

BOARD OF INQUIRY TE MIHI GEOTHERMAL POWER STATION PROPOSAL

In the Matter of the Resource Management Act 1991

And

In the matter of resource consent applications by Contact Energy Limited in respect of the Te Mihi Geothermal Power Station Proposal

And

In the matter of the consent applications being called in by the Minister for the Environment pursuant to section 141A(4)(b) of the Act

THE BOARD OF INQUIRY

Environment Judge R Gordon Whiting (Chair)
Mrs S Glenice Paine (Member)
Mr T Denis Nugent (Member)
Dr Patrick Browne (Member)

HEARING at Taupo on 21-25 July 2008, 28-30 July 2008.

APPEARANCES

Mr T Robinson and Ms R Dixon for Contact Energy Limited (Contact),
Mr D Kirkpatrick for Geotherm Group Limited (In Receivership) (Geotherm)
Mr P Lang for MacPower Ltd and Mr A McLachlan
Mr S Hickman for Taupo District Council
Ms J Bain for Transit New Zealand (Transit)
Mr M Brocklesby for Waikato Regional Council (Environment Waikato)
Ms L Price for herself and Ms A Price
Ms F Ellery for herself and Mr Ellery
Mr A Birdsall for himself
Ms L Koster for herself

FINAL REPORT AND DECISION OF THE BOARD OF INQUIRY

A The consents are granted subject to the terms and conditions of consent attached to this report as Appendix 2 and 3.

FINAL REPORT

CONTENTS

Introduction.....	4
Comments on Draft Report and Discussion.....	4
Consents Applied For	8
Application Procedure and Call In	10
The Proposal.....	12
Power Station Technology	13
Power Station – Physical Description	15
Reinjection of Geothermal Fluid	17
Other Discharges	18
General Description of Site and Locality.....	19
Submissions	19
Adequacy of Information	20
Prehearing Meetings.....	21
Issues Raised By Submitters	21
Hearing at Taupo	23
Conditions of Consent	24
Statutory Framework for Decisions on the Applications.....	25
Consideration of Statutory Instruments.....	25
National Policy Statement on Electricity Transmission	26
Regional Planning Instruments.....	26
Geothermal	27
Use and Development.....	28
Discharge and Reinjection.....	32
Significant Geothermal Features	34
Effects of Take, Use and Discharge.....	36
Air Quality	38
Energy.....	41
Taupo District Plan.....	41
Overall Conclusion in respect of the District Plan	51
Part II of the Resource Management Act 1991	51
Section 6	53
Section 7	55
Section 8	57

Effects of the Te Mihi Proposal on the Environment	57
Positive Effects	57
Adverse Effects	58
Effects on the Reservoir.....	58
Effects on Other Consent Holders for Large Takes of the Geothermal Resource	60
Effects on Air Quality.....	60
Effects on Ground Water and Water Supplies	66
Effects of Reinjection on Surface Features including Subsidence.....	67
Visual Effects	70
Noise Effects.....	71
Traffic Effects and Management	74
Effect on Property Values / Compensation.....	74
Effects on the Environment from Hazardous Substances.....	75
Determination	75
Decision	76
Appendix 1: Summary of Submissions	77
Appendix 2: Te Mihi Waikato Regional Council Resource Consent Conditions	87
Appendix 3: Taupo District Council Resource Consent Conditions	162
Appendix 4: CS14	202

Introduction

- [1] Contact Energy Limited (“Contact”) has applied for resource consents for the following activities from the Waikato Regional Council (“Environment Waikato”) and Taupo District Council to enable it to build and operate a new power station on a site located just to the north of the intersection of Poihipi Road and Oruanui Road near Taupo. Contact proposes to utilise a number of existing consents recently obtained to operate the Wairakei power station, as well as the consents that are the subject of the present applications.
- [2] Following a hearing at Taupo between the 21st and 30th July 2008 we issued a draft report and decision on the 5th August 2008. In that decision the resource consents applied for were granted subject to the terms and conditions of consent attached to the draft report as Appendix 2 and 3. The draft decision and report was issued under section 148(1) of the Resource Management Act 1991 and contained those matters required by section 148(2) of the Act.
- [3] The draft report and decision was sent to all persons as required by section 148(3) of the Act. Those persons were invited to send comments on any aspect of it to the Board within 20 working days. The Board received comments from five parties – Environment Waikato, Contact, Taupo District Council, NZ Transport Agency and Mr A McLachlan.

Comments on Draft Report and Discussion

- [4] The comments from the first four parties were merely concerned with minor slip changes. The comment from Mr A McLachlan was with respect to a substantive issue relating to the conditions of consent on the Poihipi Power Station air discharge consent (116790).
- [5] Environment Waikato’s comments related to Appendix 2, the Regional Council Resource Consent Conditions:

- i. An amendment to the last sentence of Condition 2 of consent 116786 to avoid ambiguity by adding the highlighted words as follows:

In the event of any inconsistency between **specific Conditions 1-19** of this consent and the General Conditions, the latter shall prevail.

- ii. The same amendment for Condition 1 of consent 116787
- iii. To correct a typographical strikeout error in Condition 1 of consent 116787.
- iv. To correct a non strikeout typographical error in Condition 15(c) of consent 116786.
- v. To correct a similar non strikeout typographical error in Condition 17 of consent 116787.

[6] Contact's comments were in respect of the draft report, Appendix 2 and 3.

- i. In paragraph 31 of the draft report we discussed the configuration of the alternative cooling tower structures and the elevation at which the preferred one would be sited. Contact commented that the report did not clearly identify that either configuration could require a raised site level of 518 masl. We have amended that paragraph accordingly.
- ii. In paragraph 61 of the draft report we discussed the way in which issues had dropped away during the hearing. Contact commented it had not reached agreement with the McLachlan interests. We have amended that paragraph to clarify that it was the McLachlan interests refining their case that reduced the number of issues.
- iii. In paragraph 66 of the draft report we discussed the process by which suggested conditions for the proposed consents went through successive revisions. Contact commented that the first draft of those proposed conditions was filed with its evidence in chief rather than the application. We have amended the paragraph accordingly.
- iv. Contact identified a typographical error in paragraph 70 of the draft report. This is now corrected.

- v. Contact identified a typographical error in paragraph 101. This is now corrected.
- vi. Contact also identified the strike out error listed above as Environment Waikato sub paragraph iii.
- vii. Contact identified that an additional page had been provided with the draft conditions in error. We have deleted that page.
- viii. In Condition 14 of Taupo District Council consent RM070304 the draft condition had omitted the word “Harrison” before “Grierson” in the fifth line. This has been corrected.
- ix. In Condition 17 of the same consent cross references to other conditions had not been updated following the insertion of Condition 5. They have been corrected.
- x. Advice Note 2 to the same consent is identified as being superfluous with the inclusion of Condition 33. We have deleted Advice Note 2 and the subsequent Advice Notes and cross references are renumbered accordingly.

[7] Taupo District Council identified that in Taupo District Council consent RM070299 the Advice Note under Condition 2 had mistakenly been given a condition number. This has been corrected.

[8] NZ Transport Agency comments were in respect of Appendix 3 and require the replacement of “Transit New Zealand” with “NZ Transport Agency” in Condition 20, 25 and Advice Note 4 of RM070304 Consent. A further correction in Advice Note 4 replaced “Transit New Zealand” with “Government Roothing Powers” This has been corrected.

[9] Mr Lang filed a memorandum dated 21 August 2008, commenting on the draft report on behalf of Mr A McLachlan. The memorandum pointed out that the draft report did not appear to address a submission raised in Mr Lang’s closing. The submission related to the control of objectionable emissions including odour from the Poihipi station.

[10] The matter concerns condition 7 of consent number 116790:

7. The discharge shall not result in odour, or other gaseous emissions that are objectionable at or beyond the area bounded by the outermost green and yellow lines on plan 1224 922-RC04 in Schedule Two attached.

[11] Mr Lang proposed that condition be replaced with:

7. The discharge shall not result in odour, or other gaseous emissions that are objectionable at or beyond the area bounded by:

a) the 50 microgram/cubic metre contour surrounding the Poihipi Road power station shown in plan exhibit CS14 attached as Schedule 3;

and

b) Poihipi Road.

[12] Mr Lang's proposed change reflects the modelling carried out by Dr Stevenson and graphically represented in his exhibit CS14, attached as Appendix 4. Exhibit CS14 shows a green contour line for the 70 $\mu\text{g}/\text{m}^3$ guideline for H₂S. The 70 $\mu\text{g}/\text{m}^3$ contour line is chosen to address odour issues – that concentration being recommended as not to be exceeded.

[13] Mr McLachlan's concern was that the boundary as set out in Schedule 2 of consent 116790 extends onto farmland that we understand he farms by way of a leasehold interest. He is concerned about objectionable odours arising from high concentrations of H₂S. The matter is further complicated by, what appears from the evidence, to be a circuitous and complex legal relationship between Contact, the receiver of Mercury Geotherm (who owns the land) and Mr McLachlan, as set out in the evidence of Mr Kilty¹. We do not propose to set out in detail this relationship. Suffice it to say that Contact maintains it has legal rights to occupy all of the land contained within the green and yellow lines referred to in Condition 7.

[14] Mr McLachlan's concern was met, at least in part, by Conditions 4 and 5 which provide for monitoring and a non statutory review to ensure that H₂S levels do not rise to an objectionable level.

¹ EIC para 24 to 36.

[15] Further, we are satisfied from the evidence of Dr Stevenson that H₂S levels from this discharge are most unlikely to cause objectionable odours on Mr McLachlan's leasehold land. Dr Stevenson said:

In view of the modest contribution to hydrogen sulphide concentrations compared with the guideline used in this assessment, and also the modest contribution relative to the contributions from the Rotokawa stations north of the Poihipi/Oruanui Road intersection, I consider that the odour effects from emissions from the Te Mihi and Poihipi power stations if operating continuously at the proposed emission limits will be not more than minor².

[16] Accordingly we are not persuaded to amend Condition 7 as requested.

Consents Applied For

[17] The consents applied for include both regional consents from Environment Waikato and land use consents from the Taupo District Council.

Waikato Regional Council

Consent Number 116786: to discharge up to 95,000 tonnes per day of geothermal water, steam condensate, cooling water blow-down, suspended material, and added chemicals into land and underground water through reinjection wells within the boundaries of the Wairakei – Tauhara Geothermal System;

Consent Number 116787: to discharge by irrigation up to 6,500 tonnes per day of cooling water blowdown and condensate onto land (and by seepage into underground water);

Consent Number 116788: to discharge up to 50 cubic metres per day of water including contaminants and

² EIC, para 172.

sewage into land and underground water through septic tanks and associated soakage facilities;

Consent Number 116789: to discharge contaminants to air from the proposed Te Mihi Geothermal Power Station and associated structures;

Consent Number 116790: to discharge contaminants to air from the Poihipi Road Power Station and associated structures, including geothermal wells, pipelines and geothermal steamfield equipment (to commence on 1 January 2012);

Consent Number 116791: to discharge contaminants to air from geothermal wells, flash plants, pipelines and all associated geothermal steamfield equipment within the Wairakei–Tauhara Geothermal System west of the Waikato River.

Contact sought consent terms of 35 years for all six consents.

Taupo District Council – Land Use Consents

Consent Number RM070304: to construct, operate and maintain all structures and facilities associated with a geothermal power station on the Wairakei–Tauhara Geothermal System and including all ancillary equipment, but excluding the new switchyard and 220kV transmission line;

Consent Number RM070305: to construct, operate and maintain a new switchyard adjacent to, and associated with, the new Te Mihi geothermal power station;

Consent Number RM070299: to construct, operate and maintain a 220kV transmission line, associated support structures, equipment and facilities associated with the new Te Mihi geothermal power station on the Wairakei–Tauhara Geothermal System, including realignment of a section of the existing Poihipi Road Power Station transmission line and modification works necessary to enable connection of the new line to the existing Wairakei–Whakamaru B transmission line.

[18] A lapse period of nine years was sought under section 125 in respect of all applications, except Application 116787 (Irrigation). A lapse period coinciding with the term of the consent was sought for that activity.

[19] As the activity status of a number of the consents is discretionary, it was agreed that the activity status under the relevant plans of all the consents is to be considered under the statutory provisions that apply to discretionary consents.

Application Procedure and Call In

[20] The applications were lodged with Environment Waikato and Taupo District Council on 31 July 2007. Following review by those authorities, requests for further information were made by each Council under section 92 of the Act.

[21] The Environment Waikato request was dated 27 August 2007 and related to consultation, geothermal field modelling and air discharge matters. Taupo District Council made an initial section 92 request dated 10 August 2007 highlighting that peer reviews had been commissioned on several aspects of the project (landscape/visual, noise, traffic and hazardous substances).

Following this, and in response to queries from Taupo District Council's peer reviewers, additional requests for further information were made.

[22] Contact responded to all requests for further information by the Councils.

[23] On 20 December 2007, before the applications were publicly notified by the Councils, the Minister for the Environment advised that, pursuant to sections 141B(1) and 141C of the Act, he intended to call in the Te Mihi proposal, and that he would appoint a Board of Inquiry to consider and decide the applications for resource consent.

[24] Public Notice, pursuant to section 144 of the Act, of the Minister's direction to call in the proposal was given on 9 February 2008. In the Public Notice the Minister stated as follows:

I consider these matters are a proposal of national significance and I have therefore made a direction that they be called in and referred to a Board of Inquiry in accordance with sections 140 to 150AA of the Resource Management Act 1991.

My reasons for calling in the matters involved in the proposal are as follows:

- *The proposal is relevant to New Zealand's international obligations to the global environment in terms of the Kyoto Protocol including the proposal's contribution towards the achievement of the target of 90% of electricity generation to be from renewable energy sources by 2025 as set out in the New Zealand Energy Strategy to 2050.*
- *Geothermal systems are a natural resource that is limited to a relatively small area of New Zealand. This proposal will involve a significant use of this limited resource when viewed in the context of the totality of geothermal systems available for development.*

[25] The Public Notice invited interested persons to make submissions on any of the applications lodged by Contact for resource consents for the Te Mihi

Power Station. Submissions closed on 7 March 2008 and a total of 24 submissions were received.

The Proposal

[26] Contact has applied for resource consents to establish a new geothermal power station in the Te Mihi area of the Wairakei-Tauhara Geothermal System (the System) and consent for the discharge of contaminants to air from the existing Poihipi Power Station to commence upon the expiry of the current consent.

[27] Currently steam derived from the System is utilised in the Wairakei and Poihipi Power Stations.

[28] The Wairakei power station (Wairakei) commenced operations in 1958 and had consents granted for its continued operations in 2007. Increasing maintenance costs indicate the plant is reaching the end of its natural life and there are significant environmental issues associated with discharges from Wairakei into the Waikato River. The current Wairakei suite of consents provides for the discharge of up to 60,000 tonnes/day of separated geothermal water into the Waikato River³.

[29] As the Wairakei borefields are likely to be able to supply steam for electricity generation for many years, Contact proposes to construct and operate a new geothermal power station at Te Mihi, some 5km west of Wairakei. It is intended that the station will comprise three 78MW generating units, with the first two commencing operations in 2011 and the third in 2016.

[30] The Te Mihi Power Station (Te Mihi) will generate some 220MW of electricity, 60MW more than is now generated at Wairakei, for the same fluid take. Once Te Mihi is fully operational, Wairakei will be phased out

³ EW Consent No.104711

and ultimately decommissioned. However, one of the Wairakei Low Pressure (LP) units may continue to operate for some years if LP steam from the Western Borefield can be economically used in this way. The existing binary cycle station at Wairakei, commissioned in 2005, will continue to operate.

[31] Once Te Mihi is fully operational, the concentrations of H₂S and mercury in the Wairakei cooling water discharges into the Waikato River will decrease to negligible levels. The total heat discharge will also decrease significantly as Wairakei is phased out.

[32] Construction of Te Mihi would also require the construction of a new switchyard adjacent to it and rearrangement of the existing 220kV transmission line. This would loop from the existing Wairakei–Whakamaru 220kV line, which is located about 1km from the new power station site.

[33] Currently, the Wairakei consents held by Contact provide for the taking of up to 245,000 tonnes/day of geothermal fluid for electricity generation and associated purposes. This consent⁴ expires in June 2026. The geothermal fluid required to operate Te Mihi would be sourced via this consent. As this consent is now in place, issues related to accessing the resource are not of direct concern. The reinjection proposed as part of the Te Mihi consents would form part of a discharge strategy whose primary objective is to address subsidence issues.

Power Station Technology

[34] Te Mihi would draw geothermal fluid from the System using the following areas of current production:

- Western Borefield - two phase fluid⁵ from wells drilled to about 600m depth; and

⁴ RC 104706

⁵ Steam/water mix

- Te Mihi Borefield – dry steam from a shallow steam zone and two phase fluid from deeper in the reservoir. This borefield also provides steam for Poihipi.

[35] The proposed power station is to be a conventional steam turbine plant. In the Assessment of Environmental Effects (AEE) forming part of the applications, the option of adopting a binary cycle plant, rather than a steam turbine, was put forward. However, Contact confirmed through evidence that the binary plant option is no longer being pursued. A full description of the geothermal power plant and process was included in the AEE forming part of the application.

[36] The use of ‘double flash’⁶ technology would enable the generation of about 20 – 25% more power from the same amount of fluid currently extracted for Wairakei.

[37] At the well head, geothermal fluid is separated into intermediate pressure steam (IP) and mineralised water. Both are to be piped to Te Mihi where the separated water is flashed to generate LP steam. The IP and LP steam expand through steam turbines to drive electricity generators.

[38] After passing through the turbines, the steam would be condensed using direct contact condensers⁷. Mechanical draft cooling towers are to be used. After the steam is condensed, some non-condensable gases remain and are removed by gas extractors. These would be discharged to the atmosphere within a plume of condensed vapour.

[39] The proposed construction staging is:

- Stage 1 – installation and commissioning of the first two turbine units, along with all associated plant. The first turbine unit would take 26 months to be commissioned, while the second turbine unit

⁶ Double flash technology provides for the use of steam at different pressures in a dual admission turbine

⁷ Pummer EiC, para. 40

would take a further two to three months. It is planned that Stage 1 be concluded in 2011. Two turbines would then be operating at Te Mihi and four at Wairakei.

- Stage 2 – the third turbine unit would be installed and commissioned in 2016. After the third turbine is operating, one 11.2MW LP turbine would continue to operate at Wairakei, together with the binary plant, as will Poihipi.

Power Station – Physical Description

[40] The site of the proposed power station is about 10ha in area with some 6.5ha of this being occupied by structures. A new sealed access road would be constructed from Oruanui Road to the site. This would be used for construction and access purposes. All roads, parking areas and other permanent hard-standing areas are to be paved with asphalt. The site would be surrounded by a security fence and some areas within the site, such as the switchyard, would be surrounded by safety fencing.

[41] The primary buildings at the power station would be the turbine hall and the cooling towers. Various secondary structures would be required. A large electrical switchyard would be located adjacent to the turbine hall. An existing transmission line from Poihipi would be diverted and reconstructed to connect to the new switchyard.

[42] Various other plant, including transformers, gas extraction equipment, steam separation vessels, steam discharge silencers and steam/water pipelines would also be required. Pipelines on the borefield would be located above ground due to insulation and thermal expansion requirements, and to facilitate maintenance and inspections.

[43] The turbine hall is to be 130m long x 22m wide, plus a further 8m on the north side for an electrical annex. The building would be 26.4m high (indicative) from the reconfigured site level of 516 masl⁸. The building

⁸ Metres above sea level

would be of concrete foundations and lower walls with steel portal framing and metal cladding.

[44] The mechanical draft cooling towers would be the other major structures making up the development. There would be three cooling tower blocks, one for each turbine, each comprising either eight cells or an alternative arrangement involving six cells.

[45] The cooling tower structures (eight cells) would be 80m long by 35m wide and 16m high, from a site level of 516 masl – the same as for the turbine hall. The alternative arrangement of six cells would involve a cooling tower structure of 60m long x 40m and 16m high. It may be necessary to locate the cooling tower structure on a raised site level of 518 masl; that is effectively 18m high. The three cooling towers would be set out in a row directly south of the turbine hall. To reduce recirculation of the cooling tower plumes back into the tower inlets, the orientation of the cooling towers is required to be parallel to the prevailing wind. The cooling towers would be similar in appearance to the existing tower at Poihipi.

[46] A switchyard would be located adjacent to the power station in order to combine the outputs of the three generators and connect them, via a transmission circuit, to the Wairakei–Whakamaru B transmission line. The switchyard would be approximately 170m x 110m. The approximate height of the switchyard equipment would be 5.5m with lightening poles extending to 25m. Since the applications were lodged, Transpower has decided that the configuration of the switchyard would be a ‘breaker and a half’ arrangement. This would result in a switchyard of the above dimensions, which would be slightly larger than originally proposed and extends outside the application area. This would result in the area extending some 10m into the area shown on the consent applications for power transmission lines. No one objected to the proposal being amended. We amend accordingly.

[47] Currently a single circuit 220kV transmission line connects Poihipi to the Wairakei–Whakamaru B transmission line. Transpower, owner and

operator of the line, requires that this line be looped in and out of the new switchyard, for security of supply. There would be four double circuit lattice steel towers constructed from the line to the switchyard. The new double circuit line would be located to the west of the present Poihipi line. Poihipi would be connected to the Te Mihi switchyard still as a single circuit line, but one tower would require relocation. Once Te Mihi is constructed the redundant sections of the existing Poihipi line would be dismantled.

[48] The heights of the towers of the new double circuit line are subject to detailed design and site surveys. However, Contact confirmed that the maximum height of any of the tower structures would not exceed 45m.

Reinjection of Geothermal Fluid

[49] Contact currently holds several resource consents allowing for the injection/reinjection⁹ of separated geothermal water, steam condensate and cooling water blow down from Wairakei and Poihipi. Due to a significant volume of separated geothermal water and condensate being discharged into the Waikato River, Contact's consents to take geothermal fluid for these power stations allow for a much larger volume than is allowed to be injected/reinjected.

[50] The Te Mihi proposal includes an application to reinject¹⁰ up to 95,000 tonnes/day of geothermal water, condensate and cooling water blowdown into the System. Adding this volume to those provided for by consents already held would enable Contact to inject/reinject all separated geothermal water, condensate and cooling water blowdown produced from the operation of Poihipi and Te Mihi. Some of the condensate and cooling water blowdown is likely to be used to irrigate farmland if this proves to be the best strategy. One of the applications included in the current package seeks

⁹ Injection refers to injecting fluid outside the System while reinjection refers to injecting fluid inside the System

¹⁰ No outfield injection is proposed by these applications

to allow irrigation of up to 6,500 tonnes/day. There is an existing consent¹¹ to irrigate up to a further 8,500 tonnes/day.

[51] The current applications to provide for additional capacity to discharge would allow a greater degree of flexibility in the management of the System. The existing consents require the preparation of a Discharge Strategy as part of a required System Management Plan. The same approach is proposed in regard to the current applications. In terms of discharges, the greater flexibility now proposed would implement the objectives of the draft discharge strategy submitted with the current applications.

[52] The current reinjection application covers a wide area and is limited to the System. Unlike the Wairakei and Poihipi reinjection consents, no outfield injection is proposed. The current application excludes some areas within the general application area, including the Wairakei Golf Course, the Geotherm site and industrial areas on Centennial Drive immediately north of Taupo Town.

Other Discharges

[53] The Te Mihi proposal involves emissions to the air comprising plumes of warm, moist air from the cooling towers, which would also contain non-condensable gases. Such non-condensable gases comprise primarily carbon dioxide and H₂S. There are also trace concentrations of several other gases, including hydrogen, ammonia, methane, nitrogen and mercury. A consent is sought for these discharges.

[54] An air discharge consent is also sought for Poihipi as the current air discharge permit for that plant expires in December 2011.

[55] A permit to discharge contaminants to the air from all geothermal steamfield equipment within the System is also sought.

¹¹ EW Consent No. 104723

[56] Discharge of domestic sewage from Te Mihi is proposed to be by ground soakage from a septic tank system. An application has been made for this discharge.

General Description of Site and Locality

[57] The proposed site for Te Mihi is located on rolling, rural, open pastureland above gullies that form the catchments of the Te Rautehuia and Wairakei streams. These contain the production wells of the existing Te Mihi and Western borefields. Existing steamfield pipelines cross to the north and to the south of the site. The single circuit Poihipi transmission line passes the east side of the site, and joins the Wairakei–Whakamaru B transmission line approximately 1km to the northeast.

[58] The surrounding farmland includes some shelter belts of exotic trees and the occasional native tree. The Wairakei borefield land is generally covered with scrubby vegetation. The soils are mostly derived from volcanic ash and pumice and are generally free-draining.

[59] The legal description of the power station site is part of Section 4.50 355555 and part of Section 1 SO 58808 (CT SA4GC/233). The land is owned by the Commissioner of Crown Lands (Section 4) and Contact (Section 1).

[60] In addition to grazing, other uses in the vicinity of the Te Mihi site include the Taupo Saleyards, a horse riding school on Oruanui Road, the Taupo Pony Club, the Poihipi Power Station and a number of lifestyle blocks.

[61] Access to the site is from Oruanui Road, which is a sealed collector road off Poihipi Road. Poihipi is a regional road intersecting with State Highway 1 some 1km north of Taupo.

Submissions

[62] Of the 24 submissions received the outcomes sought were as follows:

- 3 Support
- 8 Neutral
- 6 Oppose
- 5 Mixed outcomes
- 2 Not stated

[63] Appendix 1 contains a brief summary of the submissions.

[64] In broad terms, the topics and issues raised in the submissions fell into the following categories - some submissions fell under more than one category:

- Impact on the environment – 14 submissions
- Impact on local residents – 8 submissions
- Cultural issues – 4 submissions
- Impact on geothermal systems – 5 submissions
- Implications for Policies, Plans and/or Consents – 7 submissions
- Impacts on national energy strategy – 5 submissions

Adequacy of Information

[65] Before the applications were called in by the Minister, both Environment Waikato and Taupo District Council requested and received further information from Contact regarding the applications. We are satisfied that that information, and all the information subsequently provided by Contact and submitters, has been sufficient to allow us to make a decision on the applications.

[66] The Board commissioned Mr Dave Burton and Mr Grant Eccles to prepare a report on the information provided by Contact under section 42A of the Act. The report provided was sent to Contact and all the submitters for their comment. Comment was received from Contact and one submitter. The section 42A report and the comments thereon were considered by us.

Prehearing Meetings

[67] Formal prehearing meetings were conducted with Contact and submitters on 21 May and 6 June 2008. Reports by the chairpersons¹² of those meetings were prepared and sent to us and to all parties to the proceedings. As a result of the prehearing meetings, the parties negotiated agreements on a number of issues pertaining to the consents applied for. This greatly reduced the number of issues in contention at the commencement of the hearing.

Issues Raised By Submitters

[68] At our direction, counsel for Contact filed a memorandum listing all issues which it understood to be in contention as at 30 June 2008, based on the evidence which had been circulated.

[69] The issues listed were as follows:

- 1) Whether the Geotherm project is part of the existing environment for the purpose of assessing Contact's Te Mihi applications:

Subsidiary Issues:

- (a) Potential adverse effects of Contact's reinjection on Geotherm's project;
- (b) Suggested conditions for avoiding, remedying or mitigating adverse effects of Contact's reinjection on Geotherm's project;
- (c) Cumulative effects of Contact's air discharges as a potential constraint on Geotherm's project;
- (d) Cumulative effects of Contact's noise emissions as a potential constraint on Geotherm's project; and
- (e) The potential for the Te Mihi project to constrain Geotherm's output as a result of constraints on the Wairakei transmission ring.

