peer Review Panels (PRPs), reports on the findings of the independent review and identifies the subsequent actions undertaken by Waikato Regional Council in response to the review.

1. BACKGROUND

1.1 Initial Concepts

The Resource Management Act enacted in 1991 requires Regional Councils to sustainably manage the regional geothermal resource. As this was a considerably expanded responsibility for Regional Councils, there was little existing geothermal; management, technical or scientific expertise within the Waikato Regional Council. In 1992, the Council via Staff Discussion Papers, sought comments from geothermal stakeholders, the geothermal industry and the public on a management structure for the geothermal resource (WRC, 1992). This process identified that "as well as having available resource data and information, the regional council and the public must be satisfied with the interpretation and understanding of the [technical] reports".

Various structures for achieving this were considered including the establishment of a comprehensive geothermal science team within the Council. The concept of PRPs based upon the peer review process used by science journals and the processes used by the US Environmental Protection Agency was also considered.

Issues that impacted upon the selection of a structure included:

1. the range of specialist knowledge needed to effectively understand the resource (geology, geochemistry, geophysics, reservoir engineering and reservoir modelling)
2. keeping the specialist geothermal knowledge current
3. maintaining a critical mass of knowledge
4. scarcity of geothermal specialist knowledge
5. access to and management of geothermal resource material (eg cores), data and information
6. minimising the likelihood that a desire for harmony by a regulatory geothermal science team could override critical appraisal of alternatives
7. enabling a range of system models to be tested against the geothermal resource data and information
8. enabling the application of knowledge and experience gathered in one geothermal system to be applied to other systems
9. the amount of work that the geothermal team would be required to do (in 1992 the only operating geothermal power stations were the ECNZ stations at Ohaaki and Wairakei, and Geotherm was seeking consents for the Poihipi Geothermal Power Station)
10. costs of running an effective geothermal science / technical team
11. how the costs would be funded
12. the restructuring of DSIR towards consultant science

After analysis of feedback from the discussion papers an effective regulatory geothermal science capability was considered "best achieved by providing the technical community with the opportunity to review the [resource] data, interpretations, and management decisions, and by establishing technical review panels". This of course required geothermal resource data and information to be publicly available, primarily to allow researchers, investors and others to test different system models and to identify opportunities for more efficient resource development.

Subsequently when resource consent conditions were next issued for the development of a geothermal system (in this case the Mokai Geothermal System in 1994), they included the establishment of a PRP with the objective of helping the Council sustainably manage the Mokai geothermal system (WRC, 1994). The 1994 Mokai consent conditions also introduced other associated critical concepts e.g; system management plans, annual reports, regular data reports, and the requirement for system models (both conceptual and mathematical).

As resource consents have been granted or renewed for Waikato Geothermal Systems, they have further refined and built upon the experience of the Council and Consent Holders with these management concepts and tools.

1.2 Environment Court

In 2006, the Environment Court heard submissions on the Waikato Regional Policy Statement and the Proposed Waikato Regional Plan (Environment Court, 2006). All submissions supported the establishment of PRPs and other associated critical concepts. In its decision, the Environment Court identified the implementation of these concepts as key components of an integrated system management regime that includes flexible monitoring and adaptive management. Subsequently the operative Waikato Regional Policy Statement (2007) stated that the regional geothermal resource will be managed with the help of PRPs.

2. PEER REVIEW PANEL PROCESS

PRPs are established by the Regional Council in consultation with the Consent Holder. The primary function of the PRPs is to ensure that the geothermal resource science and technical understanding and interpretations of the Consent Holders are scientifically and technically robust. The PRPs are not expected to create alternative models or interpretations. In this respect they are very similar to peer reviewers of science papers. With the knowledge of the geothermal systems gained from this review work, the PRPs are expected to help the Council identify and rank the risks to the sustainable management of each geothermal system.

To enable the PRP to fulfil its role, the Resource Consent Conditions generally require the Consent Holder to:

- gather and collate data and information about the effects of authorised activities,
- describe and record the state of the system before, during and after the exercise of the resource consents, (this includes geological, geophysical and geochemical surveys and interpretations, as well as well data (feed zones, enthalpies etc.)
- develop and maintain, using the compiled resource data, a geothermal system management plan (including goals, objectives and key results and an operational plan)
- develop conceptual and mathematical models projecting the development of the geothermal system over time.