¹² Ms Dorothy Wakeling on 21 May and Mr Morrie Love on 6 June 2008.

- 2) ReInjection Issues – potential issues arising from increased reservoir pressures;
- 3) Air discharges – proposed emission limits;
- 4) Air discharges – extent of ambient air quality modelling;
- 5) Noise emissions – adequacy of conditions to limit noise levels assessed;
- 6) Traffic issues:
 - (a) Adequacy/robustness of assessment of potential effects;
 - (b) Suggested conditions to avoid, remedy, mitigate adverse effects;
- 7) Poihipi Air Discharges – extent of adverse effects;
- 8) Contact’s outfield reInjection under existing consents;
- 9) Contact’s well drilling and extractions under existing consents;
- 10) Contact’s land access rights;
- 11) Potential constraints on output of other consented renewable energy projects, other than the Geotherm project, arising from any transmission system constraints;

[70] Technical condition issues regarding:

- (a) Cross references to the Wairakei General Conditions;
- (b) Noise measurements;
- (c) Wording of the landscape conditions;
- (d) Construction management;
- (e) Hazardous substance management;
- (f) Wording of protocol on cultural issues.

[71] Counsel for Geotherm and for Transit confirmed agreement with the list filed by Contact. Mr Brockelsby for Environment Waikato and Ms Feary for EECA similarly confirmed their respective agreement. Counsel for the McLachlan interests filed a memorandum identifying one additional issue:

The extent and definition of the activity areas that are to be used in connection with the Poihipi Power Station.

[72] Counsel for the Taupo District Council filed a memorandum listing the issues on land use resource consents which the District Council regarded as still in contention. The only additional matters identified were:

- Consent condition review timeframes; and
- Advice notes as specified in draft consent conditions.

[73] By the time of Mr. Robinson's opening, and as a result of further negotiations, six of the identified issues had been resolved.

[74] During the hearing, amenity issues such as noise, visual, landscaping and groundwater monitoring were mitigated by changes to the conditions of consent. These changes were made to address concerns raised by affected neighbours at the hearing.

[75] Also during the hearing another five issues dropped away as a result of agreement being reached with Geotherm, and the McLachlan interests refining their case. As a result, by the time of Mr Robinson's closing submissions, there were only three remaining contested issues, all relating to the Poihipi Station air discharges.

[76] We discuss in more detail the issues that have been resolved and the extent to which they impact upon our draft decision. We also determine the contested issues that relate to the Poihipi Station air discharges.

Hearing at Taupo

[77] We carried out an extensive site visit on 9 May 2008. A second site visit was made on 28 July 2008. These site visits assisted us to understand the evidence and issues.

[78] The hearing commenced at Taupo on 21 July 2008. The following parties were present for all or part of the hearing:

Contact Energy Limited
Taupo District Council

Environment Waikato
Geotherm Group Limited (In Receivership)
Transit New Zealand
MacPower Limited
Mr A McLachlan
Ms L Price – neighbouring landowner
Ms F Ellery – neighbouring landowner
Mr A Birdsall – neighbouring landowner
Ms L Koster – neighbouring landowner

[79] By the time the hearing commenced and during the hearing period, the majority of the issues had been agreed between the parties, leaving the following issues outstanding:

Visual effects
Noise effects
Air quality effects
Effects on groundwater

Conditions of Consent

[80] At the time of filing its evidence in chief, Contact proposed conditions of consent. They went through several iterations as the application wound its way through the prehearing process and the hearing itself. Contact's latest proposed conditions of consent were lodged with the Board on the last day of the hearing. Attached as Appendix 2 are the conditions of consent for the regional consents. Attached as Appendix 3 are the conditions of consent for the land use consents.

[81] The conditions, included in Appendices 2 and 3, include minor changes made by us, to ensure consistency, clarity and certainty but do not alter their substance.

[82] As we have said, the only challenge to the conditions as now drafted, relate to the Poihipi air discharge consents - a matter that we address later in this decision.

Statutory Framework for Decisions on the Applications

[83] In considering the applications before it and the submissions received, the Board must, subject to Part II of the Act, have regard to the provisions of section 104. The relevant matters under that section are:

- (a) *any actual and potential effects on the environment of allowing the activity; and*
- (b) *the relevant provisions of –*
 - (i) *a national policy statement:*
 - ...
 - (iii) *a regional policy statement ...:*
 - (iv) *a plan or proposed plan; and*
- (c) *any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

[84] The Board is also required under section 147(4)(b) to have regard to any relevant factor taken into account by the Minister, and the reasons stated by the Minister, when exercising his power to call in the proposal. As some of the consents applied for are for the discharge of contaminants, section 105 of the Act applies.

[85] The following sections of this report provide a commentary on these matters to which the Board has had regard to in reaching its decision.

Consideration of Statutory Instruments

[86] We have had regard to the relevant provisions of the applicable statutory instruments. Those relevant to the proposal are as follows and are discussed below:

- National Policy Statement on Electricity Transmission.
- Waikato Regional Policy Statement
- Waikato Regional Plan
- Taupo District Plan

National Policy Statement on Electricity Transmission

[87] The National Policy Statement on Electricity Transmission (NPS) came into effect on 10 April 2008. The NPS sets as a matter of national significance the need to operate, maintain, develop and upgrade the electricity network. The realignment of the existing transmission line and the integration of the new power station into the national transmission network is proposed in a manner consistent with the contents and purpose of the NPS.

Regional Planning Instruments

[88] The Waikato Regional Policy Statement (policy statement) and the Waikato Regional Plan (regional plan) are the two regional planning instruments that govern the use and development of the geothermal resources of the Waikato region.

[89] The relevant provisions of the policy statement became operative on 21 December 2007. The regional plan became operative on 30 August 2007, save for the Geothermal module which is the subject of Variation 2. The latest version of Variation 2 is no longer subject to challenge. The analysis set out below addresses the relevant provisions of the latest version of Variation 2 to the regional plan.

[90] Three chapters of the policy statement and the regional plan are relevant. These are the sections covering Energy, Geothermal, and Air Quality. The relationship of the proposed activity to these policy sections is examined as follows.

Geothermal

[91] Under the policy statement and regional plan geothermal provisions, the Waikato Regional geothermal resource is divided into management units termed “Geothermal Systems”. Within the Geothermal Systems, specific “geothermal features” are also identified, some of which hold the further classification of “Significant Geothermal Features”. Policy 3 “Classification of Systems” of the policy statement stipulates that five classes of Geothermal Systems can be identified in the regional plan, based upon:

- System size;
- Vulnerability of Significant Geothermal Features to extractive uses; and
- Existing Use.

[92] One class of Geothermal System is called a Development Geothermal System, within which development will be enabled because:

- i) the system contains few Geothermal Features that are moderately to highly vulnerable, or
- ii) the existing Geothermal Features are significantly impaired by lawfully established large takes, or
- iii) the system is already subject to large scale energy use and development.

[93] Policy 1, “Identification of Geothermal Systems”, in Section 7.4 of the regional plan classifies the Wairakei-Tauhara geothermal system as a Development Geothermal System.

[94] Table 7.1 of the regional plan sets out the following reasons why the System is so classified:

- *The system is already subject to large scale energy use and development.*
- *Existing surface features are significantly impaired by legally established large takes.*

- *No evidence of a flow of subsurface geothermal fluid to or from a Protected Geothermal System.*

[95] The policy statement and regional plan policy provisions relate to geothermal systems in general, and also include more targeted provisions that relate to various aspects of the use and development of specific Geothermal Systems according to their classification.

Use and Development

[96] The following group of policy provisions from the policy statement and regional plan specifically address the use and development of Development Geothermal Systems:

WRPS¹³ 3.7.2.1 – Development Geothermal Systems

Objective: *Large scale take, use and discharge of geothermal energy and water enabled within Development Geothermal Systems in a manner that:*

- *is efficient and allows the controlled depletion of energy so as to provide for the energy needs of current and future generations;*
- *remedies or mitigates significant adverse effects of Significant Geothermal features; and*
- *avoids, remedies or mitigates adverse effects on other natural and physical resources including overlying structures (the built environment).*

Policy One: Management of Use and Development in Development Geothermal Systems

Provide for large scale use and development of geothermal energy and water, promote efficient use of the resource and recognise there will be controlled depletion.

¹³ WRPS refers to policy statement and WRP refers to regional plan

Policy Two: Integrated System Management Required for Development Geothermal Systems

Each Development Geothermal System shall be managed in an integrated manner through:

- a. A System Management Plan that defines, by reference to all relevant policies in Chapter 3.7 of this Policy Statement, the objectives for the management of the system and provides as appropriate for:
 - i. operational flexibility and adaptive management including provision for subsequent uses;*
 - ii. reservoir modelling and subsidence modelling;*
 - iii. a discharge strategy, including provision for reinjection/injection;*
 - iv. a mechanism(s) to ensure coordination and promote cooperation between all consent holders for large takes;*
 - v. research, monitoring and reporting;*
 - vi. non-statutory review of the System Management Plan if in the opinion of the consent holders and the Waikato Regional Council, such amendments are minor.**
- b. a peer review panel for the purpose of assisting the consent authority to manage the system so as to achieve the objectives of the System Management Plan;*
- c. resource consent conditions; and*
- d. a system liaison group/forum where appropriate.*

WRP Objective 1

Where geothermal energy and water is taken, it shall be used and managed efficiently.

WRP Policy 3: Management of Use and Development in Development Geothermal Systems

Control the depletion of energy in Development Geothermal Systems through stepped production based on reservoir modelling that:

- considers the capacity of the system as a whole; and*

- *considers the reasonably foreseeable needs of present and future generations; and*
- *promotes efficient management and use of the system.*

WRP Policy 4: Integrated System Management of Development Geothermal Systems

Each Development Geothermal System shall have an up to date approved System Management Plan that defines the objectives to be achieved in relation to the System having regard to the relevant policies in the RPS.

Policy 5: Multiple Operators

Ensure mechanisms (multiple operator agreements such as steamfield management agreements and field operation protocols) are in place where more than one consent holder for large takes is to exist within a system. Any such mechanism shall address the following matters to the satisfaction of the Waikato Regional Council (Environment Waikato):

- i) coordination and cooperation between consent holders*
- ii) processes and procedures for assignment of responsibility and/or liability between consent holders for adverse environmental effects*
- iii) identification of potential interference effects between consent holders*
- iv) processes and procedures for avoiding, remedying or mitigating significant adverse environmental effects related to ii) and iii) above*
- v) amendment of the System Management Plan*
- vi) processes and procedures for dispute resolution of technical and consent related matters*
- vii) processes and procedures for changes to the mechanisms, such as changes incorporating consent durations and transfers to new parties*
- viii) siting of wells to avoid interference effects and to achieve efficient use and appropriate reinjection/production*
- ix) monitoring, information and data access arrangements, including the apportioning of costs*
- x) compliance with consent conditions, including joint reporting.*

There is a strong preference for formal agreement(s) between consent holders but an applicant may demonstrate achievement of this policy by other mechanisms.

[97] We consider that the proposal is consistent with the relevant provisions of the regional statutory instruments for the reasons set out below.

[98] The Te Mihi station would, through controlled depletion of the geothermal resource, provide for the energy needs of current and future generations in an efficient manner. At the same time the proposal includes measures intended to remedy or mitigate adverse effects on other natural and physical resources, including the Waikato River, significant geothermal features and the built environment. This would be achieved by way of a continuation of the existing management regime codified in the consents already held by Contact for the System.

[99] Contact has submitted a draft System Management Plan as part of the information accompanying the applications. This plan has partially been prepared to support the consent applications and partially to ensure compliance with conditions of the 2007 consents. It contains the information required by Policy Two of the policy statement and Policy Four of the regional plan and to that end is consistent with those regional policy provisions.

[100] Policy 5 of the regional plan seeks to ensure that where there are multiple large take consent-holders, activities are undertaken in a co-ordinated manner to ensure integrated management of the resource, and adequate control of adverse effects. This includes amendment of the management plan if required. In this case the only other holder of a consent to take a large amount of geothermal fluid from the System is Geotherm. Geotherm was concerned about the possible effects of discharge and reinjection on its likely production. Their concerns were met by agreed changes to the conditions of consent constraining Contact's area of reinjection, and a side

agreement. Further, compliance with the provisions relating to discharge and reinjection, that we discuss below, assists in meeting their concerns.

Discharge and Reinjection

[101] The following group of policy provisions from the policy statement and regional plan specifically addresses discharges from and reinjection to Development Geothermal Systems:

WRPS Policy Three: Reinjection / Injection

For large takes of geothermal energy and water from Development Geothermal Systems, the geothermal water remaining after use is to be reinjected / injected in accordance with a Discharge Strategy forming part of a System Management Plan which shall consider the following matters, as relevant to:

- i. Dispose of waste water;*
- ii. Return geothermal water to that system;*
- iii. Facilitate further extraction of energy from the system;*
- iv. Avoid or mitigate potential differential subsidence, and remedy or mitigate the adverse effects of subsidence, particularly in the built environment*
- v. Reduce the risk of hydrothermal eruptions particularly in the built environment;*
- vi. Remedy or mitigate significant adverse effects on Significant Geothermal Features; and*
- vii. Avoid, remedy or mitigate contamination of surface and ground waters.*

Such Discharge Strategy shall also have regard to:

- i. Any likely benefits to or adverse effects on the system or its productive capacity;*
- ii. The need for adaptive management and flexibility over time.*
- iii. The benefits, costs and adverse effects of the Discharge Strategy;*

- iv. *The need to avoid or mitigate potential differential subsidence, and remedy or mitigate the adverse effects of subsidence, particularly in the built environment; and*
- v. *The need to reduce the risk of hydrothermal eruptions particularly in the built environment.*

WRP Objective 7

Significant adverse effects on fresh water and land arising from the discharge of geothermal energy and water avoided.

WRP Policy 12: Discharges of Geothermal Energy and Water onto Land and into Fresh Water

Ensure that discharges of geothermal energy and water onto land and into fresh water after efficient and appropriate use are limited such that the adverse effects are no more than minor.

WRP Policy 13: Discharge Strategy for Large Discharges of Geothermal Energy and Water in Development Geothermal Systems

For large discharges of geothermal energy and water, reinjection / injection is to be undertaken in accordance with a Discharge Strategy prepared for each Development Geothermal System.

[102] We consider that the proposal is consistent with the discharge and reinjection provisions of the regional statutory instruments for the following reasons.

[103] The draft management plan provided with the application contains a Discharge Strategy as required by the policy statement and regional plan. The Discharge Strategy adequately addresses the matters that must be considered.

[104] In particular the Discharge Strategy addresses the need for adaptive management and flexibility over time. The large reinjection area sought would allow flexibility of reinjection locations, that may be required to

avoid subsidence effects, as is required by Policy 3 of the policy statement and proposed General Conditions 3.3.

[105] Measures to mitigate any adverse effects on significant geothermal features are also set out. Measures are discussed in greater detail in the next subsection of this report headed “Significant Geothermal Features”.

[106] The proposal to establish and operate Te Mihi with the consequent increase in the amount of geothermal fluid to be reinjected, is consistent with Objective 7 and Policy 12 of the regional plan. Significant adverse effects on fresh water would be avoided by reducing discharges of geothermal water into the Waikato River. Surface irrigation of the condensate and cooling water blowdown may benefit rural land. The establishment of the power station itself represents an efficient and appropriate use of the geothermal energy resource, as explained in greater detail earlier in this draft report.

Significant Geothermal Features

[107] The following group of policy provisions from the policy statement and regional plan specifically address Significant Geothermal Features within Development Geothermal Systems:

WRPS Policy Five: Management of Significant Geothermal Features in Development Geothermal Systems

Allow for the efficient take, use, and discharge of geothermal energy and water in Development Geothermal Systems while remedying or mitigating within the Regional Geothermal Resource, significant adverse effects on Significant Geothermal Features.

WRP Objective 2

In Development Geothermal Systems, significant adverse effects on Significant Geothermal Features arising from the take of geothermal energy and water to be remedied or mitigated within the Regional Geothermal Resource.

WRP Policy 6: Significant Geothermal Features in Development Geothermal Systems

Where significant adverse effects on Significant Geothermal Features in Development Geothermal Systems are to be remedied or mitigated, the remediation and mitigation may include:

- *the take and return of geothermal water being managed to remedy or mitigate significant adverse effects on those Significant Geothermal Features affected, or*
- *adverse effects on features of the same or similar type (defined in the glossary) being remedied or mitigated to an extent commensurate with the adverse effect being caused ('like for like' mitigation).*

WRP Policy 10: Adverse Effects of Land Use and Take, Use and Discharge of Water on Significant Geothermal Features

Ensure that land use and the take, use and discharge of non-geothermal water avoid significant adverse effects on Significant Geothermal Features.

[108] We consider that the proposal is consistent with the provisions of the regional statutory instruments that relate to the protection of significant geothermal features for the following reasons.

[109] Within the System there are 11 different Significant Geothermal Features. Among the features are Karapiti/Craters of the Moon and the Broadlands Road Reserve. Contact recognises that the Significant Geothermal Features within the System may be adversely affected due to declining heat flow across the System as a whole, which may be exacerbated by the proposed increased volumes of re-injection. However, Contact contends in the draft management plan, that any such adverse effects will not be significant, and

if they do occur, will be on the dimensions of the features rather than on their intensity or other characteristics.

[110] Contact proposes to continue the current approach of providing off-site mitigation of any adverse effects caused on significant geothermal features. This mitigation is primarily through the Wairakei Environmental Mitigation Charitable Trust and the Wairakei Charitable Trust.

[111] The off-site mitigation measures address whatever level of effect that may occur on the Significant Geothermal Features regardless of their magnitude. The increased reinjection volume would itself be a mitigation measure. The Discharge Strategy is an instrument which has amongst its objectives “remedying or mitigating adverse effects on significant geothermal features”.

Effects of Take, Use and Discharge

[112] The following group of policy provisions from the policy statement and regional plan specifically address adverse effects of take, use and discharge in Development Geothermal Systems.

WRPS Policy 6: Adverse Effects of Take, Use and Discharge in Development Geothermal Systems

When taking, using, or discharging geothermal energy and water in Development Geothermal Systems, avoid, remedy, or mitigate the adverse effects on non-geothermal natural and physical resources, including overlying structures (the built environment).

WRP Objective 5

In Development Geothermal Systems, adverse effects on other natural and physical resources including overlying structures (the built environment), such as those resulting from subsidence and land instability, arising from the take, use, and discharge of geothermal energy or water to be avoided, remedied or mitigated.

WRP Policy 11: Effects of Geothermal Resource Use on Other Natural and Physical Resources, including Overlying Structures (the Built Environment)

When taking, using, or discharging geothermal energy and water in Development Geothermal Systems, avoid, remedy or mitigate the adverse effects on non-geothermal natural and physical resources, including overlying structures (the built environment).

Where there is scientific uncertainty and a threat of serious or irreversible adverse effects on natural and physical resources including overlying structures (the built environment) adopt a precautionary approach.

[113] We consider that the proposal is consistent with those provisions for the following reasons.

[114] The System underlies significant urbanised areas of Taupo, and peri-urban areas around the fringes of the town. In the past, subsidence has occurred at various locations around Taupo. The draft management plan records that in some of those areas, subsidence results from geothermal power generation. At other locations, such as the Crown Road and Invergarry Road areas, it has not been universally accepted that Contact's activities have caused subsidence.

[115] The primary objective of the Discharge Strategy is to address the adverse effects of subsidence. In order to achieve this objective, Contact proposes the following measures:

- Repairing any damage to buildings and structures caused by subsidence resulting from Contact's activities;
- Continuation of benchmark modelling and house inspection programmes, in association with BRANZ and consultant civil engineers;

- Enhancement of existing reservoir simulation models, and development of a rock mechanics modelling package that can be integrated with the reservoir simulation model to produce a 3D subsidence model;
- Instigation of a long term investigation project that provides greater clarity on the cause and extent of subsidence; and
- Specifically with regard to minimising potential subsidence in the Taupo urban area, the maintenance of required minimum pressures at a specified depth in the Tauhara part of the System.

[116] It has been identified through previous consenting processes, that there is a lack of certainty to predict future subsidence adequately. The modelling and investigation work proposed would reduce that uncertainty. The ongoing building and benchmark surveys will detect any differential subsidence. The large reinjection area sought by Contact would assist in remedying and mitigating subsidence related effects through providing alternative reinjection locations.

Air Quality

The following policy provisions from the policy statement and regional plan are most relevant to air quality issues as they relate to the proposed activities:

WRPS Regional and Local Air Quality

Objective:

Significant characteristics of areas of:

- *High air quality protected*
- *Degraded air quality enhanced*
- *Other air quality maintained*

WRPS Policy 4: Adverse Effects on Human Health

Discharges to air managed in a way that is designed to avoid adverse effects on human health

WRP Objective 1:

Significant characteristics of air quality as identified in Table 6-1 are:

- a. protected where they are high*
- b. enhanced where they are degraded*
- c. otherwise maintained.*

WRP Objective 2:

No significant adverse effects from individual site sources on the characteristics of air quality beyond property boundary.

WRP Objective 3:

Cumulative effects of discharges on ambient air quality do not:

- a. present more than a minor threat to the health of humans, flora and fauna*
- b. cause odour that is objectionable to the extent that it causes an adverse effect*
- c. result in levels of suspended or deposited particulate matter that are objectionable to the extent that they cause adverse effects*
- d. have a significant adverse effect on visibility*
- e. cause accelerated corrosion of structures*
- f. cause significant adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as air, ancestral lands, water and waahi tapu.*

WRP Policy 2: Managing Effects of Other Discharges

Manage other discharges of contaminants to air through controlled and discretionary activity rules having particular regard to the effects of the discharge on:

- a. ambient air quality compared to the Regional Ambient Air Quality Guidelines (RAAQG) levels provided in Chapter 6.3,*
- b. ambient air quality compared to internationally accepted air quality guidelines or standards for managing and understanding the effects of contaminants on human health, the health of flora and fauna and amenity values,*

- c. *ambient odour and particulate matter levels compared to the guidelines for assessment provided in Chapter 6.4 of the Plan for odour and particulate matter*
- d. *adverse effects from contaminants that are hazardous in ambient air, particularly with respect to human health,*
- e. *the significant characteristics of air quality within an area,*
- f. *significant adverse effects of the discharge on the identified values of tangata whenua as Kaitiaki,*
- g. *the sensitivity of the receiving environment,*
- h. *existing ambient air quality and any cumulative effects as a result of the discharge on the receiving environment,*
- i. *nationally accepted codes of practice for the relevant activity.*

WRP Policy 5: Positive Benefits of Resource Use

Recognise the positive benefits to people and communities arising from activities that affect air quality by enabling a range of activities to use the air (including existing activities) whilst ensuring that:

- a. *high quality air resources are protected,*
- b. *degraded air quality is enhanced,*
- c. *adverse effects on air quality are avoided, remedied or mitigated.*

[117] We consider that the proposal is consistent with the Air Quality provision of the regional statutory instruments for the following reasons.

[118] The proposed air discharges would contain non-condensable gases, which most significantly include H₂S. This gas has the potential to cause nuisance odour and adverse health effects. We heard uncontested expert evidence that the proposed air discharges would not pose an adverse effect to human health. We accept this view.

[119] For reasons given later in this draft report, we consider that the odour effects of the discharges are appropriately addressed by the conditions of consent.

Energy

[120] The policy statement energy provisions sets out the following objective and policy of relevance to the proposed activities.

Objective:

Efficient use of energy within the Waikato Region.

Policy One: Energy Efficiency and Conservation

To promote efficiency and conservation in the production, transmission and consumption of energy.

[121] The proposed activities would contribute to the efficient use of energy within the region. The extraction, generation and disposal techniques proposed, would promote efficiency and conservation. To that end the overall project is consistent with the policy provisions.

Taupo District Plan

[122] The Taupo District Plan became operative on 11 October 2007. We were not made aware of any changes relevant to these proceedings. The site of the proposed Te Mihi power station is partly within the Rural Environment and partly within the Industrial Environment.¹⁴ Section 3 of the Plan sets out the Objectives and Policies applicable within the relevant Environments and generally throughout the District. We set out below those relevant to these applications.

¹⁴ Drawing 124922-RC06 attached to applications for consent

Objectives and Policies

RURAL ENVIRONMENT OBJECTIVES AND POLICIES – SECTION 3B.2

OBJECTIVE 1

3b.2.1 The protection of the rural amenity and character of the Rural Environment.

POLICIES

i. Maintain and enhance the amenity and character of the Rural Environment by providing land use performance standards and subdivision rules to manage the scale and density of development.

...

iii. Maintain the open space and dispersed building character.

iv. Provide for a range of productive land use activities within the Rural Environment while ensuring any adverse effects are avoided, remedied or mitigated.

...

[123] This objective and the related policies seek to protect the existing amenity levels provided by Rural Environments. The Explanation to the objective and policies makes it clear that Policy iv recognises that the Rural Environment contains a wide range of resources that require the location of activities close to the resource.

[124] Objective 3b.2.2 and Policy 3b.2.2.iii & vi are focussed on limiting the potential for subdivision in the Rural Environment to diminish the rural amenity or character and increase urbanisation. These provisions will limit the ability of further development in the vicinity of the power station which could lead to reverse sensitivity issues arising. The Explanations make it clear that the Plan gives encouragement to electricity generation facilities on geothermal systems such as Wairakei-Tauhara.

OBJECTIVE 4

3b.2.4 The efficient and effective functioning of the Rural Environment by enabling the use and development of natural and physical resources, while ensuring appropriate environmental outcomes are achieved.

POLICIES

i. Control activities which may potentially restrict or compromise the operation of existing activities of the Rural Environment including the creation of new rural allotments that may lead to conflict between residential and rural activity.

...

iii. Avoid subdivision and development of rural land that will put pressure on rural infrastructure and may require an increase in the level of service now or in the future.

...

v. To recognise the important role of resource use and development in the Rural Environment, by providing for the continued operation and associated development of existing electricity generation facilities and network utilities by allowing their use, maintenance and minor upgrading where all significant adverse effects are avoided, remedied or mitigated.

[125] These provisions, and the relevant Explanation, support the use of the geothermal resource for electricity generation and transmission.

OBJECTIVE 5

3b.2.5 The protection of adjoining Environments from the adverse effects of activities within the Rural Environment.

POLICY

iii. Manage the potential for adverse effects of activities in the Rural Environment at the interface of this and other more sensitive Environments.

[126] The majority of the site is within the Rural Environment, with a smaller area being within the Industrial Environment. The latter is less sensitive to the potential adverse effects so protection of adjoining environments is not considered necessary.

INDUSTRIAL ENVIRONMENT OBJECTIVES AND POLICIES – SECTION 3D.2

OBJECTIVE 1

3d.2.1 The maintenance of the environmental qualities and functioning of the Industrial Environment.

POLICIES

- i. Maintain the qualities of the Industrial Environment through controlling the bulk, location and nature of activities, to ensure an appropriate scale and intensity of buildings and activities that are consistent with an industrial scale of development; i.e. an appropriate density of activity and level of environmental effects, while allowing the functioning of the area to be maintained.*
- ii. Encourage a wide range of activities within the Industrial Environment, including any activity with nuisance elements not appropriate for any other Environment, while ensuring any adverse effects are avoided, remedied or mitigated.*

OBJECTIVE 2

3d.2.2 The protection of adjoining Environments from the adverse effects of activities within the Industrial Environment.

POLICY

- i. Control the effects of activities within the Industrial Environment so the scale of development and level of environmental effects does not adversely affect the amenity of the other Environments of the District.*

[127] The above objectives and policies enable the establishment of a wide range of activities provided that adverse effects can be appropriately avoided, remedied or mitigated, particularly the amenity values in adjoining Environments, which in this case is the Rural Environment.

LAND DEVELOPMENT OBJECTIVES AND POLICIES – SECTION 3E.2

OBJECTIVE 4

3e.2.4 Avoid the degradation of Taupo District's lakes, waterways and aquifers from effluent and waste water resulting from land development.

POLICIES

- i. Implement integrated land management strategies in conjunction with Regional Authorities that will avoid, remedy or mitigate adverse environmental effects on Taupo District's lakes, waterways and aquifers.*

OBJECTIVE 5

3e.2.5 Ensure land development does not detract from the amenity value or qualities of the local environment.

POLICIES

- i. Ensure that proposals for the subdivision and development of land assess the particular amenity values of the area including the physical characteristics of the land and avoids, remedies or mitigates any adverse effects.*

[128] The proposed power station would be consistent with the character and amenity of the surrounding environment. This area is clearly identified by the plan as being suitable for development and use of the geothermal resource both in the objectives and policies of the Rural Environment and the partial zoning of the site as Industrial.

**TRAFFIC AND TRANSPORT OBJECTIVES AND POLICIES –
SECTION 3F.2**

OBJECTIVE 1

3f.2.1 The safe and efficient operation of the roading network, and movement of traffic, including cyclists and pedestrians within the District.

POLICIES

- i. Ensure activities avoid, remedy or mitigate any adverse effects on the operation and function of the roading network, including the movement of traffic cyclists and pedestrians, as accordance with the Roading Hierarchy.*
- ii. Encourage activities, including the design and location of new vehicle crossings, to provide for the safe and efficient movement of traffic, including cyclists and pedestrians.*

[129] Uncontested evidence of Mr Harries, called by Contact, showed that this objective and these policies were met in respect of the local roading network. Immediately prior to the hearing, Contact, Transit and Taupo District Council advised us by a joint Memorandum that all residual traffic issues as between those parties would be satisfied by the amended draft conditions proffered with the Memorandum. Two other submitters raised traffic concerns. At the hearing Ms Koster raised concerns in respect of children riding horses on Oruanui Road. In his submission, Mr R Houghton raised concerns regarding the intersection of Poihipi Road and State Highway 1. We are satisfied that the proffered conditions accord with the objectives and policies in this section and adequately address the submitters concerns.

**TANGATA WHENUA CULTURAL VALUES OBJECTIVES AND
POLICIES – SECTION 3G.2**

OBJECTIVE 1

3g.2.1 Recognise and provide for the cultural and spiritual values of Tangata Whenua in managing the effects of activities within the District.

POLICIES

- i. Take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) in the management of the natural and physical resources of the District.*
- ii. Ensure activities have regard for the cultural values of Tangata Whenua as Kaitiaki of their culture, traditions, ancestral lands, water and other taonga.*
- iii. Ensure activities on or near Sites of Significance to Tangata Whenua are undertaken in a manner which provides for the cultural and spiritual value and significance of the site.*

[130] Contact consulted local iwi and both agreed a procedure to apply in the event that kōiwi or other culturally significant items are discovered during construction. Culturally significant sites have been identified in a Cultural Impact Assessment prepared by iwi, and protection mechanisms for these sites are proposed in the draft conditions of consent.

NATURAL HAZARDS AND UNSTABLE GROUND OBJECTIVES AND POLICIES – SECTION 3L.2

OBJECTIVE 1

3l.2.1 Protection of activities, development and life from the adverse effects of natural hazards.

POLICIES

- i. Control the design and location of activities and development within identified natural hazard areas, or areas which have significant potential to be affected by a natural hazard, to avoid or mitigate the effects of the natural hazard.*

- ii. *Manage the location, design, and type of new activities and development to avoid or mitigate the adverse effects of flooding, erosion, ground rupture and deformation, hot ground and land instability on development and the community.*

OBJECTIVE 2

3l.2.2 Activities and development do not create, accelerate, displace, or increase the effects of a natural hazard.

POLICIES

- i. *Ensure that activities do not alter or change the nature of a natural hazard event, increase the intensity of a natural hazard event or increase the risk of the event occurring.*
- ii. *Ensure that activities and structures do not increase the risk to the community or the environment from the effects of natural hazards.*
- iii. *Ensure that where development occurs within areas subject to the effects of natural hazards, property owners and/or occupiers are informed of and manage the risk.*
- iv. *Control the location and presence of hazardous substances in areas subject to natural hazards to ensure that there is no increase in the effects of the natural hazard or risk to the community from hazardous substances.*

[131] The Plan identifies two fault lines traversing the subject site. The proposed power station and associated structures have been located so as to avoid these fault lines. While the power station is located outside of the Hot Ground Hazard Area, the site is within a geothermal field and it is subject to some risk of subsidence. This risk can be mitigated by the adoption of the Discharge Strategy discussed above.

[132] We consider that the proposed activity would not result in any acceleration or displacement of these hazards and would not present an increased risk to the community.

**HAZARDOUS SUBSTANCES OBJECTIVES AND POLICIES –
SECTION 3M.2**

OBJECTIVE 1

3m.2.1 Protection of the environment and the health and safety of the community, from the adverse effects of hazardous substances associated with hazardous facilities.

POLICIES

- i. Ensure that hazardous facilities are appropriately located to avoid or mitigate adverse effects on the environment and unacceptable risks to the environment and community.*
- ii. Ensure that hazardous facilities are designed and managed to avoid or mitigate adverse effects and unacceptable risks to the environment and community.*

[133] The above objective and policies seek to ensure that the storage and use of hazardous substances are undertaken in a manner that does not present a risk to the community and potential adverse effects are avoided, remedied or mitigated. The draft conditions proposed to attach to the land use consents for Te Mihi include specific provisions to achieve these.

**NETWORK UTILITIES OBJECTIVES AND POLICIES – SECTION
3N.2**

OBJECTIVE 1

3n.2.1 To enable the operation, maintenance and upgrading of existing Network Utilities and the provision of new Network Utilities.

POLICIES

- ii. Provide for the establishment of new Network Utilities in a way that, as far as practicable, recognises the characteristics and amenity of the different Environment areas.*

- iii. *Have regard for the technical and operational requirements of Network Utilities and the contribution they make to the functioning and well being of the community.*

OBJECTIVE 2

3n.2.2 Network Utilities are designed and located to avoid, remedy or mitigate adverse effects on the environment and protect the health and safety of the community.

POLICIES

- i. *The establishment, operation, maintenance or upgrading of Network Utilities does not compromise the health and safety of the community*
- ii. *Avoid, remedy or mitigate the potential adverse effects of the location and siting of new Network Utilities on significant landscape features and the amenity and character of the District.*
- ...
- iv. *Encourage Network Utilities to avoid, remedy or mitigate adverse effects on the environment by co-siting or sharing facilities where this is technically practical and feasible while having regard to the best practicable option for the siting or sharing of facilities.*
- v. *Recognise that Network Utility services can maintain and enhance the social and economic well-being of communities.*

[134] The above objectives and policies recognise the essential need for network utilities, but require that consideration be given to the amenity of the area in which they are located, and the health and safety of the community. As part of this application, a minor realignment of the existing 220kV transmission line from Poihipi is proposed to connect it to the Te Mihi switchyard. The present connection from there to the Wairakei-Whakamaru line largely follows the existing alignment. Given that the transmission towers are an existing feature of the environment it is considered that the realignment would largely maintain the current character of the area and sufficient separation is provided between the lines and public areas such as roads.

GEOTHERMAL ACTIVITY OBJECTIVES AND POLICIES – SECTION 30.2

OBJECTIVE 1

30.2.1 Enable and manage the effects of land use activities associated with geothermal resource use and development.

POLICIES

- i. To provide for the continued operation, maintenance and minor upgrading of existing developments utilising geothermal resources.*
- ii. To enable land uses associated with the use of geothermal resources in a manner which avoids, remedies or mitigates adverse effects on the environment.*
- iii. To control the land use effects associated with the use of geothermal resources by way of environmental performance standards in rules and conditions on resource consents.*

[135] When these objectives and policies are read in conjunction with the “Explanation” and “Principal Reasons for Adoption”, it is clear the District Plan enables the development of Development Geothermal Systems.

Overall Conclusion in respect of the District Plan

[136] We consider that the Plan as a whole supports utilisation of Geothermal Systems to generate electricity and for the associated infrastructure. The Plan is designed to protect neighbouring activities from the adverse effects of such developments. We are satisfied such protection can adequately be achieved by the conditions proposed for the land use consents.

Part II of the Resource Management Act 1991

[137] In deciding the applications for the Te Mihi proposal, we have had regard to Part II of the Act. Section 5 (1) establishes the purpose of the Act as being:

– to promote the sustainable management of natural and physical resources ...

Section 5 (2) defines “sustainable management”:

- (2) *In this Act, “sustainable management” means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –*
- (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) *Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

[138] Section 5 of the Act requires a broad overall judgement on whether or not a proposal promotes the sustainable management of natural and physical resources. That approach allows comparison of conflicting considerations, their scale or degree and their relative significance.

[139] Geothermal resources are a natural and physical resource. Contact already holds consents to extract from the resource, and use it for the generation of electricity. The current applications seek authority to use that resource in a new power station at Te Mihi and generate more electricity.

[140] In reviewing whether this proposal enables people and their communities to provide for their social, economic and cultural wellbeing, and for their health and safety, we are mindful that Te Mihi would produce electricity from a renewable resource. As such, it would provide for the general needs of the community.

[141] In terms of sustaining the potential of natural and physical resources to meet future needs, we note that the reinjection proposal would be undertaken in a

manner that enables reservoir pressures to be maintained at required levels. In this context, we also acknowledge the improvement in water quality of the Waikato River that would result from this development.

[142] Issues regarding the implications for the Te Mihi project for the life supporting capacity of air, water or soil were addressed in the evidence, particularly that of Mr Bromley and Dr Stevenson. We will discuss in some detail the issues relative to air quality and groundwater when considering the effects of the proposal. The conditions as proposed adequately address those issues.

[143] We also discuss the potential adverse effects resulting from the proposal on the environment. The conditions of consent adequately remedy or mitigate these potential adverse effects.

Section 6

[144] We are required to recognise and provide for the following matters of national importance:

- (a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- (b) *The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- (c) *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- ...
- (e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*
- (f) *the protection of historic heritage from inappropriate subdivision, use, and development*
- (g) *the protection of recognised customary activities.*

[145] We find that there are no outstanding natural features or landscapes affected by the applications. Two of the Landscape Amenity Management Areas identified in the District Plan, Karapiti and Kiriohineki are located within the reinjection application area and the air discharge application area. While these features are identified, the proposed steamfield activities are permitted by the plan.

[146] As discussed by Mr Bromley,¹⁵ any increase in pressure within the reservoir at depth arising from reinjection will reduce the steam upflow. This could have an adverse effect on thermo-tolerant vegetation. Any such effect can be addressed in the Discharge Strategy.

[147] With regard to section 6(e), a Cultural Impact Assessment prepared by Te Kapa O Te Rangiita Ki Oruanui identified three culturally significant sites. These are:

- Raparapa Maunga;
- A rock art feature; and
- Te Mihi Maunga.

The first two features are located to the north of the power station site and Te Mihi Maunga is located to the south of the site, close to Poihipi Road.

[148] The land use consent conditions provide that Contact shall not operate within 100m of these features. A plan showing the exclusion zones is attached to the draft conditions, and this plan reflects recent consultation between Contact and Te Kapa O Te Rangiita Ki Oruanui.

[149] We also note that these sites are well clear of the power station site. Two sites are within the area proposed for the discharge by irrigation of condensate and cooling water blowdown. All are within the area proposed for reinjection. While the infrastructure associated with the irrigation and the reinjection is a permitted activity, we consider that the management plan

¹⁵ EiC, para 4.8-4.9

and discharge strategy would also adequately protect the culturally sensitive sites.

[150] In terms of the protection of historic heritage – section 6(f) - the Archaeological Assessment forming part of the application identified two recorded archaeological sites:

- U 17/17 – rock art and shelter site; and
- U 17/65 – Te Mihi earthworks site.

[151] These are not within the power station site area, nor are they identified in the district plan. These are the same rock art feature and Te Mihi Maunga identified by the Cultural Impact Assessment. Their protection is ensured by the agreement reached between Contact and the local hapu. In addition they are subject to the provisions of the Historic Places Act.

Section 7

[152] We must also have particular regard to the matters set out in section 7. These are:

- (a) *Kaitiakitanga:*
 - (aa) *The ethic of stewardship:*
- (b) *The efficient use and development of natural and physical resources:*
 - (ba) *the efficiency of the end use of energy:*
- (c) *The maintenance and enhancement of amenity values:*
- (d) *Intrinsic values of ecosystems:*
- ...
- (g) *Maintenance and enhancement of the quality of the environment:*
- (h) *Any finite characteristics of natural and physical resources:*
- (i) *The protection of the habitat of trout and salmon:*
- (j) *the effects of climate change:*
- (k) *the benefits to be derived from the use and development of renewable energy.*

[153] We now discuss the relevant matters.

[154] The role of Kaitiaki rests with Te Kapa O Te Rangiitā ki Oruanui, the local hapu in the area. They are a submitter and their views are supported by a submission from the Tuwharetoa Māori Trust Board. Agreement was reached by a consent condition putting in place an appropriate protocol to be adhered to in the event of a discovery of a cultural or archaeological site.

[155] Further, the General Conditions require that the Peer Review Panel comprise three independent technical experts and one representative appointed by the Wairakei hapu.¹⁶ The General Conditions also provide for the exercise of the Kaitiaki role. Further, a Memorandum of Understanding has been agreed between Contact and the Wairakei hapu.

[156] At the Prehearing Meeting of 6 June 2008, the issue of hapu representation on the Peer Review Panel was discussed. While a representative of the Wairakei hapu will sit on the Peer Review Panel, the three individual Wairakei hapu and the Tauhara hapu felt that a mechanism was needed to enable their particular issues to be addressed where matters peculiar to their own rohe were affected. It was agreed that a Hapu Review Panel be formed to liaise with the representative on the Peer Review Panel.

[157] Other aspects in section 7 of particular relevance include:

- The proposal would provide by way of adaptive management for the efficient use and development of the Wairakei geothermal resource – section 7(c) and 7(h);
- More electricity will be produced from Te Mihi than is currently generated at Wairakei, from the same resource take¹⁷ - section 7(ba);
- The conditions of consent would adequately maintain and enhance amenity values of the area – section 7 (d);

¹⁶ General Condition 1.2

¹⁷ Pummer, EiC, para 7

- The conditions of consent would adequately address and protect the intrinsic values of the geothermal ecosystem and the reduction of discharge to the Waikato River would improve its ecosystem – section 7(e) and 7(i);
- While the Te Mihi Power Station would discharge greenhouse gases, the emission factor per GWh would be much less than that produced by a gas or coal fired station¹⁸ - section 7(j); and
- The benefits derived from the use and development of renewable energy are discussed in the evidence in chief of Mr D Hunt¹⁹. The term “renewable energy” is defined in section 2 of the Act to include energy produced from geothermal sources – section 7(k).

Section 8

[158] In considering the application by Contact, we are required to take into account the principles of the Treaty of Waitangi. We take into account the following:

- The consultation with iwi and the outcomes of that consultation;
- The measures that are proposed to provide protection to sites and items of cultural significance; and
- Measures proposed to recognise and provide for Kaitiakitanga.

Effects of the Te Mihi Proposal on the Environment

Positive Effects

[159] There was no dispute that implementing the proposal and its ongoing operation would have a number of positive effects:

- i. There would be a significant reduction in the volume of geothermal fluid discharged into the Waikato River in the event of the Te Mihi

¹⁸ C Stevenson, EiC, para 213

¹⁹ para 15

- proposal being implemented. This is a significant positive effect on the environment;
- ii. An additional 60MW would be generated for the same fluid take. This is equivalent to the electricity requirements of approximately 70,000 households between 2011 and 2026;
 - iii. There would be \$60 million less in electricity generation costs over the first 25 years of the project compared with alternative supply options;
 - iv. There would be increased diversification of electricity generation sources, thereby reducing supply risks;
 - v. The station would be base load. This enables a continuous supply to the national grid;
 - vi. It would displace other sources of generation with higher greenhouse gas emissions;
 - vii. There would be a reduction in electricity transmission losses, at present day values amounting to approximately \$1 million per year;
 - viii. There would be a contribution to the regional economy during the construction phase, including employment of up to 400 people and approximately \$50 million directly injected into the local economy; and
 - ix. There would be some roading improvements.

[160] In reaching our decision we have regard to these uncontested positive effects.

Adverse Effects

Effects on the Reservoir

[161] The proposal relies on the existing Wairakei consents, which expire in 2026, for access to the geothermal resource. The General Conditions forming part of the existing consents are mirrored by the proposed General Conditions of the Te Mihi consents. They include the requirement that Contact develop a System Management Plan. This plan is to be approved by Environment

Waikato on the advice of the Peer Review Panel. A draft management plan has been provided by Contact²⁰.

[162] The management plan is to include a Discharge Strategy. This is to have as its primary objective the need to address the adverse effects of subsidence. Secondary objectives²¹ are:

- a. Facilitating further extraction of energy from the Wairakei / Tauhara Geothermal System;*
- b. Remediating or mitigating adverse effects on significant geothermal features including maintenance of geothermal features at Karapiti as long as practicable;*
- c. Avoiding, remediating or mitigating contamination of surface and groundwater bodies;*
- d. Integrating takes, uses (including cascade users) reinjection, injection and other discharge methods.*

[163] The existing Wairakei injection/reinjection consent²² provides for the discharge of up to 144,000 tonnes/day of geothermal fluid. The injection areas currently being utilised are at Aratiatia and Poihipi West.

[164] The management plan requires complex monitoring and annual reporting of a wide range of variables, including reservoir pressures, differential subsidence, fluid geochemistry, well data, surface heat flow, thermal features and groundwater.

[165] This proposal seeks consent for an additional 95,000 tonnes/day of reinjected fluid and 6,500 tonnes/day of water for irrigation. Contact proposes that the reinjection and irrigation would be in accordance with the Discharge Strategy, in the same way as the existing Wairakei injection/reinjection consent. The additional reinjection capacity would give greater flexibility in managing the System.

²⁰ Condition 1 of the General Conditions

²¹ Condition 3.3 of the General Conditions

²² RC 104718

[166] **Finding of Fact:** We find that the conditions of consent would adequately remedy or mitigate actual and potential adverse effects on the reservoir.

Effects on Other Consent Holders for Large Takes of the Geothermal Resource

[167] Geotherm expressed concern through submissions that this proposal may have an adverse effect on implementing consents granted in early 2007 for the proposed Geotherm Power Station.

[168] On 25 July 2008 Geotherm and Contact filed a Joint Memorandum with the Board setting out that they agreed on conditions that met Geotherm's concerns. These were approved by Environment Waikato and Taupo District Council.

[169] **Finding of Fact:** We find that the conditions agreed between Geotherm and Contact will adequately avoid or mitigate any potential adverse effects on Geotherm.

Effects on Air Quality

[170] A number of submitters expressed concern regarding the effects of the proposal on air quality. These concerns included the cumulative effects resulting from the proposal, and from existing and consented proposals. The current set of applications includes a discharge to air application for the existing Poihipi Station as the air discharge consent for that operation will expire at the end of 2011.

[171] Contact's air quality adviser, Dr Craig Stevenson, described the processes leading to emissions to air as follows.²³

The geothermal fluid that is extracted from the wells in the Wairakei steamfield contains carbon dioxide, hydrogen sulphide, and mercury that

²³ EiC, para 20-23

transfer into the steam phase when the geothermal fluid is flashed to produce the steam used in the power station turbines. These substances are the predominant constituents of the non-condensable gas that must be removed from the turbine condensers to avoid excessive backpressure that would otherwise reduce turbine efficiency.

In the proposed Te Mihi power station, the non-condensable gas will be discharged to air in the buoyant plumes of warm air from the cooling towers.

Hydrogen sulphide is a contaminant of potential concern, largely because of its characteristic “rotten egg” odour. Mercury is of potential concern because of its toxicity. Carbon dioxide is of concern because it is a greenhouse gas.

The non-condensable gas stream also contains trace levels of a range of other gases, including hydrogen, methane and nitrogen. These gases are essentially non-toxic. Methane emissions are included in the assessment of greenhouse gas emissions.

[172] Dr Stevenson stated that there are essentially no contaminant discharges to air during the normal operations of the borefield. It is the cooling tower plume that contains contaminants, being the non condensable gases.

[173] Dr Stevenson undertook a cumulative dispersion modelling assessment of the emissions from the existing and proposed geothermal power stations in the area. These were Wairakei, Poihipi, Rotokawa, Rotokawa 2 (under construction), Te Mihi (proposed) and Geotherm (consented but not developed). H₂S concentrations of 70µg/m³ (1 hour average) have been used as a guideline for assessing acceptability of odour effects from this gas. We note that the World Health Organisation guideline for risks of adverse health effects is 150µg/m³ of H₂S (24 hour average) – this is more than the 70µg/m³ (1 hour average) odour effects level.

[174] Dr Stevenson concluded that current H₂S emissions from Wairakei dominate H₂S concentrations within about 3-4 km of that plant. He concluded that²⁴:

- *with the commissioning of the Rotokawa 2 power station and decommissioning of the Wairakei station, the emissions from the Rotokawa power stations will dominate hydrogen sulphide concentrations over much of the modelling domain*
- *the maximum concentrations of hydrogen sulphide in the vicinity of the Te Mihi and Poihipi power stations will originate predominantly from emissions from the Rotokawa power stations*
- *the maximum contributions to hydrogen sulphide concentrations resulting from emissions from the Te Mihi and Poihipi power stations will not exceed the 70 ug/m³ guideline used in this assessment, except within the Te Mihi site*
- *maximum contributions to hydrogen sulphide concentrations fall below 20 ug/m³ beyond 2.5 km in any direction for emissions from Te Mihi power station and beyond 1.4 km for emissions from Poihipi power station*

[175] Dr Stevenson also concluded that²⁵:

- *maximum predicted mercury concentration contributions in the immediate vicinity of any of the power stations are at about the global background mercury concentrations, so that there is no appreciable risk of adverse effects to human health or the biosystem*
- *shadowing by cooling tower plumes will almost always be contained within the power station sites*
- *no grounded visible plumes are predicted, so that ground level fogging or icing is not likely to occur*
- *cooling tower plumes will often be visible to people who have a view to the tops of the cooling towers or slightly above, and will,*

²⁴ EiC, para 7

²⁵ EiC, para 8

less frequently, be visible to heights up to 350m above the cooling towers

- *There will be essentially no contaminant discharges to air during normal operation of the steamfield.*
- *Cooling tower drift losses will have negligible effects on local icing or ground contamination.*
- *Greenhouse gas emissions from the proposed Te Mihi power station will be about 1% of those from the New Zealand electricity generation sector. The greenhouse gas emission factor, in terms of tonnes of carbon dioxide equivalent per GWh of electricity generated will be about 12% of that for a modern high efficiency gas powered station and about 5% of that for a coal-fired power station like Huntly.*
- *There are significant process, health and safety, or cost problems associated with all of the identified alternatives to discharge of non-condensable gases to air. None were considered satisfactory alternatives to the present discharge of non-condensable gases at Wairakei power station at the time of the consent renewal for those discharges. The proposed Te Mihi power station will greatly reduce the ambient air concentrations of hydrogen sulphide, to the level where any odour nuisances arising from the Wairakei discharges (which are very infrequent, to judge by the complaint record) are unlikely anywhere as a result of the operation of Contact Energy geothermal power stations in the area. Accordingly, there is even less reason to consider that alternatives to the proposed discharge of non-condensable gases from the Te Mihi or Poihipi power stations to air in the cooling tower plumes are required than for the case at Wairakei.*

[176] Prior to the Ministerial Call in, Environment Waikato had engaged an air quality specialist, Dr B Graham, to review the work of Dr Stevenson. There has been subsequent liaison between Contact and Environment Waikato regarding air discharges, including the framing of conditions. The conditions were modified slightly during the course of the hearing by a

further condition requiring an air quality monitoring site to be established specifically at Poihipi.

[177] While we note that with the decommissioning of Wairakei, H₂S concentrations in the Te Mihi and Poihipi areas will be dominated by emissions from the Rotokawa power stations, the Te Mihi and Poihipi Stations will nevertheless contribute to H₂S loading. The modelled concentrations would be below levels where effects on health are an issue. But for part of the time, the models show values higher than 70µg/m³, the acceptable guideline for odour, occurring in the vicinity of Link Road. However, the model shows that such concentrations would still occur in this area, even excluding the contribution from Te Mihi.

[178] In the draft conditions a consent limit for H₂S was set. This limit was above the emission rates used in the dispersion modelling for Te Mihi and Poihipi. Dr Stevenson²⁶ explained that the rates were calculated to accommodate the “variability in the H₂S content of the geothermal fluid combined with future changes in the source of steam supplied to the power stations”. In his rebuttal evidence, Dr Stevenson emphasised that the effects of H₂S emissions would not be more than minor. Dr Graham, Environment Waikato’s air quality expert, said that the requirement for annual monitoring and testing of the emissions would provide an appropriate check²⁷.

[179] The draft consent conditions included ambient H₂S monitoring at locations to be agreed by Environment Waikato. Dr Graham confirmed²⁸ that a properly designed and operated ambient air monitoring programme for H₂S is important and would be an essential resource to investigate complaints about odour. We agree.

[180] Mr Lang, Counsel for the McLachlan interests, submitted that the area for the air discharge consent sought for Poihipi should be restricted to the areas

²⁶ EiC, para 165

²⁷ EiC, par 5.2

²⁸ EiC, paras 5.3 and 5.4

of the Poihipi site that contain existing infrastructure. This is because the proposed consent area includes areas where Contact has no current development plans, and where modelling shows H₂S concentrations would be higher. Further, he submitted that a specific air quality monitoring site should be established at Poihipi. No evidence was called in support of that contention and Mr Lang relied on the evidence of Dr Stevenson and his cross examination of him.

[181] Mr Robinson, in his closing for Contact²⁹, refuted the need for any amendments to the proposed area of the Poihipi air discharge consent. On the matter of the monitoring site, he confirmed that Contact was willing for such a site to be established. Contact proffered a condition to achieve that end.

[182] We consider that the area of the Poihipi air discharge consent is appropriate, and that there is no factual basis for requiring a reduction in the area, as sought by Mr Lang. We note the uncontested evidence of Dr Stevenson that air discharges from borefield activity contain virtually no contaminants. On that basis, it can be logically inferred that any discharges to air from future borefield development at Poihipi, would not result in the emission of contaminants in sufficient quantity or concentration to have any adverse effect.

[183] The condition of consent proffered by Contact allowing for the establishment of an air quality monitoring site at Poihipi is accepted.

[184] **Finding of Fact:** We find that the conditions would adequately remedy or mitigate actual and potential adverse effects on air quality. This includes cumulative effects.