The monitoring data is to be provided regularly to Council every month or in some cases every three months. Annual

written reports listing surveys, interpretations, and comments by external reviewers are also to be provided to Council. These new data and interpretations are to be used to maintain the System Management Plan including the projected state of the geothermal system.

Within the individual PRPs, the panellists determine how they will conduct themselves. Some appoint a chair or a secretary, others do not. All panels receive the draft Annual Report and other reports required by the consents, usually at the same time. PRP members review the reports individually and discuss amongst themselves, largely through emails and telephone contact. There may also be email exchanges between panel members and the Council.

The panel then convenes a meeting with Council officers and the Consent Holder representative(s). The panels usually meet informally with the Council officer(s) for a discussion, after which the two parties meet with the Consent Holder representatives. The Consent Holder presents information contained in the draft Annual Report and receives comments from the panel members and Council representatives.

Changes and/or additions and/or clarifications to information contained in the reports may be requested at this meeting. Minutes of the meetings are taken by one of the parties present and later, circulated to all parties for comment. Comments are received by the minute taker who finalises the minutes and circulates them to all parties.

Depending on the details of the Consent Conditions some panels are required to provide Council with a report on the Annual (or six monthly) Report prepared by the Consent Holder. The others do not prepare a separate report to Council on their review of the Annual Report and other reports (although their views are recorded in the meeting minutes). Changes requested by the panels are incorporated into the final version of the Annual Report.

Any issues that arise during the year prior to the panel meeting are understood to be communicated directly to Councils by the Consent Holder (usually an expectation of a responsible operator rather than a requirement of the Consents) who may request advice from the panel.

The composition of the panels in terms of expertise varies from one system to another. It is common for members to comment on the data of other disciplines; for example, a geologist or a reservoir engineer may comment on geochemical data and a geophysicist may comment on well measurements and environmental issues. This is common practice within the very small New Zealand geothermal community.

Over time, the PRP process has become more rigorous reflecting references to the role of the PRPs by the Environment Court through its decisions and due to the increased attention paid to the PRP process by Councils.

3. THE REVIEW

3.1 Review of Peer Review Panels

PRPs have now been in use since 1994 and established for six geothermal systems – Wairakei-Tauhara, Ohaaki, Mokai, Rotokawa, Kawerau and Ngawha (the Ngatamariki PRP has just been initiated, July 2012).

With the endorsement of PRPs by the Environment Court, the increasing demand for access to the geothermal resource and the ongoing challenging of effectiveness of governance and management processes across Councils, an efficacy review of the PRP process was initiated.

3.2 Objectives

PRPs are now considered to be a critical component for the sustainable management of the New Zealand Geothermal Resource. The objectives of the review were to independently determine whether the PRP process was effective in fulfilling the role expected of them, and if so, what if any aspects of the PRP process could be improved.

The review was structured to occur in two stages. The first stage was a brief scoping review using a structured interview process to identify the nature and extent of any issues relating to the peer review process. The interviews covered a sample of Council staff, panel chairs and members. Consent Holder staff (involved in the administration of the peer review process) were also interviewed.

Stage one was undertaken by a management consultant with expertise in local government legislation and activities generally, consent processes, structured information gathering and analysis specifically; and a geoscientist with expertise in geothermal sciences and resource consent processes. A report was completed and provided to the Councils – the Report (Emerson, 2011).

The second stage (if required) was to be a more in-depth review following the findings of the first stage. On analysis and discussion of the first stage results, the reviewers recommended that second stage was not necessary and this was accepted by the Councils.

3.3 Overview of Perceived Efficacy of the PRP Process

The Report found that the overall view of the panellists was that the PRPs are effective.

It also found that many panellists considered the flexibility of the process to be very important for panel effectiveness. This meant “being able to overview the operations of the resource” rather than being limited strictly to consideration of specific consent conditions. However, this relies upon a willingness of the Consent Holder “to go the extra mile” in sharing data.

Panellists also thought it important to foster cooperation. Without this, the process could have the Consent Holders responding strictly in accordance with the conditions of consent.