²⁹ Paras 11-18

Effects on Ground Water and Water Supplies

[185] Contact seeks a consent to discharge up to 50m³/day of sewage to ground through a soakage system following septic tank treatment. Consent is also sought to discharge, by irrigation, up to 6,500 tonnes/day of cooling water blowdown and condensate onto a large area of grazing land in the northern sector of the reinjection area.

[186] Concerns about the potential contamination of their groundwater were raised by Mr Birdsall and Ms Koster in their submissions and evidence. Their concern was the potential contamination of their groundwater bores used for water supply.

[187] The nearest domestic bores are located to the west of the site. The evidence indicated that groundwater flow in the vicinity is west to east, towards the Waikato River. The domestic bores are “upstream” of the site and the proposed irrigation area³⁰. Accordingly, the sewage discharge and the discharge by irrigation should have no effects on these bores. Further, the irrigation water would not contain harmful contaminants. The closest bores used for domestic purposes on the downstream side of the site are understood to be far enough away for groundwater contamination not to be an issue.

[188] Discussions at the first prehearing meeting included an agreement by Contact to undertake water quality sampling of one neighbour’s well. Mr Birdsall and Ms Koster were made aware at the hearing of the General Conditions of Consent that allow for replacement by Contact should any domestic water supplies be contaminated.

[189] The concerns raised by the neighbours relating to groundwater contamination are also addressed by the General Conditions requiring a discharge strategy to form part of the management plan. We find that this is a sensible and flexible approach.

³⁰ Cameron, EiC, par 20

[190] **Finding of Fact:** We find that the conditions would adequately remedy or mitigate actual and potential adverse effects on groundwater and domestic water supplies.

Effects of ReInjection on Surface Features including Subsidence

[191] Contact seeks consent to discharge up to 95,000 tonnes/day of geothermal fluid, condensate and cooling water blowdown by reInjection. This is in addition to currently consented reInjection.

[192] In its submission, the Taupo District Council stated that it:

has consistently maintained that “infield” reInjection of all geothermal fluid (plus the addition of other “make up” fluid) is necessary to stop current subsidence and to prevent future subsidence. Council therefore welcomes any increase in the amount of geothermal fluid reInjected by Contact Energy infield.

[193] The Council did not advance that submission at the hearing. Nor did it call any evidence that the proposed discharge of 6,500 tonnes/day of cooling water blowdown and condensate onto land by irrigation should instead be reInjected. Mr Hickman for the Council, emphasised in his closing submission, the need for the discharge strategy to have as its primary objective the need to address the adverse effects of subsidence. We consider that General Condition 3.3 would achieve Mr Hickman’s concern.

[194] Mr C Bromley in his evidence in chief stated³¹:

There is no certainty at this point that increased reInjection will slow or halt subsidence or even that slowing or halting subsidence rates is necessary in order to implement the primary objective of the Discharge Strategy under Contact Energy’s existing consents (which addresses the adverse effects of subsidence)

³¹ Para 4.13

[195] Mr Bromley noted that infield reinjection is likely to result in a decline in steam upflow into the shallow steam zones feeding surface discharges. Thus, domestic bores tapping the shallow upper aquifer may be adversely affected³². Conversely the predicted rise in deep liquid pressures over a long period (decades) may result in the gradual recovery of some chloride springs, such as those at Spa Park³³. Reinjection could also trigger hydrothermal eruptions, although these events are generally rare.³⁴

[196] Mr Bromley stated there may be a mix of benefits and adverse effects from targeted reinjection designed to slow subsidence. The potential for a mix of such effects will be managed by Contact through adaptive management by successive revisions of the discharge strategy.

[197] Further, Mr Bromley stated³⁵

I believe that Contact Energy's reinjection application will provide the flexibility in future to increase the volume of geothermal water injected, and to allow reinjection over a wider area than that currently consented. The extension of the reinjection area southwards to encompass much of northern Tauhara will allow targeted reinjection of Wairakei fluid adjacent to subsidence bowls on the outskirts of Taupo if this forms part of the approved Discharge Strategy in future. It will also better facilitate integrated management of the Wairakei-Tauhara Geothermal System.

[198] Dr Watson noted³⁶ that, in earlier Environment Court hearings, a minimum reservoir pressure was set at Tauhara. In his view subsidence may be most extreme where steam condenses in a localised zone, producing a rapid and large localised pressure reduction and hence compaction. This could be caused by cooling or by an increase in reservoir pressure around the steam zone. Dr Watson noted, however, that while his opinion is firm and based

³² Bromley, EiC, para 4.6

³³ Bromley, EiC, para 4.1

³⁴ Bromley, EiC, para 4.11

³⁵ EiC para 4.16

³⁶ EiC, paras 27-33

on physics, there is no evidence to support it. Earlier, he expressed confidence in Professor O’Sullivan’s reservoir modelling results for Tauhara where the pressure is monitored³⁷.

[199] His concluding paragraph on the subsidence issue is as follows:

I have suggested that Contact not inject near to Geotherm if the protection of Geotherm’s project is important, thus depriving Contact of reinjection area, and for entirely different reasons I have suggested that the rate of injection near Taupo be low enough to avoid increasing the reservoir pressure until subsidence research has produced results, thus preventing it from taking advantage of the injection capacity of that area. At the same time I can clearly see the wider benefits of the Te Mihi application, and in particular the benefit of undertaking the extra injection. These are competing requirements, because the injection area is not unlimited. I believe my reasoning to be correct, but I am not able to suggest how this conflict of requirements can be met, except to suggest as a first step that Contact re-examine its infield injection options.

[200] Mr Brocklesby for Environment Waikato suggests that the issue of the effects of increased reinjection on subsidence is best considered by the Peer Review Panel. It has the ability to recommend changes by way of adaptive management to the reinjection regime. Mr Bromley, in his rebuttal evidence, supported this suggested approach, instead of imposing an arbitrary maximum pressure rate increase through consent conditions. We agree.

[201] We note that notwithstanding the potential consequences of reinjection on the reservoir, surface features and subsidence, reinjection provides an alternative to discharging geothermal fluid and condensate into the Waikato River. That would be a significant benefit.

[202] Adaptive management relies in part on modelling the behaviour of the reservoir and of subsidence. Professor O’Sullivan over many years has

³⁷ EiC, para 30

developed a reservoir model with a powerful predictive capability, although there are some limitations particularly on the margin of the reservoir. Professor O’Sullivan told us that he is working on a computer model for predicting subsidence. This also uses the TOUGH2 programme.

[203] We have confidence that computer modelling using the TOUGH2 programme is an appropriate way to predict the effects of reinjection on the reservoir and subsidence. Notwithstanding this confidence, we consider that decisions about optimum methods to model and predict reservoir behaviour and subsidence, should not be a matter for the conditions of consent. But should instead be a matter for the Peer Review Panel.

[204] **Finding of Fact:** We find that the conditions of consent adequately address the potential adverse effects on surface features.

Visual Effects

[205] Evidence regarding landscape and visual effects was provided by Mr B Coombs called by Contact. Mr Coombs proposed visual and landscape mitigation measures. These were set out in a Landscape Mitigation Plan that went through a number of iterative changes in response to concerns raised by the neighbours, both prior to the hearing and during it. A final Landscape Mitigation Plan has been incorporated as part of the conditions of consent³⁸. The affected neighbours were given the opportunity of advising the Board whether they still had concerns. No one did.

[206] We agree with Mr Coombs when he said:³⁹

When considered and assessed in the context of the existing landscape character, the established pattern of electricity generation and transmission infrastructure in the wider area, the sensitivity of the receiving environment, and the proposed landscape mitigation

³⁸ Consent 70304, conditions 27 & 28, Schedule 1

³⁹ EiC, para 6

recommendations, the landscape and visual effects of the Power Station are appropriate.

[207] The landscape and visual assessment undertaken by Mr Coombs as part of the applications was subject to peer review, for which the Taupo District Council engaged Boffa Miskell Limited. This review confirmed that the visual and landscape effects of the development could be appropriately mitigated.

[208] The conditions include a requirement for a Landscape Management Plan to be prepared and reviewed by the Council. A specific requirement of the landscape mitigation was to mitigate the existing effects on adjacent neighbours.

[209] We consider that the conditions and landscape mitigation plan proffered by Contact on the final day of the hearing would provide for the ongoing mitigation of the visual effects arising out of the proposal. We note that Counsel and staff representing Taupo District Council at the hearing did not oppose the revised conditions and landscape mitigation plan.

[210] **Finding of Fact:** We find that the conditions of consent would adequately avoid, remedy or mitigate actual and potential adverse visual effects of the proposed activities.

Noise Effects

[211] A Technical Report on Noise Effects was prepared by Mr M Hunt as part of the AEE. The noise assessment confirmed that:

- Operational noise from the Te Mihi Station would comply with the Taupo District Plan noise limits for the Rural Area, including night time levels; and
- Construction noise would comply with the relevant NZ Standard – NZS6803:1999 Acoustics – Construction Noise.

[212] Noise from emergency steam venting cannot effectively be controlled by the application of general District Plan noise standards. Steam venting occurs during start up and occasionally at other times. Usually, steam venting occurs for a short time only, but on rare occasions may continue for an hour or so. Mr Hunt recommended that Contact be required to adopt the best practical option to address planned and unplanned steam venting noise. Conditions to this effect are proposed.

[213] Other proposed conditions to address noise require construction activities to be undertaken in accordance with NZS 6803:1999, sealing of the construction access road, and management of the construction laydown area to minimise disruption to sites to the north. All these conditions have been reviewed and are regarded as appropriate by the District Council to mitigate adverse noise effects on the dwellings closest to the construction area.

[214] The Taupo District Council engaged Mr G Warren of Marshall Day Acoustics Ltd to peer review Mr Hunt's report. It was his view that the noise conditions relating to steam venting would be appropriate to minimise the potential noise nuisance effects of the proposal.

[215] Mr Hunt also addressed concerns regarding cumulative noise effects of multiple power stations raised in submissions by Geotherm, and Mr & Mrs McLachlan and MacPower Ltd⁴⁰. Mr Hunt did not consider these cumulative effects to be an issue. Notwithstanding, Contact proffered a condition that sets an operational noise limit for the station that must also take into account the noise levels that would result from the commencement of the unimplemented Geotherm consent.

[216] Several other submitters raised concerns regarding noise. These were addressed by Mr Hunt in his evidence. He did not consider the Power Station construction and operation would cause any unreasonable noise levels at the properties of those submitters.

⁴⁰ Refer Hunt, EiC, paras 112 – 113, 115

[217] At the Prehearing Meeting of 21 May 2008, Miss L & Miss A Price, whose property is close to the site, expressed concerns that construction noise, in particular, may adversely affect activities at the riding school operated on their property. Concern was expressed that the entry road to the site was located close to their boundary and that noise effects arising from the construction laydown area may upset horses and potentially result in danger to riders and horses.

[218] To meet their concerns, Contact proposed a buffer of 100m width be established between the laydown area and the boundaries of the Price and the adjacent Ellery properties. Further, Contact proposed to move the access road further away from these properties and to seal it. It also proposed to establish activity specific management regimes for the use of construction laydown areas.

[219] Miss L Price further elaborated on her concerns at the hearing. In response to questions from the Board, she confirmed that her main concern was with unpredictable sudden noise events from the construction laydown area. The Board suggested that an opportunity existed for the ridge nearest the Price and Ellery properties to be raised by the deposition of overburden material generated by the contouring works of the site.

[220] Drawing to a degree on our combined experience of acoustic matters, our view is that raising of the ridgeline by up to 2m will mitigate noise levels, given that the construction laydown area would be lower. Contact agreed to this suggestion and included the raising of the ridgeline as part of the revised landscape mitigation plan presented on the final day of the hearing.

[221] We understand that requiring the ridgeline to be raised would delay the screen planting proposed in the landscape mitigation plan, until after the fill has been deposited and shaped on the ridge. It is our view that the need to establish visual screening in that part of the site is not as pressing as in other parts, given the presence of an existing row of mature trees along the

boundaries of the neighbouring sites. Further, Contact has offered to offset the delay by planting more mature trees.

[222] **Finding of Fact:** We find that the conditions of consent would adequately avoid, remedy or mitigate actual and potential adverse noise effects arising out of the proposal.

Traffic Effects and Management

[223] Vehicles would access the power station site off Oruanui Road. This is a District Council collector road and links with Poihipi Road (a District Council Regional arterial road) and State Highway 1, close to Taupo. Oruanui Road also connects with Link Road which intersects State Highway 1 several kilometres to the north.

[224] Transit and Taupo District Council expressed concern, through their submissions, that the amount of traffic during the construction phase may have an adverse effect on traffic safety and efficiency.

[225] On 20 July 2008 Transit, Taupo District Council and Contact filed a Joint Memorandum with the Board setting out that they had agreed on conditions that would meet traffic issues. The conditions suggested in the memorandum are in our view appropriate.

[226] **Finding of Fact:** We find that the conditions of consent would adequately avoid, remedy or mitigate actual and potential adverse effects on traffic safety and efficiency.

Effect on Property Values / Compensation

[227] Several submitters consider that the proposal would devalue their properties.

[228] No evidence on this matter was presented. Without evidence, further consideration was not warranted.

Effects on the Environment from Hazardous Substances

[229] A range of hazardous substances will be stored and used at the proposed site. These include oils, acids, alkalis, diesel, biocides, miscellaneous solvents and paint.

[230] Best practice management procedures would be implemented through Contact's Environmental Management System. The conditions of consent include a requirement for an Emergency Management Plan for hazardous substances.

[231] The Taupo District Council obtained a peer review of the hazardous substances component of the applications by Mr Norbert Schaffoener of Resources Limited. In his review, he proposed amendments to conditions of consent to address the management of hazardous substances on the site. Contact agreed.

[232] **Finding of Fact:** We find that the conditions of consent would adequately avoid, remedy or mitigate actual and potential adverse effects of the storage and use of hazardous substances.

Determination

[233] We summarise the main matters and findings of fact that underlay our decision⁴¹:

- i. The Minister's reasons:
 - a. The proposal is relevant to New Zealand's obligations as a signatory to the Kyoto Protocol; and
 - b. The proposal involves a significant use of a limited renewable resource;
- ii. We have identified a number of potential positive effects that will result from the proposal – all of them uncontested;

⁴¹ Not in order of importance

- iii. There is the potential for a number of adverse effects. However, the conditions of consent will adequately avoid, remedy or mitigate those effects – for the reasons set out in our draft report;
- iv. The proposal is generally, and in some cases specifically, consistent with, and in accordance with, the relevant provisions of Part II of the Act – for the reasons set out in our draft report; and
- v. The proposal is generally, and in some cases specifically, consistent with, and in accordance with, the relevant statutory instruments – for the reasons set out in our draft report.

[234] We find that the proposal, subject to the terms and conditions of consent, set out in Appendix 2 and Appendix 3, meets the single purpose of “sustainable management” as defined in, and informed by, the provisions of Part II of the Act.

Decision

[235] The consents are granted subject to the terms and conditions of consent attached to this report as Appendices 2 and 3.

Dated at Wellington 3 September 2008.

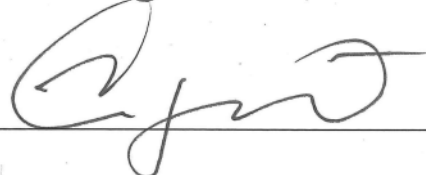
Judge R Gordon Whiting (Chair)



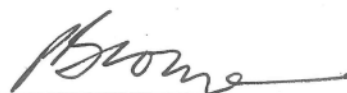
Mrs S Glenice Paine (Member)



Mr T Denis Nugent (Member)



Dr Patrick Browne (Member)



Appendix 1:

Summary of Submissions

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
24	Birdsall, Anothony & Koster, Linda	Not stated Wish to be heard	Risk of groundwater contamination Devaluation of Property Visual Impact and Noise H ₂ S increase	Local groundwater bores monitored with Contact to supply water if contaminated Station relocated to Eastern boundary Structures screened – banks/tree planting
9	Department of Conservation	Neutral Do not wish to be heard	Supports resulting decrease in discharge to the Waikato River (and increased deep reinjection) by decommissioning Wairakei. Supports use of more advanced technology than Wairakei.	None
8	Dutton Price, Miss Lynley; Dutton Price, Miss Alison	Oppose Do not wish to be heard	Devaluation of property Visual impact Noise and Smell Pollution of water supply	Compensation for loss of lifestyle and devaluation of property
13	Ellery, Mr. Grant and Mrs. Francis	Oppose Wish to be heard	Devaluation of property (so a private company can make profits for shareholders). Inadequate consultation – work started before consultation. Disruptions of rural lifestyle – construction noise, dust, too close. Likely contamination of water bore by reinjection	Compensation for disruption and loss of property value Shelterbelt for visual and noise screening Provision of alternative water supply if current supply contaminated
12	Energy Efficiency and Conservation Authority	Support Wish to be heard	NZ demand for energy will increase. Generation capacity needed. Proposal consistent with sustainable energy policies and strategies. Result in nationally significant benefits due to contribution to 90% renewable energy target, security of supply and positive effect on climate change.	Approve applications.
4	Environment Waikato	Neutral (EW applications) Wish to be heard	To promote consistency with Councils geothermal policies and existing consents.	Consents to be consistent with Council geothermal policy Conditions to be enforceable and compatible with existing consents

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
7	Fish & Game NZ, Eastern Region	Support	Alternatives to hydro generation should be promoted.	Not identified.
		Do not wish to be heard	No fisheries or game bird resources or their habitat will be adversely affected.	
19	Geotherm Group Ltd	Mixed	Opposes any aspect of the project that adversely impacts on Geotherm Project	Reinjection should be limited to those locations modelled. Condition to ensure reinjection does not adversely affect Geotherm Consent.
			Specific reinjection locations not defined. Modelling not cover all reasonably feasible reinjection scenarios.	Condition to protect range of development options available to Geotherm.
			Contact has not allowed for different development options under Geotherm consents	Ambient monitoring. Condition to ensure combined effects with consented Geotherm discharge does not adversely affect air quality or Geotherm Consent.
		Wish to be heard	Need to calibrate model against actual emissions. Modelling of H ₂ S emissions needs to take additional factors into account.	Conditions to ensure cumulative noise levels from Te Mihi and existing consented activities do not exceed District Plan levels and impact on Geotherm's ability to meet its consent noise limits.
			Cumulative noise effects with exercise of Geotherm consents not assessed	Conditions to assist in determination of any impacts on these areas, such as a monitoring programme, established in consultation with other users.
			Significant geothermal features in area (e.g. Craters of the Moon)	Conditions to ensure project does not adversely affect Geotherm's ability to export electricity (inefficient use under s7(b) RMA). Discounting of benefits of Contact and/or Geotherm project if it does.
5	Hansen, Mr. Graham & Mrs. Isobel	Oppose	Construction and operation noise effects will disrupt rural quiet.	Compensation for disruption and loss of property value.
		Do not wish to be heard	Reduction in property value. Work already commenced before consents being granted.	

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
18	Houghton, Mr. Ray	Opposes	Discharge of steam will detract from rural landscape. Cumulative adverse effect with the existing discharge. Adverse traffic effects and safety concerns. Cumulative odour effects on neighbours.	Decline the full proposal.
		Wish to be heard	Reverse sensitivity – Further development potential impacted by need for Contact’s written consent as affected party and restricted covenants.	Mitigate traffic effects of 200 employees using intersection. TDC and Transit solution. Change to intersection layout
1	Macphal, Ms. Sarah; Campbell, Mr. Ian	Oppose	Impact on environment	None stated.
		Do not wish to be heard	Loss of value of property	
21	Major Electricity Users' Group	Neutral Do not wish to be heard	Call-in was unwarranted. Reliance on NZ's obligations under the Kyoto Protocol obligations is not sufficiently material to call it in and is a minor effect to be considered by the Environment Court. The 90% renewable target is a “political vision” (not a National Policy Statement in terms of the RMA) and only one of a number of possible future scenarios. Relying on ad hoc political targets as criteria for call-in or putting weight on these reasons will allow key developments to be dictated by Ministerial whim. BOI should test robustness of effects across other scenarios than 90% renewable target. While this is a large geothermal project other large geothermal projects have been consented recently without call-in.	BOI should give little weight to the Minister’s reasons for the call in when balancing effects
10	McGrath, J.J & J.M and Family	Oppose EW applications Wish to be heard	Object to discharges to land and groundwater. Air discharges will cause unacceptable pollution. Should confine operation to areas identified in applications Definition of Geothermal System by Judge Whiting.	Re-injection should be to well or bores into the subterranean formations of same system as geothermal waters taken from. Not stated.

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
15	McLachlan, Mr. Alistair; McLachlan, Ms. Ava Marie; MacPower Ltd	Oppose in Part	<p>Wish to protect Geotherm Group consents and to ensure there are no adverse cumulative effects with other existing and consented uses.</p> <p>Air quality – current discharges of gas from Poihipi Power Station exceed current consent limits</p> <p>Reinjection - Potential constraint on Geotherm Power Station reinjection</p> <p>Reinjection – Contact presently discharges contaminants without landowners’ authorisations</p> <p>Noise – cumulative with effects of other activities both occurring and consented.</p> <p>Transmission – query adequacy of transmission capacity to meet project and Geotherm and other existing and consented generators</p>	<p>Conditions to meet concerns:</p> <p>Air - ensure that cumulative adverse effects have appropriate limits</p> <p>Reinjection – control reinjection so as not to constrain Geotherm consents or other existing consents on the same System and require that no generation activities occur until Contact has all necessary authorisations from landowners for reinjection of power station fluids.</p> <p>Noise – controls on cumulative effects</p> <p>Transmission - require Contact to prove that adequate transmission exists for project, Geotherm and other consents.</p>
			<p>Where consent has potential to inhibit or adversely affect existing consents. / Cumulative effects with existing users.</p>	<p>Require consent to ensure it does not adversely affect the exercising of Geotherm’s consents and is consistent with controls on other consented activities. Appropriate controls on cumulative effects generally.</p>
		Wish to be heard	<p>Project involves extension of land areas associated with Poihipi Power Station and activities</p> <p>Contact has recently drilled a new well within a short distance of the Geotherm boundary, contrary to undertakings given by Contact to Reconsenting Hearing 2001.</p>	<p>Extension of land areas – ensure such expansion is warranted and consistent with existing Court decisions re that station. Specify uses to which particular land areas may be put consistent with past decision and the demonstrated needs for any expansion.</p> <p>BOI should check use to be made of new well (on Geotherm boundary) and which power station it is associated with and conditions should address proximity of any new well to Geotherm boundary.</p>

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
6	Ministry of Economic Development	Support May wish to be heard	National benefits of a viable and renewable resource by making use of viable and renewable energy source, security of supply and avoiding greenhouse gas emissions. BOI should take into account the contribution Te Mihi will make to achieve the Government's energy objectives.	Approve the application for land use consent
22	Tauhara North 3B Trust	Mixed Wish to be heard	Rights of Nga hapu o Ngati Tuwharetoa. Key feature of the Treaty of Waitangi claims was dispossession and loss of rangatiratanga over the geothermal resource, degradation of geothermal taonga and exclusion from use and development of the resource. Waitangi Tribunals report <i>He Maunga Rongo: Report on Central North Island Claims</i> has important findings. Concerned about the discharge of contaminants and waste water onto land and into the aquifers linked to Taupo nui a Tia and effects on surface features.	Consultation and communication and regular update on reinjection plans and monitoring adjacent to the interests of the Trust
17	Taupo District Council	Neutral	<p style="text-align: center;"><u>Part 1 – TDC Consents</u></p> <p>Board has regard to environmental effects on local and wider environment, including traffic, earthworks, visual, noise, hazardous substances, natural hazards, cultural and cumulative effects.</p> <p>Ensure that assessment of the application considers the objectives and policies of the District Plan. With appropriate conditions of consent the adverse effects of the proposal can be appropriately mitigated.</p> <p style="text-align: center;">Traffic effects Earthworks and Construction Effects Visual and Landscape Effects Noise Effects</p>	<p>Subject to appropriate conditions, consents should be granted. If appropriate conditions are not imposed, land use consents applications under the Taupo District Plan should be declined.</p> <p style="text-align: center;">Control traffic / Traffic Management Plan Earthworks Management Plan Landscape Management Plan Consideration of noise effects. Mitigation measures implemented.</p>

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
	Taupo District Council cont.	Wish to be heard	Hazardous Substance Storage and Use – minor with appropriate management	Hazardous Substances and Emergency Management Plan, Council approval prior to works.
			Natural Hazards Existing Infrastructure Cultural Effects Cumulative Effects <u>Part 2 - EW Consents</u> Primary concern is effect on Taupo Town being located above a geothermal system and possible subsidence. Infield injection is required to stop current and prevent future subsidence. Contact has not modelled effects of increased reinjection on subsidence (identified in AEE) and this should have been included in AEE – refer Court decisions. Contact plans to continue discharges to the Waikato River which is inappropriate in the modern plant being proposed.	Development within geothermal area to be assessed. Effects should include decommissioning Wairakei plant. Protocol for discovery of historical sites during construction Can be mitigated. The 6,500 tpd of cooling water blowdown and condensate onto land should instead be reinjected.
14	Te Kapa o Te Rangīta ki Oruanui	Neither Supports nor Opposes (Neutral)	Clarify issues in consent applications that were not resolved in pre-consultation process. Issues are - Clarification of Land Trusts within the consented area. Consider staged reinjection for particular surface features and potential for enhancement of taonga/surface features. Exclusion zones for reinjection – possible enhancement of taonga/surface features. Discharges to land and integrity of groundwater. Sewage discharge in areas/site of significance in CIA	Clarify Land Trusts within consent application area. Consider taonga or surface features in Spa area and Onekemeke valley which may benefit from staged reinjection. Clarification of exclusion zones for reinjection, exclude Wairakei Valley? Clarify chemical constituents of discharge water. Identification of septic tank locations in CIA

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
	Te Kapa o Te Rangiita ki Oruanui cont.	Wish to be heard	Air modelling in areas/sites of significance CIA should include air discharge from Poihipi rd station.	Drawing showing discharge modelling on CIA map. CIA report for air discharge from Poihipi Rd station
			Geothermal steamfield Te Rau o te huia stream / traditional fishery Lack of consultation prior to lodging s127 variation Geothermal resource is taonga and have customary interests, including a right to develop. Decisions made now on future allocation may affect their relationship with taonga.	Identification of historical sites in relation to steam field. Clarify - monitoring, take and use from stream. Request pre-hearing meeting to discuss issues. Place the application on hold until the applicant can provide an opportunity to discuss the issues raised by Te Kapa o Te Rangiita ki Oruanui
23	Toyota, Anna & Karz	Support TDC Consents & 116791 / Oppose EW (except 116791) Do not wish to be heard	No information provided	None stated.
11	Transit New Zealand, Hamilton Regional Office	Oppose Wish to be heard	Construction traffic will utilise the Poihipi Rd/SH1 intersection which has known safety and capacity issues. The transportation assessment prepared by Traffic Design Group does not offer appropriate conditions to avoid, remedy or mitigate the traffic effects at the Poihipi Rd/SH1 intersection.	Application is declined. Alternatively, require the upgrade of the intersection of Poihipi Road and SH1 in accordance with Stage 1a of the Western Kinloch Arterial Designation to the satisfaction of TDC (in consultation with Transit). Or ensure no construction traffic uses this intersection.
16	Tuwharetoa Maori Trust Board	Neither Supports nor Opposes (Neutral)	Opportunity for Te kapa o Te Rangiita ki Oruanui to clarify their issues not resolved in pre-consultation process. Clarification of Land Trusts within the consented area. Consider staged reinjection for particular surface features and potential for enhancement of taonga/surface features.	Clarify Land Trusts within consent application area. Consider taonga or surface features in Spa area and Onekenek valley which may benefit from staged re-injection.

	Tuwharetoa Maori Trust Board cont	Wish to be heard	<p>Exclusion zones for reinjection – possible enhancement of taonga/surface features.</p> <p>Discharges to land and integrity of groundwater.</p> <p>Sewage discharge in areas/site of significance in CIA</p> <p>Air modelling in areas/sites of significance</p> <p>CIA should include air discharge from Poihipi rd station.</p> <p>Geothermal steamfield</p> <p>Te Rau o te huia stream / traditional fishery</p> <p>Lack of consultation prior to lodging s127 variation</p> <p>Geothermal resource is taonga and have customary interests, including a right to develop. Decisions made now on future allocation may affect their relationship with taonga.</p>	<p>Clarification of exclusion zones for reinjection, exclude Wairakei Valley?</p> <p>Clarify chemical constituents of discharge water.</p> <p>Identification of septic tank locations in CIA</p> <p>Drawing showing discharge modelling on CIA map.</p> <p>CIA report for air discharge from Poihipi Rd station</p> <p>Identification of historical sites in relation to steam field.</p> <p>Clarify - monitoring, take and use from stream.</p> <p>Request pre-hearing meeting to discuss issues. Place the application on hold until the applicant can provide an opportunity to discuss the issues raised by Te Kapa o Te Rangiita ki Oruanui</p>
2	Vanner, Mr. Brett and Mrs. Heather	Neutral (TDC applications) Do not wish to be heard	Construction of structures and potential for visible structures (such as pipes) to devalue property	<p>Give careful consideration to construction of visible structures.</p> <p>Place pipes underground if possible.</p>
20	Waikato Raupatu Trustee Company Ltd (Tainui)	Not stated Wish to be heard	<p>The Waikato River is <i>te tupuna awa</i>, the ancestral river of the Waikato-Tainui.</p> <p>Concerns with discharges of geothermal fluids into the river.</p> <p>Irrigation of condensate to pasture may lead to additional nitrogen run-off to the river causing algal blooms. Algal blooms directly impact relationship of Waikato-Tainui with the River.</p> <p>Agreement in principle reflects a commitment by Crown and Waikato-Tainui to enter new era of co-management of the River.</p>	<p>Ensure the consents if granted and other associated and varied consents are consistent with the Waikato River Settlement and re-aligned with its outcomes and objectives.</p> <p><i>Include a clause as follows - “Within 12 months of the Crown settling any claim made under the provisions of the Treaty of Waitangi Act (1975) WRC may, following service of notice on the consent holder, commence a review of the conditions of this consent pursuant to section 128(1)(a) of the RMA, for the purpose of ensuring that this consent is in alignment with the provisions of any such settled claim.”</i></p> <p>Conditions to cover staged reduction in operation of Wairakei</p> <p>Reinjection of steam condensate from both Wairakei and Te Mihi to the Wairakei-Tauhara field.</p>

Sub No.	Submitter	Position / Heard	Reason	Relief Sought
3	Wind Farm Developments (Australia) Ltd	Neutral Wish to be heard	WFD is a third owner of the Hawkes Bay Wind Farm Ltd wind farm, approved for 75 turbines on the Maungaharuru Range. It is not clear that any adverse effects on the Hawkes Bay project are satisfactorily avoided, remedied or mitigated. Te Mihi's contribution to national benefits will be reduced or not applicable if the development results in any constraining of output from the Hawkes Bay Wind Farm project.	Should the BOI approve the proposal WFD requires a consent condition that <i>“the project shall not result in the loss of generation from any existing or approved renewable generation projects as at the 7/03/08”</i> .

Appendix 2:

Te Mihi Waikato Regional Council Resource Consent Conditions

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

RESOURCE CONSENT NUMBER 116786 (REINJECTION)

This consent authorises the consent holder to: discharge up to 95,000 tonnes per day of geothermal water, steam condensate, cooling water blow-down, suspended material, and added chemicals into land and underground water through reinjection wells within those areas of the Wairakei- Tauhara Geothermal System more particularly shown as the area inside the yellow boundary on Plan 124922-RC01 attached as Schedule One, but excluding the yellow hatched areas shown on that plan for a period to expire 35 years after the date of the grant of this consent subject to the following conditions:

1. The maximum mass of fluid reinjected shall not exceed 95,000 tonnes per day.

Advice Note: for the avoidance of doubt, these volumes are additional to those authorised by consents 920046 and 890095/96 and 104718.

2. The exercise of this consent is subject to compliance with the General Conditions attached as Schedule Four to these conditions. These General Conditions are the same as those imposed on WRC Consent 104718. As part of the application of the General Conditions before Waikato Regional Council approves a Discharge Strategy pursuant to General Condition 3.2, it will consult with the holder of consent 104980. In the event of any inconsistency between specific Conditions 1-19 of this consent and the General Conditions, the latter shall prevail.
3. Before the Waikato Regional Council approves a Discharge Strategy incorporating any reinjection pursuant to this consent within the hatched areas shown on the plan in Schedule Three (in light of the objectives and other matters specified in General Condition 3.3), the Peer Review Panel shall be instructed to have regard, inter alia to:
 - (a) Whether that reinjection will facilitate further extraction of energy from the Wairakei-Tauhara Geothermal System pursuant to consent WRC 104980; and
 - (b) Whether that reinjection is integrated with takes under consent WRC 104980; and

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (c) The potential for that reinjection to adversely affect existing investment by and infrastructure of the holder of consent WRC 104980.
 - (d) The desirability of on-going monitoring to assess the actual effect of such reinjection and review of such effects and the adequacy of the controls on such reinjection by the Peer Review Panel.
4. The exercise of this consent in combination with consent 104706, 104707, 104711, 104712, 104718, 116787, 900198 and 920046 shall be undertaken in such a manner as to ensure that compliance with General Condition 3 is achieved.
 5. The consent holder shall notify the Waikato Regional Council in writing 10 working days prior to the first commencement of reinjection in any new wells pursuant to this consent.
 6. ReInjection wells shall be located within the vertical boundaries of the area shown in Schedule One and no well drilled by the consent holder for the purposes of the exercise of this consent shall deviate outside that area.
 7. ReInjection wells shall not be located within the vertical boundaries of the consent 116786 reInjection exclusion area shown in Schedule Three in the period up to and including 23 March 2013 (or any extension of this date granted in response to an application made in accordance with s125 of the RMA), without the agreement of the holder of consent 104980.
 8. ReInjection wells shall not be located within the vertical boundaries of the consent 116786 reInjection exclusion area shown in Schedule Three after 23 March 2013 (or any extension of this date granted in response to an application made in accordance with s125 of the RMA) for the balance of the consent term if at that date consent 104980 has been given effect, without the agreement of the holder of consent 104980.
 9. Added chemicals discharged under this consent shall only be for the purposes of limiting scale deposition and, other than hydrochloric and sulphuric acid, shall be approved in writing by the Waikato Regional Council prior to use.
 10. For reservoir management purposes, other than as approved by the Chief Executive Officer of Waikato Regional Council in writing (in relation to wells

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

drilled for the mitigation of any adverse effects requiring immediate preventative or remedial measures or any sudden event causing or likely to cause personal injury or serious damage to property), and acting on the advice of the Peer Review Panel established pursuant to General Condition 1.1, wells drilled and used pursuant to this consent for reinjection shall be cased no shallower than to an elevation as near as practicable to the base of the Upper Huka Falls Formation (or its equivalent stratigraphic unit). Prior to the drilling and use of any such wells, the consent holder shall demonstrate to the satisfaction of the Waikato Regional Council by reference to the stratigraphic sequence that this condition will be complied with.

11. The consent holder shall maintain a record of the total daily mass of fluid injected into each reinjection well, which shall be made available to the Waikato Regional Council at all reasonable times. These daily records shall be forwarded to Waikato Regional Council within seven days of any exceedance of any limit imposed by conditions of this consent or otherwise quarterly and shall in addition be summarised and forwarded to the Waikato Regional Council as part of the Annual Report to be prepared in March on a calendar year basis.
12. The metering devices and methods used shall have a reliable calibration which shall be maintained to a final accuracy of +/- 10%. Evidence of the meters' calibration shall be provided to the Waikato Regional Council when requested in writing.
13. Data and reports shall be provided to the Waikato Regional Council in electronic format compatible with Waikato Regional Council computer systems, with hard copy to be supplied if requested by Waikato Regional Council.
14. For the purpose of Section 125 of the Resource Management Act 1991 the lapse period for this consent shall be 9 years from the commencement of this consent.
15. No transfer of this consent pursuant to Section 137 of the Resource Management Act 1991 shall take effect unless:
 - (a) Written notice is given to Waikato Regional Council; and
 - (b) The Waikato Regional Council determines after receipt of the written notice that the transfer does not compromise the sustainable management of the Wairakei-Tauhara Geothermal System (in the context of the system being

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

defined as a “Development Geothermal System” in the Waikato Regional Plan as at 15 August 2006); and

- (c) The proposed transferee first enters into the bond referred to in General Condition 7.
16. During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of this consent under section 128 (1) of the Resource Management Act 1991, for the following purposes:
- (a) To deal with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage.
 - (b) To require the consent holder to adopt the best practicable option to reduce or remove any adverse effect on the environment.
17. In addition to the two yearly reviews provided for by Condition 16 hereof the Waikato Regional Council may within 30 days of receiving a report from the Peer Review Panel under General Condition 4.16 and following the service of notice on the consent holder, commence a review under section 128(1) of the Resource Management Act 1991 of its intention to review the conditions of this resource consent, if the Peer Review Panel makes recommendations to Waikato Regional Council regarding changes to conditions of these consents which might be required in order to ensure qualifying damage is avoided, remedied or mitigated.
18. In addition to the two yearly reviews provided for by Condition 16 hereof the Waikato Regional Council may within six months prior to 31 March 2026, following service of notice on the consent holder, commence a review under section 128(1) of the Resource Management Act 1991 of the conditions of this resource consent for the purpose of anticipating the expiry of Waikato Regional Council consent 104718 and if appropriate ensuring that the General Conditions attached in Schedule Four and applying to the exercise of this consent are aligned with the General Conditions applying to any renewal of resource consent 104718.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

19. The Consent Holder shall pay to the Waikato Regional Council any reasonable administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.

APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

RESOURCE CONSENT NUMBER 116787 (DISCHARGE TO LAND BY IRRIGATION)

This consent authorises the Consent Holder to: discharge by irrigation up to 6,500 tonnes per day of cooling water blowdown and condensate onto land (and by seepage into underground water) within the area inside the blue boundary on Plan 124922-RC01 attached as Schedule One for a period to expire 35 years after the date of the grant of this consent subject to the following conditions:

1. The exercise of this consent is subject to compliance with the General Conditions attached as Schedule Four to these conditions. These General Conditions are the same as those imposed on WRC Consent 104718. In the event of any inconsistency between specific conditions 1-19 of this consent and the General Conditions, the latter shall prevail.
2. The exercise of this consent in combination with consent 104706, 104707, 104711, 104712, 104718, 116786, 900198 and 920046 shall be undertaken in such a manner as to ensure that compliance with General Condition 3 is achieved.
3. Prior to the exercise of this consent at any new location within the consented area, the consent holder shall provide the following information in writing, to the Waikato Regional Council:
 - (a) a map showing the land to be irrigated
 - (b) details of the proposed irrigation programme
 - (c) chemical characterisation of the discharge as follows: - temperature, ph, total ammoniacal nitrogen, boron, total mercury and arsenic.
4. This consent shall not be exercised in a manner which results in the following effects:
 - (a) Ponding of water on land.
 - (b) Runoff of water from land.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (c) Mounding of ground water to an extent that gives rise to any significant increase in ground water contribution to surface flowing streams which may cause or contribute to erosion.
 - (d) Soil or ground water concentrations of contaminants exceeding the concentrations specified in conditions 8 to 12 below.
5. Prior to the exercise of the consent at any new location, the consent holder shall undertake the following investigations and monitoring and provide the results in writing to Waikato Regional Council:
- (a) soil infiltration tests on the land to be irrigated to demonstrate that proposed hydraulic loading rates are feasible
 - (b) aquifer permeability to predict groundwater mounding and changes in flow regime including the contribution to streams;
 - (c) the ambient monitoring required in conditions 14 and 15 below.
6. The consent holder shall prepare an Irrigation Management Plan prior to the exercise of this consent. The plan shall as a minimum set out the procedures to ensure compliance with conditions 4 and 8 to 12. The Plan shall be submitted to Waikato Regional Council for approval. Any activity subject to this resource consent shall not be undertaken until such approval is given.
7. The consent holder shall undertake the activity authorised by the consent in general accordance with the Irrigation Management Plan approved by the Waikato Regional Council (refer condition 6).
8. The surface soil boron concentration in the irrigated land shall not exceed 3 mg/kg (hot water soluble).
9. The surface soil arsenic concentration in the irrigated land shall not exceed 20 mg/kg (total acid extractable).
10. The concentration of boron in ground water shall not, as a result of the exercise of this consent, exceed 1.4 g/m³.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

11. The concentration of arsenic in ground water shall not, as a result of the exercise of this consent, exceed 0.01 g/m^3 .
12. The concentration of mercury in ground water shall not, as a result of the exercise of this consent, exceed 0.2 mg/m^3 .
13. Irrigation shall not be undertaken on any land where the ambient soil or water concentrations of contaminants exceed those concentrations specified in conditions 8 to 12.
14. For each new irrigation area, the consent holder shall establish and implement a monitoring programme to measure compliance with conditions 8 and 9 above. This shall involve monitoring of the effects of irrigation on a representative parcel of land for boron (hot water soluble) and arsenic (total acid extractable). Monitoring shall be undertaken prior to the exercise of the consent to determine ambient conditions and thereafter at two yearly intervals from the first exercise of the consent. The representative parcel of land should be not less than one hectare in size and of a broadly similar soil type to one or more soils irrigated with the water. An equilibration period of two months should be allowed before sampling, during which time the soil is not actively irrigated. Depth of sampling should be 0 - 7.5 cm, and use of composite sampling is acceptable.
15. For each new irrigation area, the consent holder shall establish and implement a monitoring programme to measure compliance with conditions 10, 11 and 12 above. This shall involve establishment of appropriate peizometers for monitoring ground water quality and monitoring of any suitable down-gradient wells. In this regard, all down-gradient ground water wells within 500 metres of any proposed irrigation areas shall be identified for potential monitoring, subject to access. Monitoring shall be undertaken prior to the exercise of the consent to determine ambient conditions and thereafter at 6 monthly intervals from the first exercise of the consent. A proposed monitoring programme shall be forwarded to Waikato Regional Council for its approval prior to the exercise of this consent.
16. The frequency and design of the monitoring programme may be varied after two years from the first exercise of this consent by the agreement of the Waikato Regional Council.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

17. Following the first exercise of this consent, the consent holder shall provide as an additional item in the Annual Report prepared pursuant to General Condition 5.11 on the exercise of this consent (116787). The Report shall, as a minimum:
- (a) Describe the extent to which this consent was exercised over the previous calendar year.
 - (b) Describe the irrigation that occurred over the previous calendar year including details of
 - location, area and boundaries of the land irrigated
 - the daily volume of condensate irrigated
 - the loading rates over the area irrigated.
 - (c) Include results of all monitoring required by this consent except for ambient monitoring as specified which shall be provided prior to the exercise of consent at any new location.
18. For the purpose of Section 125 of the Resource Management Act 1991 the lapse period for this consent shall coincide with the expiry of this consent.
19. No transfer of this consent pursuant to Section 137 of the Resource Management Act 1991 shall take effect unless:
- (a) Written notice is given to Waikato Regional Council; and
 - (b) The Waikato Regional Council determines after receipt of the written notice that the transfer does not compromise the sustainable management of the Wairakei/Tauhara Geothermal System (in the context of the system being defined as a "Development Geothermal System" in the operative Waikato Regional Plan).
20. During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of this consent under section 128 (1) of the Resource Management Act 1991, for the following purposes:

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (a) To deal with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage.
 - (b) To require the consent holder to adopt the best practicable option to reduce or remove any adverse effect on the environment.
- 21.** In addition to the two yearly reviews provided for by Condition 13 hereof the Waikato Regional Council may within six months prior to 31 March 2026, following service of notice on the consent holder, commence a review under section 128(1) of the Resource Management Act 1991 of the conditions of this resource consent for the purpose of anticipating the expiry of Waikato Regional Council Consent 104718 and if appropriate ensuring that the General Conditions attached in Schedule Four and applying to the exercise of this consent are aligned with the General Conditions applying to any renewal of resource consent 104718.
- 22.** The Consent Holder shall pay to the Waikato Regional Council any reasonable administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

RESOURCE CONSENT NUMBER 116788 (SEWAGE DISCHARGE)

This consent authorises the Consent Holder to: discharge up to 20 cubic metres per day of water including contaminants and sewage into land and underground water through on-site treatment systems and associated subsurface land disposal facilities at or about map reference NZMS 260 U17 755:828, for a period to expire 35 years after the date of the grant of this consent subject to the following conditions:

1. Any disposal field associated with the sewage system shall not be located within 400 metres of any bore utilised for domestic water supply that is established at the time of the grant of this consent.
2. Any new effluent treatment and disposal system shall meet the following parameters and the design to achieve this shall be approved as such by the Waikato Regional Council prior to installation.
 - (a) The hydraulic loading rate at which effluent can be applied to the land shall be kept to a practical minimum (with the practical minimum to be determined after appropriate soil testing undertaken as part of the design of the system), but shall not exceed a maximum of 50 millimetres per day.
 - (b) The 5-day biochemical oxygen demand of the discharge shall not exceed 20 g/m³.
 - (c) The suspended solids concentration of the discharge shall not exceed 30 g/m³.
 - (d) The effluent disposal field shall be designed and placed to ensure that there is a minimum separation distance of at least 600 millimetres of unsaturated soil between the bottom of the effluent disposal field lines and the top of the ground water at all times.
3. There shall be no overland discharge of effluent from any part of the effluent treatment disposal system.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

4. Surface stormwater and runoff shall be directed away from the effluent disposal field area. If necessary the consent holder shall provide suitable drainage to ensure there is a clear flow path for surface water to clear the area.
5. The consent holder shall, in liaison with a suitably qualified person, compile an effluent treatment and disposal system operations document, which shall, as a minimum, include the following:
 - (a) a description of the sewage treatment and effluent disposal system, and its operation;
 - (b) cleaning and maintenance requirements;
 - (c) written records of ongoing maintenance including when effluent filters are cleaned, tanks de-sludged and effluent disposal lines flushed, and when any major maintenance/upgrade is performed.

The document shall be forwarded to Waikato Regional Council at least three months prior to the exercise of this consent.

6. Construction shall be supervised by a suitably experienced and qualified person.
7. If the Waikato Regional Council so requests during the duration of this resource consent, the consent holder shall provide sampling bore hole(s) within the area, and/or down gradient of, the effluent disposal field. The depth, position and the provision of access for sampling shall be determined in consultation with the Waikato Regional Council.
8. The treatment system shall be de-sludged as necessary and in particular within one month of receipt of notice in writing from the Waikato Regional Council to do so. The sludge waste shall be disposed of off-site in an approved wastewater sludge disposal area.
9. The activities authorised by this resource consent shall be undertaken in such a manner that they do not produce an objectionable odour at or beyond the outer boundary of the site.
10. For the purpose of Section 125 of the Resource Management Act 1991 the lapse period for this consent shall be 9 years from the commencement of this consent.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 11.** No transfer of this consent pursuant to Section 137 of the Resource Management Act 1991 shall take effect unless:
 - (a) Written notice is given to Waikato Regional Council; and
 - (b) The Waikato Regional Council determines after receipt of the written notice that the transfer does not compromise the sustainable management of the Wairakei/Tauhara Geothermal System (in the context of the system being defined as a “Development Geothermal System” in the operative Waikato Regional Plan).

- 12.** During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of this consent under section 128(1) of the Resource Management Act 1991, for the following purposes:
 - (a) To deal with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage;
 - (b) To require the consent holder to adopt the best practicable option to reduce or remove any adverse effect on the environment.

- 13.** The Consent Holder shall pay to the Waikato Regional Council any reasonable administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

RESOURCE CONSENT NUMBER 116789 (TE MIHI POWER STATION AIR DISCHARGES)

This consent authorises the Consent Holder to: discharge contaminants to air from a geothermal power station and associated structures located at or about grid reference NZMS 260 U17 855:828 for a period to expire 35 years after the date of the grant of this consent subject to the following conditions:

1. The Consent Holder shall keep total hydrogen sulphide emissions discharged pursuant to this consent and consent 940553 to a practicable minimum and in any event less than 180 Kilograms per hour.
2. Following the first exercise of this consent, the consent holder shall provide to Waikato Regional Council an annual report in March of operations of the power station in the previous calendar year, summarising and interpreting all monitoring data required to be collected under this consent.
3. The Consent Holder shall undertake continuous monitoring of ambient hydrogen sulphide (H₂S) concentrations at three sites to be agreed with the Waikato Regional Council, one of which can be the existing monitoring site for hydrogen sulphide located in Wairakei Village. The monitoring method shall be subject to approval by Waikato Regional Council. The data shall be recorded as 10 or 15 minute averages and the results shall be reported on a fixed hourly average basis. This monitoring shall be carried out for at least six months prior to the commissioning of the new power station and subject to condition 4 of this consent, shall continue for the balance of the consent term. The monitoring shall include continuous recording of hourly wind speed and direction at the monitoring site or sites.
4. From three years after the commissioning of the last stage of the Te Mihi power station, a non-statutory review may, at the consent holder's request, be undertaken by the Waikato Regional Council to determine whether ambient hydrogen sulphide monitoring is still required, and if so at what ongoing level and frequency.
5. The Consent Holder shall, at the start of commissioning and yearly thereafter, measure the emissions of hydrogen sulphide (H₂S) and mercury from the power

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

station. These measurements shall be made by analysis of total steam incoming to each station. The results of these measurements will be provided to the Waikato Regional Council in the Annual Report required pursuant to Condition 2 of this consent.

6. The discharge shall not result in odour, or other gaseous emissions that are objectionable at or beyond the area bounded by the outermost green and yellow lines on Plan 124922-RC04 in Schedule Two attached.
7. If a complaint is received by the Consent Holder regarding odour or other airborne contaminants, the Consent Holder shall notify the Council of the complaint as soon as practicable. When complaints are received, the Consent Holder shall record the following details in a Complaints Log:
 - (i) Time and type of adverse effect to which the complaint related, including details of the incident, e.g. duration, any effects noted.
 - (ii) Name, address and contact phone number of the complainant (if provided).
 - (iii) Location from which the complaint arose.
 - (iv) The weather conditions and wind direction at the time of complaint.
 - (v) The likely cause of the adverse effect to which the complaint related.
 - (vi) The response made by the Consent Holder and any corrective action undertaken by the Consent Holder in response to the complaint.
8. The Consent Holder shall also record in the Complaints Log any complaints forwarded to it by the Waikato Regional Council or any Territorial Authority. The Complaint Log shall be made available to the Waikato Regional Council within 2 weeks of any request and a copy shall be forwarded to the Waikato Regional Council annually with the Annual Report.
9. Should the Consent Holder be advised by the Waikato Regional Council that, in the opinion of a Council Officer, an objectionable discharge event or odour has occurred as a result of exercising this consent, the Consent Holder shall provide a written report to the Waikato Regional Council within ten working days of being notified of such by the Council. The report shall specify:

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (i) The cause or likely cause of the discharge and any factors that influenced its severity.
 - (ii) The nature and timing of any measures implemented by the Consent Holder to avoid, remedy or mitigate any adverse effects associated with the discharge event.
 - (iii) The steps to be taken to prevent recurrence of similar events.
- 10.** During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of these General Conditions under section 128(1) of the Resource Management Act 1991, for the following purposes:
- (i) To deal with any adverse effects on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage;
 - (ii) To review the effectiveness of the conditions of in avoiding, remedying or mitigating any adverse effects on the environment from the consent holder's activities and, if considered appropriate by Waikato Regional Council, to deal with such effects by way of further or amended conditions;
- 11.** During the six month period following every fourth anniversary of the commencement of this consent, the Waikato Regional Council may, following service of notice on the Consent Holder, commence a review of this consent under section 128(1) of the Resource Management Act 1991, for the purpose of requiring the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment.
- 12.** This consent will lapse on the ninth anniversary of the date of commencement, as defined by section 116 of the Resource Management Act 1991 unless it is given effect to prior to that date.
- 13.** The Consent Holder shall pay to the Waikato Regional Council any reasonable administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

RESOURCE CONSENT NUMBER 116790 (POIHIPI POWER STATION AIR DISCHARGES)

This consent authorises the Consent Holder to: discharge contaminants to air from the Poihipi Road Power Station and associated structures located at or about grid reference NZMS 260 U17 748814 including geothermal wells, pipelines and geothermal Steamfield equipment located within the area bounded in yellow shown on Plan 124922-RC04 in Schedule Two attached for a period to expire 35 years after the date of the grant of this consent subject to the following conditions:

1. This consent shall commence on 1 January 2012.
2. The Consent Holder shall keep hydrogen sulphide emissions discharged pursuant to this consent to a practicable minimum and in any event less than 61 kilograms per hour.
3. Following the first exercise of this consent, the consent holder shall provide to Waikato Regional Council an annual report in March of operations of the power station in the previous calendar year, summarising and interpreting all monitoring data required to be collected under this consent.
4. The Consent Holder shall undertake continuous monitoring of ambient hydrogen sulphide (H₂S) concentrations at one site within the consent area to be agreed with the Waikato Regional Council. The monitoring method shall be subject to approval by Waikato Regional Council. The data shall be recorded as 10 or 15 minute averages and the results shall be reported on a fixed hourly average basis. The monitoring shall include continuous recording of hourly wind speed and direction at the monitoring site.
5. From two years after the commencement of this consent, a non-statutory review may, at the consent holder's request, be undertaken by the Waikato Regional Council to determine whether, having regard to the levels monitored in relation to the model prediction presented to the Board of Inquiry hearing commencing 21 July 2008, ambient hydrogen sulphide monitoring is still required, and if so at what ongoing level and frequency.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

6. The Consent Holder shall measure the emissions of hydrogen sulphide (H₂S) and mercury from the power station annually. These measurements shall be made by analysis of total steam incoming to each station. The results of these measurements will be provided to the Waikato Regional Council in the Annual Report required pursuant to Condition 3 of this consent.
7. The discharge shall not result in odour, or other gaseous emissions that are objectionable at or beyond the area bounded by the outermost green and yellow lines on Plan 124922-RC04 in Schedule Two attached.
8. If a complaint is received by the Consent Holder regarding odour or other airborne contaminants, the Consent Holder shall notify the Council of the complaint as soon as practicable. When complaints are received, the Consent Holder shall record the following details in a Complaints Log:
 - (i) Time and type of adverse effect to which the complaint related, including details of the incident, e.g. duration, any effects noted.
 - (ii) Name, address and contact phone number of the complainant (if provided).
 - (iii) Location from which the complaint arose.
 - (iv) The weather conditions and wind direction at the time of complaint.
 - (v) The likely cause of the adverse effect to which the complaint related.
 - (vi) The response made by the Consent Holder and any corrective action undertaken by the Consent Holder in response to the complaint.
9. The Consent Holder shall also record in the Complaints Log any complaints forwarded to it by the Waikato Regional Council or any Territorial Authority. The Complaint Log shall be made available to the Waikato Regional Council within 2 weeks of any request and a copy shall be forwarded to the Waikato Regional Council annually with the Annual Report.
10. Should the Consent Holder be advised by the Waikato Regional Council that, in the opinion of a Council Officer, an objectionable discharge event or odour has occurred as a result of exercising this consent, the Consent Holder shall provide a written report to the Waikato Regional Council within ten working days of being notified of such by the Council. The report shall specify:

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (a) The cause or likely cause of the discharge and any factors that influenced its severity.
 - (b) The nature and timing of any measures implemented by the Consent Holder to avoid, remedy or mitigate any adverse effects associated with the discharge event.
 - (c) The steps to be taken to prevent recurrence of similar events.
- 11.** During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of these General Conditions under section 128(1) of the Resource Management Act 1991, for the following purposes:
- (a) To deal with any adverse effects on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage;
 - (b) To review the effectiveness of the conditions of in avoiding, remedying or mitigating any adverse effects on the environment from the consent holder's activities and, if considered appropriate by Waikato Regional Council, to deal with such effects by way of further or amended conditions;
- 12.** During the six month period following every fourth anniversary of the commencement of this consent, the Waikato Regional Council may, following service of notice on the Consent Holder, commence a review of this consent under section 128(1) of the Resource Management Act 1991, for the purpose of requiring the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment.
- 13.** This consent will lapse on the ninth anniversary of the date of commencement, as defined by section 116 of the Resource Management Act 1991 unless it is given effect to prior to that date.
- 14.** The Consent Holder shall pay to the Waikato Regional Council any reasonable administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.

APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

RESOURCE CONSENT NUMBER 116791 (WAIRAKEI STEAMFIELD AIR DISCHARGES)

This consent authorises the Consent Holder to: discharge contaminants to air from geothermal wells, flash plants, pipelines and all associated geothermal steamfield equipment within the Wairakei-Tauhara Geothermal System more particularly shown as the area inside the green boundary on Plan 124922-RC04 in Schedule Two attached for a period to expire 35 years after the date of the grant of this consent subject to the following conditions:

1. The Consent Holder shall keep hydrogen sulphide emissions discharged from the steam field to a practicable minimum.
2. The discharge shall not result in odour, or other gaseous emissions that are objectionable at or beyond the area bounded by the outermost green and yellow lines on Plan 124922-RC04 in Schedule Two attached.
3. If a complaint is received by the Consent Holder regarding odour or other airborne contaminants, the Consent Holder shall notify the Council of the complaint as soon as practicable. When complaints are received, the Consent Holder shall record the following details in a Complaints Log:
 - (i) Time and type of adverse effect to which the complaint related, including details of the incident, e.g. duration, any effects noted.
 - (ii) Name, address and contact phone number of the complainant (if provided).
 - (iii) Location from which the complaint arose.
 - (iv) The weather conditions and wind direction at the time of complaint.
 - (v) The likely cause of the adverse effect to which the complaint related.
 - (vi) The response made by the Consent Holder and any corrective action undertaken by the Consent Holder in response to the complaint.
4. The Consent Holder shall also record in the Complaints Log any complaints forwarded to it by the Waikato Regional Council or any Territorial Authority. The Complaint Log shall be made available to the Waikato Regional Council within 2 weeks of any request and a copy shall be forwarded to the Waikato Regional Council annually with the Annual Report.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

5. Should the Consent Holder be advised by the Waikato Regional Council that, in the opinion of a Council Officer, an objectionable discharge event or odour has occurred as a result of exercising this consent, the Consent Holder shall provide a written report to the Waikato Regional Council within ten working days of being notified of such by the Council. The report shall specify:
 - (a) The cause or likely cause of the discharge and any factors that influenced its severity.
 - (b) The nature and timing of any measures implemented by the Consent Holder to avoid, remedy or mitigate any adverse effects associated with the discharge event.
 - (c) The steps to be taken to prevent recurrence of similar events.

6. During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of these General Conditions under section 128(1) of the Resource Management Act 1991, for the following purposes:
 - (a) To deal with any adverse effects on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage;
 - (b) To review the effectiveness of the conditions of in avoiding, remedying or mitigating any adverse effects on the environment from the consent holder's activities and, if considered appropriate by Waikato Regional Council, to deal with such effects by way of further or amended conditions;

7. During the six month period following every fourth anniversary of the commencement of this consent, the Waikato Regional Council may, following service of notice on the Consent Holder, commence a review of this consent under section 128(1) of the Resource Management Act 1991, for the purpose of requiring the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 8.** This consent will lapse on the ninth anniversary of the date of commencement, as defined by section 116 of the Resource Management Act 1991 unless it is given effect to prior to that date.
- 9.** The Consent Holder shall pay to the Waikato Regional Council any reasonable administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.
- 10.** This consent shall not be exercised until those parts of consent number 940553 relating to the Wairakei Steamfield have been surrendered under section 138 of the Act.

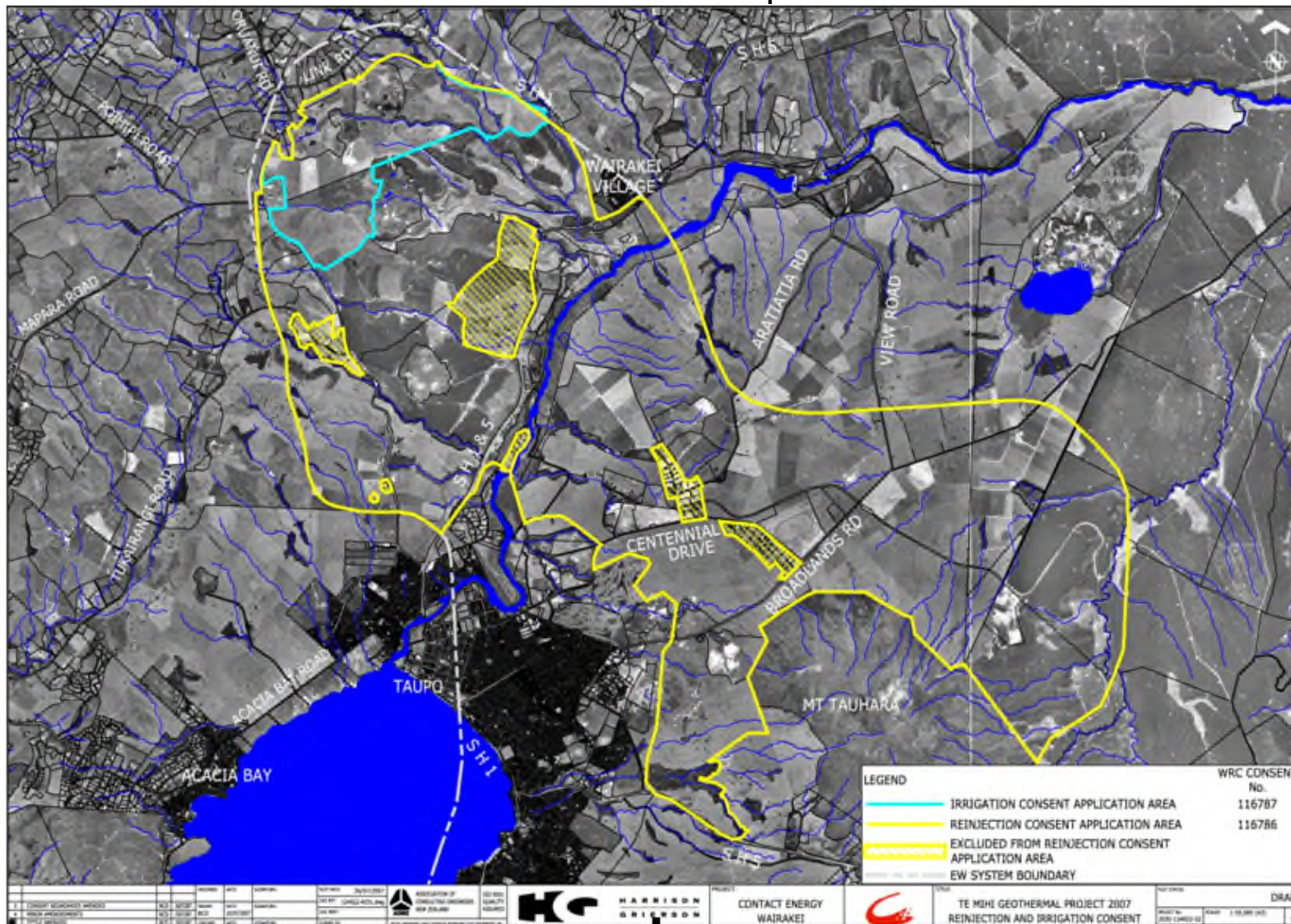
APPENDIX TWO

**Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008**

Schedule One Plan 124922-RC01

APPENDIX TWO

Waikato Regional Council
 Te Mihi Resource Consent Conditions
 3 September 2008



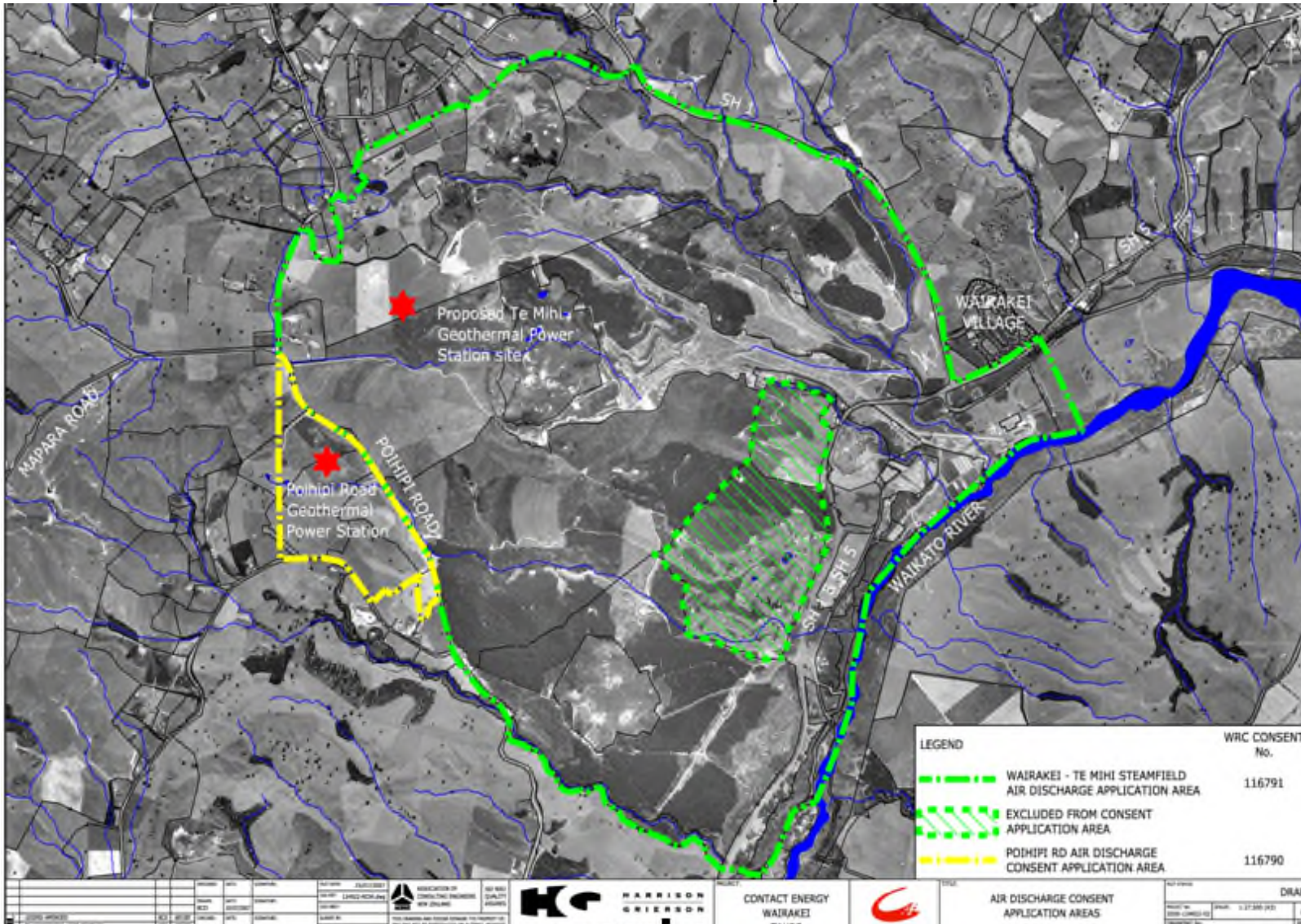
APPENDIX TWO

**Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008**

Schedule Two Plan 124922-RC04

APPENDIX TWO

Waikato Regional Council
 Te Mihi Resource Consent Conditions
 3 September 2008



APPENDIX TWO

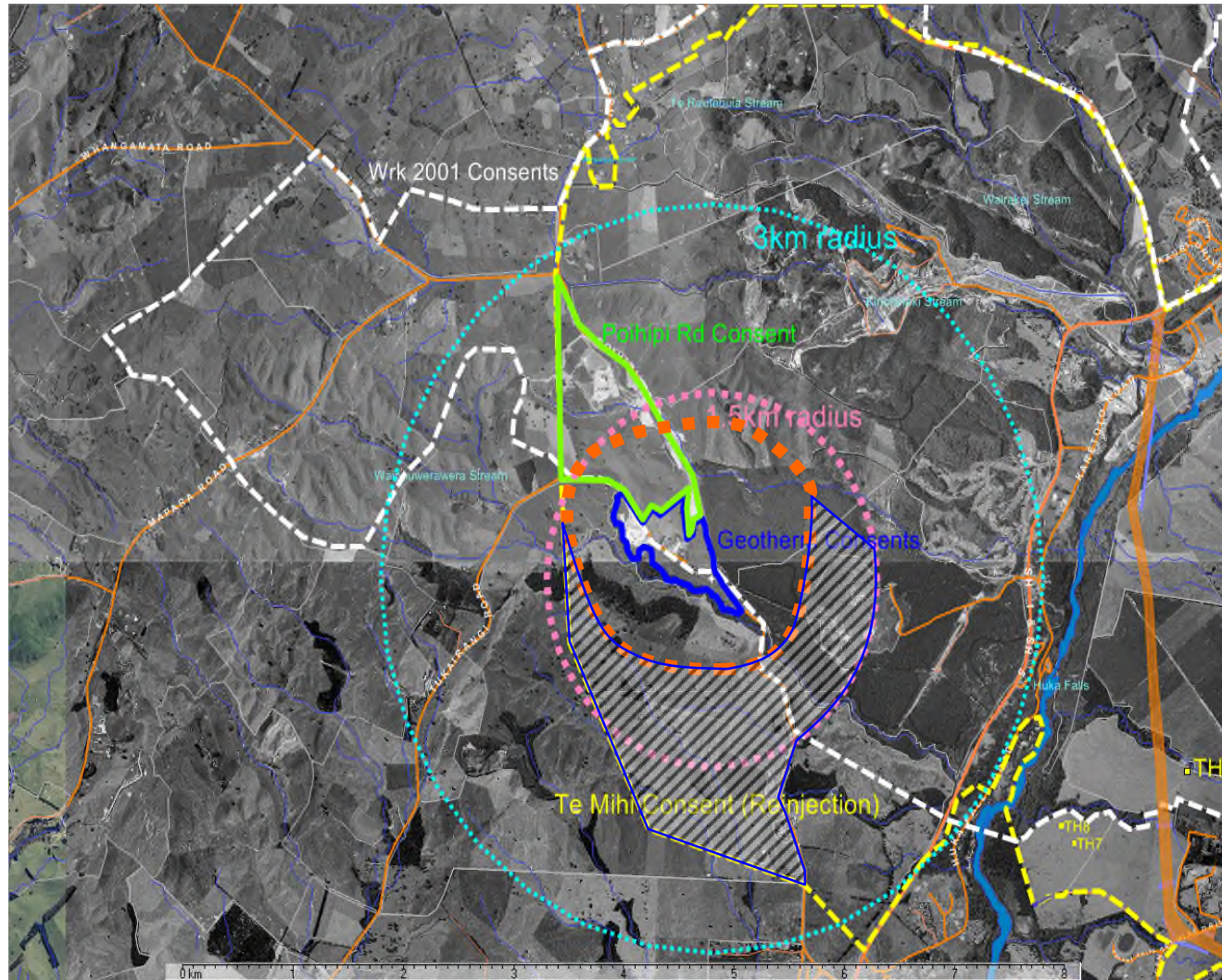
**Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008**

**Schedule Three Consent 116786 reinjection
exclusion and peer review panel review area**

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

Consent 116786 reinjection (orange) exclusion and peer review panel review required (Blue cross hatched) areas



APPENDIX TWO
Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

**Schedule Four General Conditions to
Consents 116786 and 116787**

APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

GENERAL CONDITIONS

These General Conditions apply to resource consents 104706, 104707, 104711, 104712, 104718, 116786 and 116787.

1. PEER REVIEW PANEL

- 1.1 A Peer Review Panel shall be established to exercise the powers and functions specified in these consents. The Waikato Regional Council shall facilitate the role and function of the Peer Review Panel by providing reasonable organisational and administrative support for the duration of the consent, the reasonable costs of which shall be borne by the consent holder.
- 1.2 The Peer Review Panel shall consist of four persons, being three independent technical experts, approved by the Chief Executive Officer of Waikato Regional Council, with recognised experience in geothermal resource monitoring, reservoir management or related environmental effects; and one representative appointed by the Wairakei hapu. Prior to appointing any member of the panel the Council shall seek comment from the consent holder and the Chief Executive of Taupo District Council on whether the panel as a whole will have the appropriate range of skills to undertake its functions.
- 1.3 The membership of the Peer Review Panel shall be approved by the Chief Executive Officer of Waikato Regional Council and, subject to the contrary decision of the Chief Executive Officer, shall be comprised of members of the Peer Review Panel established by the Waikato Regional Council for the Wairakei-Tauhara Geothermal System.
- 1.4 The Peer Review Panel shall determine its own processes and procedures for conducting its meetings, as it sees fit. During the first two years of the exercise of these consents, the Peer Review Panel shall meet not less than once every 6 months, thereafter at 12 month intervals. The Peer Review Panel may also meet at any time as may be specifically requested by Waikato Regional Council. In the event that the consents are not replaced with new consents after their expiry date, the Peer Review Panel shall meet no less than every 3 years to review monitoring reports and data resulting from the monitoring program undertaken

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

after expiry of the consents and at other times as required by Waikato Regional Council to fulfil its functions until the Remediation Expiry Date.

- 1.5 The Peer Review Panel may recommend to Waikato Regional Council that other specialists be seconded or that technical studies be commissioned from time to time for the proper execution of their functions. Membership of the Peer Review Panel shall be reviewed by Waikato Regional Council on a three yearly basis. Notwithstanding the three yearly reviews, the Chief Executive Officer of the Waikato Regional Council may, at its discretion, terminate the membership of all or any of the Peer Review Panel members at any time.
- 1.6 The role of the Peer Review Panel shall be to assist Waikato Regional Council in the supervision and monitoring of the exercise of these consents. Without limiting the generality of this role, the general functions of the Peer Review Panel, in addition to those specified elsewhere in these consent conditions, shall include:
 - (a) Making recommendations pursuant to General Conditions 6.3 and 6.4 to Waikato Regional Council with regard to the adequacy and appropriateness of the Subsidence Monitoring Programme required under General Condition 6.1.
 - (b) Reviewing monitoring reports and data and reporting to Waikato Regional Council any matters of concern and making recommendations as to suggested changes to monitoring requirements;
 - (c) Reviewing the Wairakei-Tauhara Geothermal System Management Plan, annual reports and other plans and reports as appropriate, and making recommendations to Waikato Regional Council with respect to the same where appropriate;
 - (d) Reviewing reservoir and subsidence modelling and model enhancements and making decisions as to refinements or enhancements to the modelling that are considered appropriate;
 - (e) In relation to outfield injection authorised by consent number 104718, assisting and making recommendations to the Waikato Regional Council in

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

relation to the approval of monitoring proposals and monitoring wells, providing advice as to interpretation of monitoring results and, pursuant to condition 15 of consent 104718, giving advice and/or making recommendations as to whether injection in outfield areas should cease;

- (f) Assisting Waikato Regional Council in relation to the maintenance of reservoir pressures in Tauhara and related matters as required by General Condition 3, including:
- (i) Advising on the Discharge Strategy including quantities of reinjection/injection, depth, and location;
 - (ii) Making recommendations as to the reservoir pressure monitoring required in the Tauhara Field, including recommendations as to the drilling of new monitoring wells as may be considered necessary or desirable;
 - (iii) Advising of interpretation of trends in reservoir pressures over time in response to infield reinjection/injection;
 - (iv) Advising Waikato Regional Council as to the progress toward compliance with the target pressure regime (as specified in General Condition 3) within the time period specified;
 - (v) In response to trends over time, making recommendations about changes to the Discharge Strategy that may be necessary to achieve the target pressure regime specified in General Condition 3;
 - (vi) Providing advice as required on the matters set out in General Condition 3.10;
 - (vii) To review subsidence trend monitoring and information as it becomes available and to provide interpretive reports to Waikato Regional Council; such reports to include:
 - (aa) Observations with regard to the relationship between pressure trends in the Waiora Formation in the Tauhara Field and subsidence trends over the Wairakei-Tauhara Geothermal

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

System with particular emphasis on the built environment of Taupo town and any subsidence bowls listed in the System Management Plan (for the purposes of General Condition 4.21) located within it and surrounding environs, such observations to include comparisons with trends identified in any previous such reports;

- (bb) Observations as to the apparent effectiveness of the target pressure regime in achieving the primary objective (under General Condition 3) with respect to the identified subsidence bowls (refer to General Condition 4.21 particularly those within the Taupo urban area).
- (viii) Having regard to the primary objective of the Discharge Strategy specified in General Condition 3.3, to make recommendations to Waikato Regional Council as to changes needed to the target pressure regime.
- (g) Assisting Waikato Regional Council in relation to processes for addressing claims of damage, and related matters as required by General Condition 4 including:
 - (i) Within three months after the commencement of these consents and every four years thereafter, or more frequently at the discretion of the Peer Review Panel (in particular in the event that a claim of damage is made pursuant to General Condition 4.1), advising the Waikato Regional Council in relation to the identification of the boundaries of the subsidence bowls in the Schedule of Identified Subsidence Bowls, in accordance with the criteria established in General Condition 4.22;
 - (ii) In response to claims of qualifying damage (as defined in General Condition 4.2):
 - (aa) Advising the Waikato Regional Council, for the purposes of General Condition 4.7, as to whether the extent of qualifying damage is “more than minor”;

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (bb) Advising the Waikato Regional Council as to the subsidence characteristics prevailing at the particular location(s) of the claimant's property;
- (cc) Advising Waikato Regional Council in relation to any dispute that may arise as to whether any particular location is within or outside the boundaries of any subsidence bowl, such matter to be assessed in accordance with the criteria in General Condition 4.22;
- (dd) For the purposes of General Condition 4.8, advising the Waikato Regional Council as to whether the primary cause of qualifying damage is the consent holder's activities in the Wairakei-Tauhara Geothermal System;
- (ee) For the purposes of General Condition 4.15, advising the Waikato Regional Council as to the extent to which any qualifying damage has been adequately avoided, remedied or mitigated.
- (iii) Pursuant to General Condition 4.16, making recommendations to the Waikato Regional Council on changes to the consent conditions that are necessary to ensure that qualifying damage is better avoided, remedied or mitigated in the future.
- (h) Recommending to Waikato Regional Council that a review of conditions pursuant to s128 of the Resource Management Act be undertaken for purposes including:
 - (i) Further avoiding, remedying or mitigating adverse effects;
 - (ii) Amending the process specified in General Condition 4 so as to ensure that qualifying damage is better avoided, remedied or mitigated in the future;
 - (iii) Amending the monitoring requirements in General Condition 6;
 - (iv) Any other matters it considers appropriate.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (i) Recommending to Waikato Regional Council that the consent holder undertake surveys or other investigations for the purposes of enquiring into any adverse effects arising from the exercise of the consents;
- (j) Reviewing monitoring reports and data resulting from the monitoring programme undertaken by the consent holder after expiry of the consents until the Remediation Expiry Date;
- (k) Reviewing consent compliance and making appropriate recommendations in that regard.

1.7 The Peer Review Panel shall, within two months of receipt, review the draft Annual Report prepared by the consent holder under General Condition 5.9 and shall provide a written report to Waikato Regional Council with peer review comments and recommendations on the consent holder's Annual Report and a summary of the outcome and of any matters they have considered under General Condition 4, with the objective that the Annual Report is finalised by the end of July in each year.

1.8 The consent holder shall provide the Peer Review Panel with baseline monitoring reports and all other resource data, information and reports and surveys including modelling results and data that the Peer Review Panel considers relevant to their work.

1.9 All reasonable costs incurred by the Peer Review Panel are to be borne by the consent holder including for the period after expiry of the consents until the Remediation Expiry Date.

1.10 All Peer Review Panel reports and recommendations shall be submitted to the Waikato Regional Council and copied to the Taupo District Council.

2. KAITIAKITANGA

2.1 Upon advice satisfactory to the Waikato Regional Council from the Wairakei-Tauhara hapu regarding Kaitiaki representation and mandate, the consent holder shall forward a copy of the annual Peer Review Panel report to the nominated hapu representative(s) each year and will meet with the Peer Review Panel Hapu Representative(s) at yearly intervals to discuss and provide feedback to the Peer

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

Review Panel on any cultural impact issues arising from the material presented in the annual Peer Review Panel report.

- 2.2 The consent holder shall develop and implement a Mitigation Package for the purpose of recognising the relationship of Mana Whenua Hapu within the Wairakei consent area with the ancestral lands, water, sites, waahi tapu and other taonga and to maintain their ancestral connection to their waahi tapu and other taonga affected by the activities consented under these resource consents.

Advice Note: The consent holder intends to comply with this condition by providing annual funding for an education scholarship and for cultural projects as set out in a Heads of Agreement signed between Contact and hapu representative committees dated 27 February 2004.

- 2.3 The consent holder shall advise Waikato Regional annually on the measures taken in compliance with conditions 2.1 and 2.2.

3. DISCHARGE STRATEGY

- 3.1 The consent holder shall within 6 months after the commencement of these consents, prepare and forward to the Waikato Regional Council for its approval, a draft initial Discharge Strategy, the approved version of which shall form part of the Wairakei/Tauhara Geothermal System Management Plan. Prior to approving the initial Discharge Strategy the Waikato Regional Council shall seek the advice of the Peer Review Panel and consult with the Taupo District Council as to measures recommended in the document.
- 3.2 The consent holder shall, within 4 years after the commencement of the consent and within every 4 years thereafter, unless required earlier by the Waikato Regional Council on the advice of the Peer Review Panel, prepare and forward to the Waikato Regional Council for its approval, a reviewed Discharge Strategy, the approved version of which shall form part of the Wairakei/Tauhara Geothermal System Management Plan. Prior to approving any reviewed Discharge Strategy the Waikato Regional Council shall seek the advice of the Peer Review Panel and consult with Taupo District Council as to measures recommended in the document.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 3.3 The initial Discharge Strategy and any reviewed Discharge Strategy shall have as their primary objective, the need to address the adverse effects of subsidence, with the following additional secondary objectives subsidiary to that primary objective:

Secondary objectives (not in any order of priority):

- (a) Facilitating further extraction of energy from the Wairakei/Tauhara Geothermal System;
- (b) Remediating or mitigating adverse effects on significant geothermal features including maintenance of geothermal features at Karapiti as long as practicable;
- (c) Avoiding, remediating or mitigating contamination of surface and groundwater bodies;
- (d) Integrating takes, uses (including cascade users), reinjection/injection, and other discharge methods;

while having regard to:

- (i) The benefits, costs and adverse effects of alternative disposal options,
- (ii) Existing investment and infrastructure, including investment by cascade users;
- (iii) Ongoing monitoring of changes to the system and any adverse effects on its values.