Meetings with the Consent Holders were found to be conducted in a collegial fashion. This approach to the process did not appear to inhibit the panellists from querying data or interpretations.

Acknowledging that the process was considered effective, several panellists identified areas where improvements to the process could be made. Most of these comments concern administration of the process rather than anything fundamental.

The Report found that Council officers had a wide range of views of the efficacy of PRPs. Their general perception was

that panels are broadly effective. The officers provided a wide range of suggestions and comments; much wider than those made by the panellists, probably reflecting their varying roles and experiences. However, the officers' comments were positive and were summarised in the Report under three broad headings:

Governance in the context of the overall Geothermal resource management policy or strategy, e.g.:

- clarify or define the PRP role from an overall strategy perspective,
- ensure formal written reports from each panel,
- assess and report panel findings up to an appropriate level in management and to elected officials,
- clarify the level or amount of probing that the PRP should do into the thinking behind Consent Holder interpretations and reports,
- consider providing a chair from Council or other independent resources for each panel.

Management in the context of the wider management of and accountability for the PRPs and their deliverables, e.g.:

- clarify the risks being faced by Council and determine the need for panellists to have Professional Indemnity Insurance,
- require an annual declaration of independence by each panellist,
- ensure total, explicit consistency between consents and panel terms of reference, (consents granted more recently largely define the Terms of Reference)
- use the annual declaration of independence to remind panellists of their Terms of Reference and council's overall objectives or framework for geothermal management
- provide induction courses (covering e.g. the PRP context, Council expectations, and processes) for new panellists and refresher courses for existing panellists.

Administration in the context of the day-to-day activity of panels, e.g. support the PRPs with a proactive secretariat service, including meeting scheduling and information gathering / preparation / distribution, agenda setting, minute taking and actions follow-up.

4. POTENTIAL ISSUES AND RESPONSES

The Report summarized potential issues raised by or identified from the interviews with the various stakeholders and from analysis of various documents relating to PRPs. These issues were tabulated in the Report.

It was recommended by the Report that the issues were sufficiently understood and that more detailed interviews, as proposed in a further second Stage of interviews were not required.

In response to the issues identified and actions recommended in the Report, the Regional Councils have

worked through them and identified various actions and process improvements.

Waikato Regional Council staff have identified eight possible responses to the issues raised by the Report. Some of these are still to be considered and developed. The proposed responses are:

1. Establishment of a Senior Management Steering Group. This consists of the General Managers for Policy, Regulation and Resource Information.
2. Compilation and Maintenance of a PRP Recruitment and Contract Renewal Checklist
3. Compilation and Maintenance of a PRP Meeting Checklist
4. Implementation of a Risk, Issues and Actions Register for each Geothermal System.
5. Compilation and Maintenance of PRP Reference Documents
6. Additions to the PRP Member Role
7. Additions to the Geothermal Scientist Role
8. Additions to the Geothermal Resource Officer Role

The PRP Review recommended a joint workshop for council officers to discuss some of the more strategic governance and management issues. This was advocated primarily because it was considered important that councils are largely unified in their approaches to Consent Holders and to PRPs. There is also mutual benefit from working together to discuss and develop solutions.

There is also an intention to have a combined workshop for all PRP members and council officers to further work on improving PRP effectiveness and efficiency. It is considered that such workshops could be held every two years..

5. CONCLUSION

PRPs are a critical component for the sustainable management of the Waikato Regional Geothermal Resource. The PRPs ensure the geothermal resource science

and technical understanding and reports provided to Council by the Geothermal Consent Holders are scientifically and technically robust. The PRPs also help the Council identify and rank the risks to the sustainable management of each geothermal system being developed.

To be effective the PRPs require access; to System Management Plans, to Annual Reports of new resource data and associated interpretations, and to up-to-date reservoir conceptual and mathematical models.

A Review of the PRP process has identified that although the process was considered effective there were areas where improvements could be made. These areas were in the areas of Governance, Management and Administration.

In response to the identified issues, the Regional Councils have worked through them and identified various actions and process improvements. Waikato Regional Council staff have identified eight specific responses to the issues raised by the review.

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