- 3.4 The initial Discharge Strategy shall in addition to the matters set out in General Condition 3.5, adopt the minimum target pressure and it shall contain details for the drilling and establishment of a monitoring well, or wells, in the vicinity of Crown Road. Its/their exact timing, location and depth to be approved by the Waikato Regional Council on the advice of the Peer Review Panel. It shall also set out:

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (i) A proposed monitoring programme to identify pressures and pressures over time at a specified depth(s);
 - (ii) A proposed programme and methodology for taking and properly conserving core samples and accurately measuring their geotechnical properties;
 - (iii) Any other matters considered necessary by the Waikato Regional Council on the advice of the Peer Review Panel to ensure adequate information is available to assist in determining the cause, degree and location of subsidence.
- 3.5 The initial Discharge Strategy and any reviewed Discharge Strategy shall contain all operational requirements and procedures which may be necessary or desirable to achieve the primary and secondary objectives specified in General Condition 3.3. As a minimum it shall document:
- (a) The target pressure regime to be achieved and maintained (including timeframes and permitted variations from that target pressure regime) in the Waiora Formation of the Tauhara Field;
 - (b) ReInjection/injection well depths and locations;
 - (c) The proposed modelling to be undertaken to inform the identification of suitable reInjection/injection locations, volumes and depths, so as to achieve the target pressure regime;
 - (d) The proposed monitoring programme to identify pressures and changes in pressures over time, in the Waiora Formation in the Tauhara Field;
 - (e) Descriptions of operational and monitoring measures to be taken in response to all of the following pressure response trend scenarios.
 - (i) trend showing increasing pressure with an expectation of achievement of the target pressure regime within the specified timeframes;
 - (ii) trend showing limited or no pressure change;
 - (iii) trend showing decreasing pressure trend.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 3.6 From four years after the commencement of these consents, until the expiry of these consents, Waiora Formation pressures in the Tauhara Field shall be maintained as a minimum at or above a level of 56 bars (the “minimum target pressure”) as measured at minus 400masl at wells TH1 and TH3. The minimum target pressure may at any time be varied upwards and the method of measuring the target pressure may be varied, as approved by the Waikato Regional Council in accordance with any recommendation of the Peer Review Panel and as provided for in General Condition 3.10.
- 3.7 The consent holder’s achievement of the target pressure for the purpose of General Condition 3.6 shall be determined on the trend of pressure measurements in wells TH1 and TH3 or other well(s) as approved by Waikato Regional Council in accordance with any recommendation of the Peer Review Panel made under the deep liquid pressure (re injection/injection) section of Schedule One.
- 3.8 The consent holder shall undertake its operations generally in accordance with the Discharge Strategy approved by the Waikato Regional Council.
- 3.9 The consent holder shall report pressure trends and the progress towards achieving the target pressure regime, to the Peer Review Panel, and Waikato Regional Council on a 3 monthly basis from the commencement of these consents to the satisfaction of the Waikato Regional Council.
- 3.10 The Waikato Regional Council may at any time, on the advice of the Peer Review Panel, require or allow changes to the Initial or Reviewed Discharge Strategies, provided that any changes required by Waikato Regional Council pursuant to this condition shall be for the sole purpose of, and consistent with, achieving or better achieving the primary and secondary objectives of the Discharge Strategy as stated in General Condition 3.3. Subject to this proviso, changes may be required or allowed for purposes including the following:
- (a) to change the target pressure regime;
 - (b) to better achieve the target pressure regime;

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (c) to refine the modelling used to inform understanding of the effects of reinjection/injection;
- (d) to better monitor the effects of reinjection/injection;
- (e) to better avoid adverse effects arising from reinjection/injection;
- (f) any other changes which are considered by the Waikato Regional Council as being consistent with achieving the primary and secondary objectives in General Condition 3.3.

Prior to requiring any change(s) to the Discharge Strategy or any revised Discharge Strategy, the Waikato Regional Council shall consult with the consent holder and the Taupo District Council and any other persons who, in the opinion of the Waikato Regional Council, may be adversely affected by the change(s).

4. REMEDIATION OF DAMAGE

4.1 The consent holder shall keep a register which records claims in respect of any aspect of the activities undertaken by the consent holder pursuant to the consents. The claims register shall record for each claim:

- (a) The date, time, type;
- (b) The alleged cause;
- (c) The name, contact details, nature/description of the claim including details of any alleged damage suffered by the claimant;
- (d) The action taken by the consent holder in response;
- (e) The date on which the consent holder provided a copy of General Condition 4 to the claimant.

Waikato Regional Council may inspect and take copies of the register at all reasonable times.

4.2 Within 5 working days of receipt of a claim, the consent holder shall forward the claim details to the Waikato Regional Council (with a copy to Taupo District Council) where the claim relates to or alleges "qualifying damage" being:

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (a) Property damage which has occurred or which may reasonably be anticipated and where such property damage is occurring or is anticipated to occur within the Wairakei-Tauhara Geothermal System, or contamination of water is occurring or is anticipated to occur; and
- (b) Contamination of water which has occurred or which may reasonably be anticipated to occur as a result of the consent holders operations in the Wairakei-Tauhara Geothermal System. For the avoidance of doubt, in relation to contamination of water the water supply to which the claim pertains need not be within the boundary of the Wairakei-Tauhara Geothermal System or the consented area, and
- (c) Such property damage or contamination of water is or could be the result of subsidence, landslides, ground collapse, heating of surface ground, hydrothermal activity (including hydrothermal eruptions) or reinjection/injection of geothermal fluid by the consent holder; or
- (d) Effects on pre-identified taonga / waahi tapu (ie Te Pa o Te Waiora and Kurapoto – Onekeneke) and the asbestos dump in the Waiora Valley is or could be the result of operations of the Power Plants after the date of commencement of these consents.

For the purposes of this condition, the boundaries of the Wairakei-Tauhara Geothermal System shall be defined in accordance with the provisions of the Waikato Regional Plan from time to time. In the event of doubt as to whether any specific property is within the Wairakei-Tauhara Geothermal System or within the boundaries of the outfield injection areas, those questions shall be determined by Waikato Regional Council acting on the advice of the Peer Review Panel.

For the purposes of this condition, “property damage” and “contamination of water”:

- Shall include actual and reasonable costs incurred as a result of property damage, and including matters such as loss of profits or losses resulting from business interruption, any costs associated with alternative accommodation arrangements should it be necessary to vacate a property whilst repairs or rebuilding is carried out; and

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- Shall include water for domestic or stock purposes; and
 - Shall not include changes to ground water availability due to changes in ground water levels or pressures.
- 4.3 Either in response to a claim referred to it pursuant to condition 4.2 or in response to a claim it directly receives, Waikato Regional Council may notify the consent holder (with a copy to Taupo District Council) if Waikato Regional Council considers the qualifying damage resulted or is likely to result from adverse effects caused by activities of the consent holder. In making such an assessment, Waikato Regional Council shall have regard to the presumption that subsidence in identified subsidence bowls is, more likely than not, due to the consent holder's operations in the Wairakei-Tauhara Geothermal System.
- 4.4 If the Waikato Regional Council gives notice under condition 4.3 of these General Conditions, the consent holder shall advise both Waikato Regional Council and the claimant concerned, in writing, what actions (if anything) it intends to take to avoid, remedy or mitigate the qualifying damage. The consent holder shall do this within 20 working days of being notified by the Waikato Regional Council under condition 4.3 of these General Conditions.
- 4.5 If the consent holder advises Waikato Regional Council pursuant to condition 4.4 of these General Conditions that it will undertake avoidance, remediation or mitigation action, the consent holder shall then report, in writing, to Waikato Regional Council (with a copy to Taupo District Council) and to the claimant in question explaining:
- (a) Whether the qualifying damage has been avoided, remedied or mitigated; and
 - (b) How the qualifying damage has been avoided, remedied or mitigated.
- The consent holder shall do this within 30 working days after notifying Waikato Regional Council and the claimant under condition 4.4 of these General Conditions.
- 4.6 If, on receipt of a claim, the consent holder does not consider that the qualifying damage is or may be an effect which has or may have resulted or likely to have

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

resulted from exercise of the consents, then within 10 working days after receipt of the claim, the consent holder shall advise Waikato Regional Council in writing of its opinion with reasons and supporting evidence.

4.7 If the consent holder notifies Waikato Regional Council pursuant to condition 4.4 and /or 4.6 of these General Conditions that it does not intend to take any action to avoid, remedy or mitigate the qualifying damage or if the claimant notifies Waikato Regional Council following provision of a report under General Condition 4.5 that the claimant does not believe the qualifying damage has been satisfactorily avoided, remedied or mitigated, Waikato Regional Council may define the qualifying damage and decide whether the qualifying damage defined is more than minor. Before reaching this decision Waikato Regional Council shall:

- (a) Seek the advice of the Peer Review Panel; and
- (b) Consult the consent holder; and
- (c) Consult the relevant claimant; and
- (d) Consult other parties as it sees fit, including without limitation, such appropriately qualified technical experts as it reasonably requires input from in order to make this decision; and
- (e) Following steps (a) to (d) above, provide the claimant and consent holder with the advice and information so obtained (if any) and refer them to mediation to be conducted according to the rules of the Arbitrators and Mediators Institute (or such other rules as the parties may agree upon) if the claimant is willing to mediate.

If the claimant is unwilling to mediate or if mediation is wholly or partially unsuccessful, then Waikato Regional Council shall, after having regard to the technical advice and the results of consultation obtained under 4.7 (a) to (d), define the qualifying damage and decide whether the qualifying damage defined is “more than minor”.

When determining whether damage is “more than minor” for this purpose, regard (without limitation) shall be had to;

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (f) In the case of property, the extent to which the property is or can reasonably be anticipated to be less fit for the use currently being made of it, and the extent to which the damage may reasonably be said to warrant repair;
- (g) In the case of contamination of water, whether, by reason of the influence of the consent holder's activities, water has been rendered unfit for domestic or stock purposes as determined by reference to relevant New Zealand drinking and stock water standards, where applicable.

For the avoidance of doubt, the intention of employing a test of "more than minor" for this purpose is to exclude negligible damage.

- 4.8 If the Waikato Regional Council decides that the qualifying damage as defined is more than minor under General Condition 4.7, it may then decide, after having obtained the advice of the Peer Review Panel and any other suitably qualified persons as it sees fit, the primary cause of the qualifying damage as defined is the consent holder's activities acting pursuant to these consents, either alone or in conjunction with the consent holder's other operations on the Wairakei-Tauhara Geothermal System, advising the consent holder and the claimant of its decision in writing. The consent holder shall supply any information which Waikato Regional Council or the Peer Review Panel reasonably requires.
- 4.9 When making the determination under condition 4.8 with respect to qualifying damage arising from subsidence within the boundaries of the identified subsidence bowls (refer Schedule of Identified Subsidence Bowls below), the Waikato Regional Council shall adopt the presumption that, in the absence of proof to the contrary, the primary cause of the qualifying damage is the consent holder's activities acting pursuant to these consents, either alone or in conjunction with the consent holder's other operations on the Wairakei-Tauhara Geothermal System. No such presumption shall apply outside the boundaries of the identified subsidence bowls or in circumstances where the relevant claimant refuses to give the consent holder access to his or her property.
- 4.10 If Waikato Regional Council decides under General Condition 4.8 that the consent holder's exercise of these consents (including in combination with the consent holder's other operations on the Wairakei-Tauhara Geothermal System)

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

is the primary cause of the qualifying damage and that the qualifying damage, as defined by Waikato Regional Council is more than minor, the consent holder shall then advise Waikato Regional Council (with a copy to Taupo District Council) and the claimant, in writing, of what actions it proposes to take to avoid, remedy or mitigate the qualifying damage.

4.11 The consent holder shall provide this advice within 20 working days after receiving notice of Waikato Regional Council's determination. Waikato Regional Council may allow the consent holder additional time by notice in writing, that notice to be copied to the claimant.

4.12 The consent holder shall then take the specified action to avoid, remedy or mitigate the qualifying damage as defined by Waikato Regional Council and, within 30 working days of it giving advice under General Condition 4.10, report in writing to:

- (a) Waikato Regional Council (with a copy to Taupo District Council); and
- (b) The Peer Review Panel; and
- (c) The claimant

as to whether and in what ways qualifying damage has been avoided, remedied, or mitigated.

4.13 Within 50 working days after any decision by Waikato Regional Council under General Condition 4.8 that the consent holder's exercise of these consents (including in combination with the consent holder's other operations in the Wairakei-Tauhara Geothermal System) is the primary cause of qualifying damage which has occurred or may reasonably be anticipated to occur, or within such further period or periods as Waikato Regional Council may allow by notice or notices in writing, the consent holder shall either:

- (a) Procure the confirmation of the claimant in writing that the qualifying damage has been satisfactorily avoided, remedied or mitigated; or
- (b) Remedy the qualifying damage as defined by Waikato Regional Council pursuant to General Condition 4.7.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 4.14 In the event that the Waikato Regional Council determines that the qualifying damage has not been adequately remedied, then Waikato Regional Council may apply the Bond provided for in General Condition 7 to the extent required to make good the qualifying damage
- 4.15 The Peer Review Panel shall review the extent to which the consent holder has avoided, remedied or mitigated any qualifying damage.
- 4.16 The Peer Review Panel, following consultation with other technical experts as it sees fit, shall make any recommendations to Waikato Regional Council proposing changes to conditions of the consents in order to ensure qualifying damage is better avoided, remedied or mitigated in the future.
- 4.17 The Peer Review Panel shall provide recommendations under General Condition 4.16 as part of its written report under General Condition 1.7, unless the circumstances require earlier reporting.
- 4.18 The consent holder shall meet all reasonable costs incurred by the Peer Review Panel and the reasonable costs of any technical experts consulted by the Waikato Regional Council under General Condition 4.7.
- 4.19 Any time period set in this General Condition 4 may be extended by Waikato Regional Council in writing if the circumstances in Waikato Regional Council's opinion so require.
- 4.20 The obligations of this General Condition 4 endure both for the duration of the consents and for the period after the surrender, expiry or lapse of the consents, up until the Remediation Expiry Date.

SCHEDULE OF IDENTIFIED SUBSIDENCE BOWLS

- 4.21 For the purposes of General Condition 4, the identified subsidence bowls shall be those listed in the approved System Management Plan, including any amendments thereto which may be approved from time to time. For the avoidance of doubt, the following four subsidence bowls are to be so identified for the purposes of General Condition 4 from the commencement of the consents until such time as they have been incorporated into the initial approved System Management Plan. Thereafter the identified subsidence bowls are to be

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

determined by the list included in the current approved System Management Plan. The four identified subsidence bowls are as follows:

- (a) That subsidence area commonly referred to as the “Wairakei subsidence bowl” centred at approximate map reference NZMS 260 U17:793-824
- (b) That subsidence area commonly referred to as the “Spa Hotel subsidence bowl” centred at approximate map reference NZMS 260 U18:793-767
- (c) That subsidence area commonly referred to as the “Rakaunui Rd subsidence bowl” centred at approximate map reference NZMS 260 U18:813-773
- (d) That subsidence area commonly referred to as the “Crown/Invergarry subsidence bowl” centred at approximate map reference NZMS 260 U18:803-742.

4.22 For the purposes of this General Condition 4, the Waikato Regional Council shall, on the advice of the Peer Review Panel, define the boundaries of the bowls within 3 months of the commencement of the consents. The boundaries of the subsidence bowls shall be defined as the land inside the outer “shoulder” of the bowl determined as follows:

- (a) Where there is sufficient data to accurately determine differential settlement - all land inside the 1mm/25m/yr differential settlement contour averaged between benchmarks no less than 50m and no more than 1000m apart.
- (b) Otherwise as the boundary that in the opinion of Waikato Regional Council, acting on the advice of the Peer Review Panel and having regard to subsidence levelling data, best represents the outer shoulder of the bowl.

Subject to the availability of new data, the boundaries of the bowls shall be defined/redefined every four years, or more frequently at the discretion of the Peer Review Panel advising the Waikato Regional Council (in particular in the event that a claim of damage is made pursuant to General Condition 4.1), and bowls may be added or removed from the list if so identified by amendment to the System Management Plan.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

Where there is any dispute regarding whether any particular damage is inside or outside the boundary as defined above, the matter shall be decided by the Waikato Regional Council after taking advice from the Peer Review Panel.

ARBITRATION

4.23 In the event that any decision made by Waikato Regional Council in administering this General Condition 4 is disputed by either the consent holder or the claimant, and where the alleged damage is more than \$12,000.00, either party may refer the matter to arbitration in accordance with the Arbitration Act 1996. Arbitration shall be commenced by written notice by either party to the Council specifying the Council's decision which is disputed, such notice to be given within two weeks of receipt of the advice of decision. The Council shall ensure that all affected parties are advised of the notice of dispute as soon as practicable. If the parties cannot agree on an arbitrator within a week of the notice of dispute being received by the Council, then the President of the Arbitrators and Mediators Institute of New Zealand shall be requested to appoint an arbitrator with appropriate technical qualifications and experience. Such arbitrator will decide the matter in dispute and give written advice to the parties within 30 days after his or her appointment, unless the parties all agree that time should be extended. The parties shall bear their own costs in connection with arbitration unless the arbitrator declares otherwise. Clause 5 to the second schedule of the Arbitration Act 1996 shall be excluded from the Arbitration unless the parties agree otherwise prior to the commencement of any hearing. In all other respects the provisions of the Arbitration Act 1996 shall apply. Determination of compliance with timeframes specified in this General Condition 4 shall disregard any time spent in arbitration. This shall include the duration from the initial receipt by the Waikato Regional Council of notice of dispute, until the dispute is decided or otherwise resolved.

Advice Note:

- (a) *This General Condition 4 creates a framework to enable the consent holder and Waikato Regional Council to respond in the event qualifying damage occurs as a result of the exercise of these consents, whether that qualifying damage manifests itself during or after the expiry of the consents up until the Remediation Expiry Date.*

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (b) *As described in this section, Waikato Regional Council has agreed to administer a process that will ensure an orderly response to any alleged qualifying damage as described in General Condition 4.2. This General Condition 4 anticipates that, without in any way limiting the remedies that any person or Waikato Regional Council may have, Waikato Regional Council will consider enforcement action under the Resource Management Act 1991 if implementation of the provisions of this General Condition 4 is not an adequate response to events which may occur.*

5. SYSTEM MANAGEMENT PLAN, MODELLING AND ANNUAL REPORTING

5.1 The consent holder shall manage its consented activities on the Wairakei-Tauhara Geothermal System and undertake geothermal reservoir management:

- (a) In accordance with the conditions of the consents; and
- (b) In accordance with a Wairakei-Tauhara Geothermal System Management Plan approved by Waikato Regional Council.

5.2 Within 6 months after the commencement of these consents, the consent holder shall provide to Waikato Regional Council, for its approval, a System Management Plan for the Wairakei-Tauhara Geothermal System (the "System Management Plan"). The overall purpose of the System Management Plan is to assist Waikato Regional Council with the efficient and integrated management of the operation and effects of the Wairakei-Tauhara Geothermal System, in the context of it being a "Development Geothermal System" as defined in the Waikato Regional Policy Statement dated 15 August 2006 and Proposed Waikato Regional Plan dated 15 August 2006. The specific objectives of the Management Plan are to document:

- (a) Field developments proposed for the next management plan period;
- (b) Operational procedures for ensuring compliance with consents;
- (c) Procedures for avoiding, remedying and mitigating effects;
- (d) Other relevant matters contained in Policy Four of the Proposed Waikato Regional Plan Variation 2 (as at 15 August 2006).

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

The System Management Plan shall be reviewed every four years after the preparation of the first Plan under these consents, or more frequently at the option of the Peer Review Panel.

- 5.3 The System Management Plan is to include, as a minimum, the following indicative information for the next four years:
- (a) Proposed new wells, workovers and abandonments;
 - (b) Other proposed field developments eg. pipelines, changes to infrastructure, earthworks, activities relating to water ways etc;
 - (c) Proposed significant changes to fluid production, station output or station operations;
 - (d) Proposed changes to, or new, reinjection/injection operations;
 - (e) Operational procedures for monitoring and responding to any adverse effects that may be caused by the exercise of these consents;
 - (f) Operational procedures for limiting unwanted thermal activity at the ground surface;
 - (g) Operational procedures for subsidence monitoring and responses to changes in prevailing subsidence trends.
- 5.4 The System Management Plan shall also incorporate the Discharge Strategy as described in General Condition 3.
- 5.5 The System Management Plan shall also incorporate the Subsidence Monitoring Programme as described in General Condition 6.1.
- 5.6 In approving the System Management Plan the Waikato Regional Council shall consult with the consent holder and seek the advice of the Peer Review Panel who may recommend changes to the System Management Plan as it deems appropriate.
- 5.7 The consent holder shall amend and/or incorporate into the System Management Plan such matters as the Waikato Regional Council, after taking advice from the

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

Peer Review Panel, from time to time may require to achieve the purpose of the Plan.

- 5.8 The consent holder shall maintain a geothermal reservoir computer model for the Wairakei-Tauhara Geothermal System, at least as detailed as the TOUGH2 based model as presented at the 2004 Waikato Regional Council hearing and shall incorporate the outputs of the geothermal reservoir model (where applicable) and any other relevant data obtained from other sources into a subsidence computer model of at least 2D capability. The Peer Review Panel may, following the assessment of subsidence model results over time, recommend changes and enhancements to the modelling as it deems necessary in the circumstances.
- 5.9 Within 12 months after the commencement of these consents, the consent holder shall refine the reservoir model to incorporate a finer block structure in the Taupo urban area in order to enhance the ability of reservoir and subsidence models to predict effects in the urban area. These refinements shall be to the satisfaction of the Waikato Regional Council (acting on the advice of the Peer Review Panel) who shall have regard to the needs of both reservoir and subsidence modelling.
- 5.10 Each four years following commencement of consents, or more frequently if directed by the Waikato Regional Council the consent holder shall use the available data and information collected to compare the computer reservoir and subsidence models predictions of the Wairakei-Tauhara Geothermal System with the actual physical changes in the system since the previous comparison. If one or both of the models outlined in General Condition 5.8 are not performing to the satisfaction of the Waikato Regional Council acting on the advice of the Peer Review Panel, the consent holder shall revise the models to improve the match to the satisfaction of the Waikato Regional Council. Subject to the models performing to the satisfaction of the Waikato Regional Council, the consent holder shall run projections of the models for the next 5, 10, 25, and 50 years, incorporating realistic production and reinjection/injection scenarios.
- 5.11 The consent holder shall each year produce a draft Annual Report to be provided to Waikato Regional Council in March on a calendar year basis (for the previous calendar year) that describes the state of the Wairakei-Tauhara Geothermal

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

System from new resource and monitoring information collected during the course of the year. The report shall contain at least the following information:

- (a) Generation information from Power Stations operated by the consent holder on the Wairakei-Tauhara Geothermal System including;
 - (i) annual generation (GWh);
 - (ii) daily average net generation (MWe);
 - (iii) maximum daily peak generation (MWe);
 - (iv) station outage details.

- (b) Information from all production wells operated by the consent holder within the Wairakei-Tauhara Geothermal System including;
 - (i) Field layout changes and well outages;
 - (ii) Summary of annual and daily fluid production including;
 - Annual and daily mass take of fluid from reservoir (tonnes);
 - Annual and daily energy extracted from reservoir (petajoules/terajoules);
 - Trends of steam flow (t/hr) and line pressures (bar g);
 - Details of any external steam supplies provided;
 - Details of any external water supplies provided;
 - (iii) Summary of operations at Southern Steam Zone;
 - (iv) Summary of operations at Western Borefield Steam Wells;
 - (v) Summary of operations at Te Mihi;
 - (vi) Summary of operations at the Western Borefield;
 - (vii) Summary of operations at the Eastern Borefield;
 - (viii) Critical analysis of production well chemistry data collected.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (c) Information on reinjection/injection within the Wairakei-Tauhara Geothermal System including;
 - (i) Description of reinjection/injection operations, depths and locations;
 - (ii) Summary of annual and daily fluid reinjection/injection volumes to the reservoir (tonnes) and depth range;
 - (iii) Summary of reinjection/injection flows (t/hr), temperatures and well head pressures (bar g);
 - (iv) Summarised results of any tracer testing undertaken.
- (d) Other well information including;
 - (i) Summary and critical analysis of data (e.g. downhole pressures) collected from monitor wells;
 - (ii) Summary and critical analysis of data (water levels) collected from groundwater monitor wells.
- (e) Reservoir information including;
 - (i) Fluid feed temperatures;
 - (ii) Liquid Pressures;
 - (iii) Vapour Zone Pressures;
 - (iv) Pressures in the Waiora Formation as measured in TH1 and TH3 or other well(s) as approved by Waikato Regional Council in accordance with any recommendation of the Peer Review Panel made under the deep liquid pressure (reinjection/injection) section of Schedule One;
 - (v) Critical analysis of each.
- (f) Summary of well drilling activities, well workovers and well abandonments.
- (g) Summary of seismic data collected.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (h) Update on the reservoir and subsidence models including future predictions.
- (i) Summary of any other surveys or interpretative reports conducted.
- (j) The results of the model projections outlined in General Condition 5.10.
- (k) Any other relevant information (e.g. thermotolerant vegetation) or data collected).
- (l) Based on those matters listed in Condition 5.3(a) to (d) above, proposed activities for the following year.
- (m) Summary of subsidence data collected.
- (n) Summary of complaints received by the consent holder under Condition 4 of the General Conditions and action undertaken with respect to them.

5.12 Reporting shall be to the satisfaction of the Waikato Regional Council.

5.13 The consent holder shall make available any surveys and interpretative reports generated in the exercise of these consents over the previous year, within 1 month of being requested, subject to the party making the request meeting the consent holder's reasonable costs of supplying the surveys and/or reports requested.

6. RESOURCE MONITORING

Subsidence Monitoring

6.1 Within 6 months after the commencements of these consents, the consent holder shall provide to Waikato Regional Council, for its approval, a draft proposal for the monitoring of subsidence in the Wairakei-Tauhara Geothermal System (the "Subsidence Monitoring Programme."). The purpose of the Subsidence Monitoring Programme shall include:

- (a) The accurate monitoring of the rates of settlement over the entire Wairakei-Tauhara Geothermal System to an extent that is warranted having regard to the potential for damage to property, especially in the Tauhara Field

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

where it underlies the built environment of Taupo town and surrounding environs; and

- (b) Identifying any new or developing subsidence areas, especially in the Tauhara Field where it underlies the built environment of Taupo town and surrounding environs.

In establishing the benchmark networks identified below, all existing benchmarks shall be incorporated to the maximum extent possible. Establishment of benchmarks shall be subject to consideration of practicality (including such matters as land access and the suitability of the site).

6.2 The Subsidence Monitoring Programme shall be generally consistent with the following criteria:

- (a) Vertical deformation surveys shall be undertaken at 4 year intervals in the general area of the Wairakei-Tauhara Geothermal System covering benchmarks as generally shown on drawings WRK 317 and WRK 319 and SAC36 attached in Schedule Four.
- (b) Vertical deformation surveys shall be undertaken every two years covering the areas as shown on map SAC36 attached in Schedule Four.
- (c) Within the Tauhara subsidence areas as defined under General Conditions 4.21 and 4.22 (Spa Hotel, Rakaunui Rd, Crown/Invergarry) and the Wairakei subsidence area within the area including Wairakei Resort, service station and SH1 bridge shown on SAC36 in Schedule Four, horizontal surveys shall be undertaken every four years using GPS techniques on benchmarks identified by a surveyor experienced in deformation surveying.
- (d) Within any subsidence bowl other than those defined in General Condition 4.21, identified after commencement of the consents, such frequency of deformation monitoring as Waikato Regional Council acting on the advice of the Peer Review Panel shall direct.
- (e) Within the area south of State Highway 5 and as shown on map SAC 37 attached in Schedule Four undertake a repeat vertical deformation survey of the benchmarks identified, within one year of the commencement of

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

these consents. Subject to the results of that survey, and any other relevant information, the Peer Review Panel shall recommend an appropriate area, frequency and intensity for future surveys, to be included in the Subsidence Monitoring Programme.

- (f) Survey methods to be prepared by a registered surveyor experienced in deformation surveying.

6.3 In approving the Subsidence Monitoring Programme the Waikato Regional Council shall consult with the consent holder and seek the advice of the Peer Review Panel who may recommend changes to the Programme as it deems appropriate.

6.4 One year following approval of the Subsidence Monitoring Programme, and subsequently at any time, the Peer Review Panel shall assess the adequacy of the programme having regard to the its purposes, and may recommend to Waikato Regional Council that alterations to the Programme be made. Such changes may be made at Waikato Regional Council's discretion.

Other Monitoring

6.5 The consent holder shall:

- (a) Collect a drillers' log and make a geological log of shallow monitor wells it drills, to the satisfaction of Waikato Regional Council.
- (b) Where directed by the Peer Review Panel the consent holder shall use its best endeavours to collect core in suitable depth zones in monitor wells drilled into or through the Huka Falls Formations, in the vicinity of the Tauhara subsidence areas, and shall undertake such geomechanical testing in depth ranges identified by the Peer Review Panel as likely to contribute to the understanding of subsidence mechanisms.

6.6 For each new well (including reinjection/injection wells that might be outside the Wairakei-Tauhara Geothermal System) drilled as part of these consents, collect and provide to Waikato Regional Council within 3 months after drilling, data and information describing the:

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (a) well location, site diagram, drilling method, size, depth, directional profile, full construction details and casing details;
 - (b) the start and completion dates of well drilling;
 - (c) physical condition of the well, and well casing in compliance with NZS 2403:1991;
 - (d) a summary drillers' log and summary geological log. This requirement shall not apply where, due to practical constraints (e.g. loss of circulation), this information cannot be obtained;
 - (e) where it is obtained, geophysical information regarding the density, porosity, permeability and conductivity of strata;
 - (f) unless Waikato Regional Council agrees in writing that this need not be undertaken, temperature and pressure profiles, such profiles to be collected not less than three times in the first six weeks after completion of drilling;
 - (g) Output enthalpy and mass flow;
 - (h) Stable chemistry of the well fluid;
 - (i) Sites of higher permeability (feed zones, depths of circulation losses) and nature of fluid discharged from these sites.
- 6.7 Undertake and document such investigations or surveys, or collect and provide such information as is requested by Waikato Regional Council in relation to any trends in the Wairakei-Tauhara Geothermal System or effects arising from its use.
- 6.8 Make repeat surveys for the duration of the consents within the measurement type, location and frequency described in Schedules One and Two, or any alteration as approved by the Waikato Regional Council taking advice from the Peer Review Panel, in the Wairakei-Tauhara Geothermal System Management Plan. Such an alteration in the monitoring programme outlined in Schedules One and Two may be approved in relation to either advice that part of the monitoring programme may not need to be continued, or alternatively if changes occur in the Wairakei-Tauhara Geothermal System which Waikato Regional Council

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

considers, after taking advice from the Peer Review Panel, require an increase in the type, frequency and location of any part of the monitoring programme, including (in the case of subsidence) subsidence predictions (modelling).

- 6.9 One year prior to the expiry of the consents, undertake the measurements and descriptions specified below and deliver to the Waikato Regional Council on or before the date of expiry of these consents, a report on the then state of the Wairakei-Tauhara Geothermal System:
- (a) gravity,
 - (b) geology (structural features, lithology, and stratigraphy),
 - (c) resistivity,
 - (d) reservoir fluid chemistry and hydrothermal alteration,
 - (e) ground water (chemistry, water levels),
 - (f) vertical and horizontal levelling,
 - (g) heat flow,
 - (h) vegetation,
 - (i) surface features including springs and steam vents (chemistry, mass and energy flux), flora and fauna.
- 6.10 After expiry of the consents or cessation of taking of deep geothermal fluid, and until the Remediation Expiry Date, the consent holder shall undertake the subsidence monitoring programme described in Schedule Two, Item A.
- 6.11 The consent holder shall include monitoring information collected during the year and interpretations in the Annual Report.
- 6.12 Measurement and reporting shall be to the satisfaction of the Waikato Regional Council.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

7. BOND

- 7.1 Within twelve months following the commencement of these consents the consent holder shall provide (and shall continue to maintain) in favour of Waikato Regional Council, a bond to secure compliance with General Conditions 4 and 6.10. The consent shall not be exercised if this condition is not satisfied.
- 7.2 The bond amount shall be \$5m for the first three year period following the commencement of the consents and in a form approved in advance by Waikato Regional Council, and shall, subject only to these consent conditions, be on the terms and conditions required by Waikato Regional Council.
- 7.3 The bond shall generally provide that the consent holder remains liable under the Resource Management Act (1991) for any breach of the consent conditions referred to in 7.1 above, and for any related adverse effects on the environment which become apparent both during the term of this consent and after the expiry of this consent but prior to the Remediation Expiry Date.
- 7.4 Unless the bond is provided as cash, the performance of all of the conditions relating to this bond shall be guaranteed by a guarantor acceptable to Waikato Regional Council. The guarantor shall bind itself to pay for the carrying out and completion of the requirements of all consent conditions to which the bond relates, in the event of any default by the consent holder, or any occurrence of adverse environment effect arising as a result of the activity authorised by this consent and which requires remedy.
- 7.5 The amount of the bond shall be reviewed three yearly by the following process:
- (a) At least three months prior to the end of the three year period for which this bond applies, the consent holder shall, taking account of all available monitoring data and best available assessments of the present and likely qualifying damage that may arise from the exercise of this and related consents, calculate the maximum total value required to meet its responsibilities for the matters subject to this bond requirement, and which may arise from the following three years of exercise of this consent plus (assuming that there is no further abstraction or reinjection/injection during that period) the period until the Remediation Expiry Date.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- (b) The consent holder shall nominate this (or any greater) sum to Waikato Regional Council as the amended bond amount to apply for the following three years plus the period until the Remediation Expiry Date and shall support that proposal with suitable technical evidence to enable Waikato Regional Council to assess the appropriateness of the amount.
- (c) Following written notice from Waikato Regional Council of acceptance of the amended bond amount, the bond documents shall be amended as necessary. After the expiry of the initial bond period this consent may not be exercised until the bond has been updated to take account of the amended bond amount.
- (d) At any other time, the consent holder or the Waikato Regional Council may propose an amendment to the bond amount, and in that event the process outlined above shall also be followed.

7.6 Should the consent holder not agree with any decision of Waikato Regional Council regarding the bond amount, and should negotiation between the parties not result in agreement, then the matter shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996. Arbitration shall be commenced by written notice by the consent holder to the Council advising that the Council's decision regarding the amount of the bond is disputed, such notice to be given by the consent holder within two weeks of receipt of the Waikato Regional Council response to the proposed bond amount. If the parties cannot agree upon an arbitrator within a week of receiving the notice from the consent holder, then the President of the Institute of Arbitrators and Mediators of New Zealand shall be requested to appoint an arbitrator with appropriate technical qualifications and experience. Such arbitrator shall give an award in writing within 30 days after his or her appointment, unless the consent holder and the Council agree that time shall be extended. The parties shall bear their own costs in connection with the arbitration. In all other respects, the provisions of the Arbitration Act 1996 shall apply. Should the arbitration be required for a review of the bond, then the existing bond shall remain in place until arbitration is complete, but if no result is achieved after 60 days the consent may then no longer be exercised until arbitration has been completed.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 7.7 The bond may be varied, cancelled, or renewed at any time by agreement between the consent holder and the Council provided that cancellation will not be agreed to unless a further or new bond acceptable to the Council or other security acceptable to Council which provides an equivalent level of security is available to replace immediately that which is to be cancelled (subject however to the condition below as to release of the bond).
- 7.8 The bond may only be released on the Remediation Expiry Date or at an earlier date following agreement in writing that further impacts from subsidence arising from this consent are no longer reasonably predicted.
- 7.9 All costs relating to the bond shall be paid by the consent holder, including the reasonable costs incurred by Waikato Regional Council.
- 7.10 The consent holder shall not transfer any of the consents to which these General Conditions apply to any person pursuant to Sections 136 and 137 of the Resource Management Act 1991 unless prior to the transfer, the transferee enters into and thereafter maintains a cash bond in favour of WRC on the same terms and conditions as contained in this General Condition 7.
- 7.11 These conditions form an integrated whole and are not severable.

8. MULTIPLE OPERATOR MECHANISMS

- 8.1 The consent holder shall consult with any subsequent operator on the Wairakei-Tauhara Geothermal System who is required to prepare a mechanism addressing the matters included under Policy 5 of the Proposed Waikato Regional Plan Variation 2 (as at 15 August 2006) ("the Policy 5 mechanism").
- 8.2 The objective of the consultation is to document measures and procedures for managing the operational relationship between operators on the Wairakei-Tauhara Geothermal System, and specifically to integrate the activities of any new consent holder with the consent holder's activities.
- 8.3 If necessary to achieve the objective of condition 8.2 the consent holder shall participate in any dispute resolution processes that may be contained in resource consents held by any subsequent operator on the Wairakei-Tauhara Geothermal System.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

- 8.4 Nothing in any Policy 5 mechanism prepared under any resource consents held by a subsequent operator shall absolve the consent holder from its legal obligations to comply with all conditions in these resource consents.
- 8.5 Subject to condition 8.6, to the extent that the consent holder's participation is required to give effect to the Policy 5 mechanism which is the result arrived at following consultation/dispute resolution under condition 8.1 and/or 8.3, it shall do so.
- 8.6 Nothing in any Policy 5 mechanism shall derogate from the rights granted to the consent holder under these resource consents.

9. REVIEW

- 9.1 During the six month period following every second anniversary of the commencement of these consents, the Waikato Regional Council may, following service of notice on the consent holder, commence a review of these General Conditions under section 128(1) of the Resource Management Act 1991, for the following purposes:
- (a) To deal with any adverse effects on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage;
 - (b) To review the effectiveness of the conditions of in avoiding, remedying or mitigating any adverse effects on the environment from the consent holder's activities and, if considered appropriate by Waikato Regional Council, to deal with such effects by way of further or amended conditions;
 - (c) To align the requirements of monitoring, management planning, peer review and reporting conditions with those of other consents exercised within the Wairakei-Tauhara Geothermal System where it better promotes efficiency and best resource management practice.
 - (d) To alter the Remediation Expiry Date;
 - (e) To review the effectiveness and efficiency of the conditions in ensuring the sustainable management of the geothermal resource, in the event that

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

resource consents for large-scale, deep geothermal extraction and/or discharge in the Wairakei-Tauhara Geothermal System are granted to a person or persons other than the consent holder;

- (f) To review such conditions as may be recommended by the Peer Review Panel.
- (g) To review the effectiveness of the conditions in avoiding, remedying or mitigating adverse effects which may occur or continue in the event or likelihood of shut-down or scale-down of geothermal production operations on the Wairakei-Tauhara Geothermal System.

10. REMEDIATION EXPIRY DATE

10.1 The Remediation Expiry Date for the purposes of these conditions shall be the 30th June 2046.

11. ADMINISTRATIVE CHARGES

11.1 The consent holder shall pay to the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008

SCHEDULE ONE – WELL MONITORING PROGRAMME

DEEP WELLS		
MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Deep liquid pressure (production)	Production area	Continuous monitoring at two suitable observation wells, using gas-filled tubing and logger
Deep liquid pressure and temperature	Existing borefield	Annual for at least 5 production wells. All wells on 5 year cycle.
Deep liquid pressure and temperature	Te Mihi – new wells	Annually for two years post drilling, and then every two years
Deep liquid pressure	Outlying monitor wells	Two yearly for wells with access to deep liquid.
Deep liquid pressure (reinjection/injection)	Reinjection/injection area	Continuous monitoring at wells TH1 and TH3 using gas-filled tubing and logger. In the event that either TH1 or TH3 is required for other purposes after the initial four years from commencement, a replacement monitor well shall be located and constructed in accordance with the recommendations of the Peer Review Panel.
Tauhara Monitor Well	Crown Road Area	In accordance with General Condition 3.4
Steam pressure	Te Mihi	3-monthly shut wellhead pressure for 1 of wells producing from Te Mihi steam zone
Steam pressure	South-West	Continuous logging of wellhead pressure at 2 observation wells in S-W steam zone
Steam pressure	Mid-Huka, Wairakei and Tauhara	Annual wellhead pressures of monitor wells open to Mid-Huka two-phase zone
Casing evaluation	Production	10-yearly log of casing condition using casing calliper or other suitable tool, except wells with internal liner or blockage
Casing/liner gauge	Production	3-yearly godevil survey
Liquid and gas chemistry and output tests	Production	Annual for representative set of two-phase producers

APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

SHALLOW GROUNDWATER WELLS		
MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Water level	Eastern borefield/ Alum Lakes/ outfield injection areas	3-monthly
Water level	Other areas	6-monthly
Water level	THM9 and THM11	3 monthly for 2 years, then PRP to review frequency
Temperature	Eastern borefield/ Alum Lakes/ outfield injection areas	Annual
Temperature	Other areas	2-yearly
Chemistry	Outfield injection areas	3-monthly for first 2 years, then annual
Chemistry	Other areas	2-yearly

APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

SCHEDULE TWO – WAIRAKEI MONITORING PROGRAMME (OTHER THAN WELLS)

A. Subsidence

MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Vertical levelling survey	The subsidence benchmark network in the Wairakei and Tauhara Fields as approved by the Waikato Regional Council having regard to the Criteria as specified in General Condition 6.2	As per the approved Subsidence Monitoring Programme
Horizontal levelling survey	The subsidence benchmark network in the Wairakei and Tauhara Fields as approved by the Waikato Regional Council having regard to the Criteria as specified in General Condition 6.2	As per the approved Subsidence Monitoring Programme

B. Surface Heat Flows

MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Aerial infra-red (including necessary ground-truthing)	Wairakei-Tauhara Geothermal System including Karapiti, Te Mihi North, Waioara Hill, Wairakei Thermal Valley, Spa Park, Broadlands Rd Reserve and Crown Rd areas	4 yearly
Photographic survey	All thermal areas as above	4 yearly

C. Springs

MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Flowrate, temperature and chemistry	Springs nos 574 and 577 on Te Rautehuia Stream, Totara Gut Spring, Otumuheke Spring, Taharepa Bath Spring, Waipahihi source spring	Annually

D. Flora and fauna

MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Thermotolerant vegetation survey	Wairakei thermal areas	4 yearly

APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008

E. Microgravity

MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Microgravity	Wairakei and Tauhara Fields	8 yearly coincident with a vertical level survey

F. Microseismic

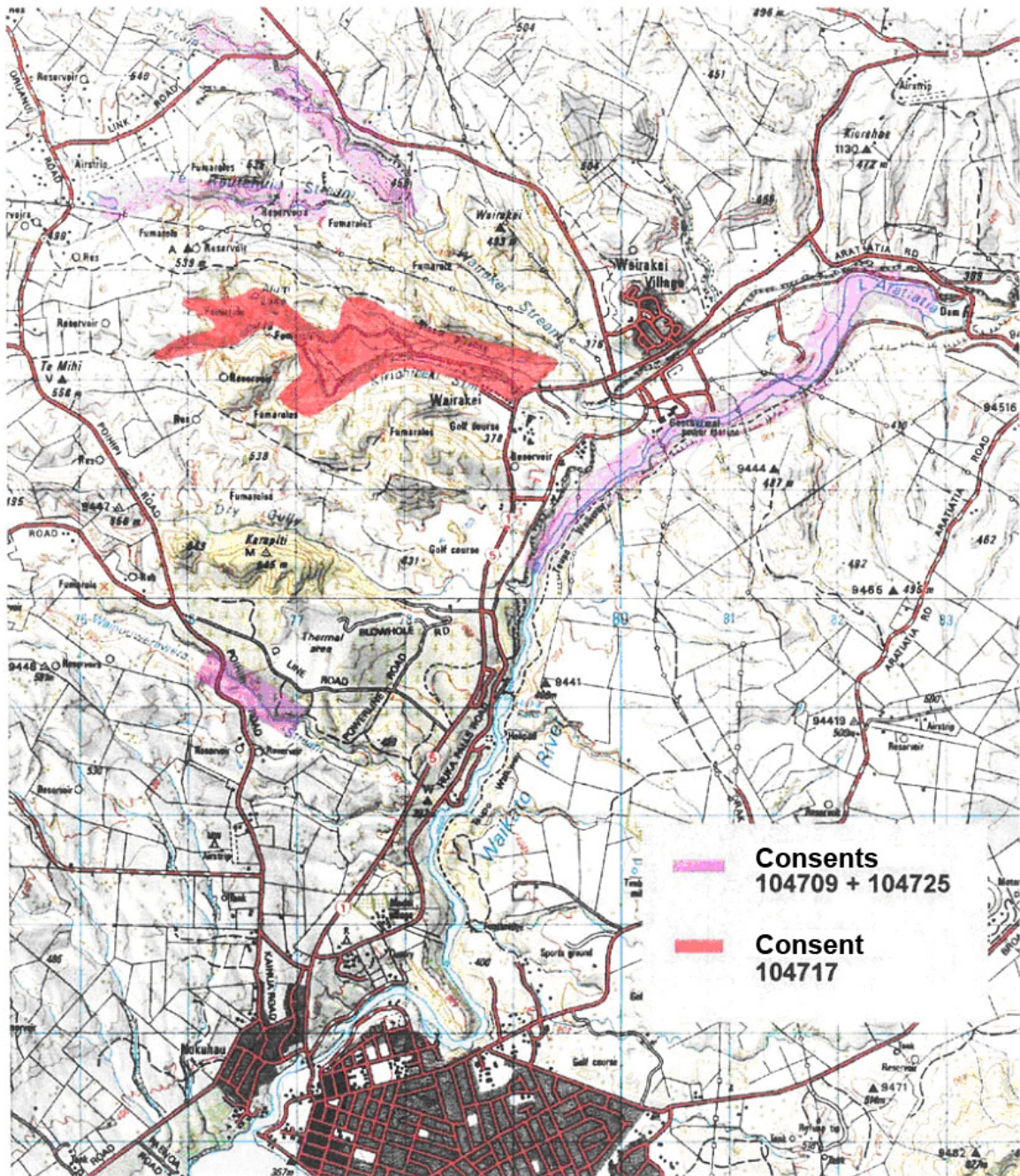
MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Poihipi Rd seismic station	Poihipi Road	Continuous

G. Tracer Tests

MEASUREMENT TYPE	LOCATION	MEASUREMENT FREQUENCY
Injection of chemical or isotope	Reinjection/injection well	Each well within first year of operation. Repeats if rapid returns indicated or if required by the Peer Review Panel.

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008



Schedule 3:Fig 02

Consent Area
Consent Numbers 104709, 104717 and 104725

APPENDIX TWO

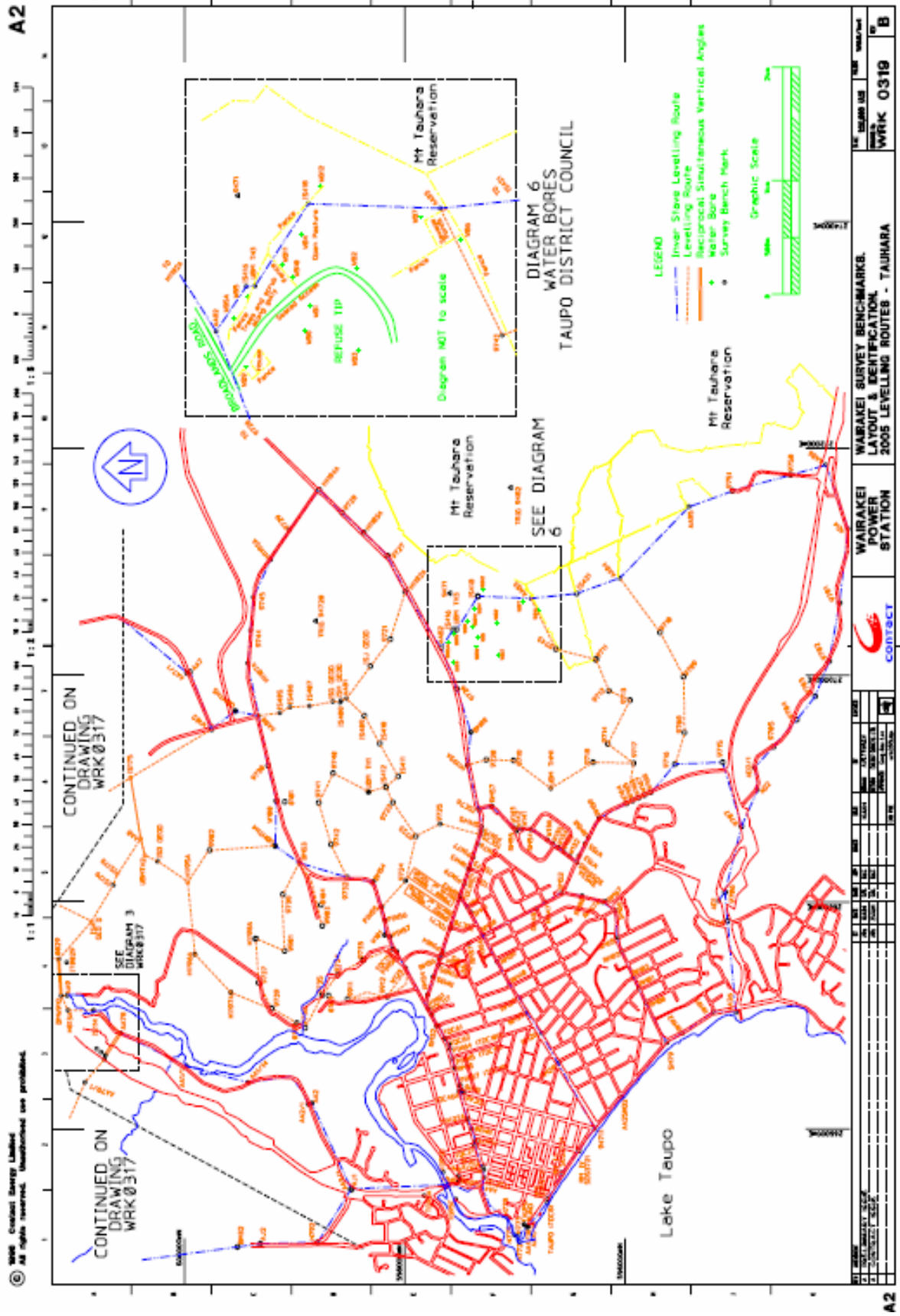
**Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008**

SCHEDULE FOUR

PLANS RELEVANT TO THE SUBSIDENCE MONITORING PROGRAMME

APPENDIX TWO

Waikato Regional Council Te Mihi Resource Consent Conditions 3 September 2008



APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008



APPENDIX TWO

Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008



APPENDIX TWO

**Waikato Regional Council
Te Mihi Resource Consent Conditions
3 September 2008**

Appendix 3:

Taupo District Council Resource Consent Conditions

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

THIS CONSENT IS GRANTED SUBJECT TO THE FOLLOWING CONDITIONS

GENERAL CONDITIONS

1. THE ACTIVITY SHALL BE UNDERTAKEN IN GENERAL ACCORDANCE WITH:
 - a. THE APPLICATION SUBMITTED BY CONTACT ENERGY LIMITED, DATED 31 JULY 2007 AND FORMALLY RECEIVED BY THE TAUPO DISTRICT COUNCIL ("THE COUNCIL") ON 1 AUGUST 2007;
 - b. THE FURTHER INFORMATION PROVIDED BY CONTACT ENERGY LIMITED, DATED 13 AUGUST 2007, 24 AUGUST 2007, 26 SEPTEMBER 2007, 3 OCTOBER 2007, 14 NOVEMBER 2007, 21 NOVEMBER 2007, 30 NOVEMBER 2007 AND 17 APRIL 2008;

AND AS MORE SPECIFICALLY DESCRIBED IN THE BOARD OF INQUIRY EVIDENCE IN CHIEF OF MR B PUMMER AND SHOWN ON THE PLANS ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS.

2. THE CONSENT HOLDER SHALL BE RESPONSIBLE FOR IMPLEMENTING EACH MANAGEMENT PLAN REQUIRED BY THIS CONSENT.
3. THE CONSENT HOLDER SHALL ENSURE THAT THE CULTURAL/ARCHAEOLOGICAL SITES PROTOCOL ATTACHED AS SCHEDULE TWO SHALL BE ADHERED TO.

ADVICE NOTE: IN ADDITION TO THE ABOVE PROTOCOL, THE CONSENT HOLDER IS ALSO SUBJECT TO THE LEGAL REQUIREMENTS OF THE POLICE, HISTORIC PLACES ACT 1993, ANTIQUITIES ACT 1975 AND ANY OTHER GOVERNING LEGISLATION.

4. THE CONSENT HOLDER SHALL BE RESPONSIBLE FOR MAKING ALL CONTRACTORS AND SUB-CONTRACTORS AWARE OF THE CONDITIONS OF CONSENT AND FOR ENSURING THE CONTRACTORS COMPLY WITH THE CONDITIONS OF CONSENT.
5. FOR THE PURPOSES OF SECTION 125 OF THE RESOURCE MANAGEMENT ACT 1991 THE LAPSE PERIOD FOR THIS CONSENT SHALL BE 9 YEARS FROM THE COMMENCEMENT OF THIS CONSENT.

EARTHWORKS/ CONSTRUCTION CONDITIONS

6. THE CONSENT HOLDER SHALL UNDERTAKE EARTHWORKS AND CONSTRUCTION ACTIVITIES GENERALLY IN ACCORDANCE WITH THE REPORT TITLED "TE MIHI POWER STATION LAND MANAGEMENT PRACTICES" PREPARED BY ENVIRONMENTAL MANAGEMENT SERVICES LIMITED, DATED JULY 2007 PROVIDED AS PART OF THE APPLICATION FOR THIS CONSENT AND IN ACCORDANCE WITH AN EROSION AND SEDIMENT CONTROL PLAN TO BE PREPARED AS SET OUT IN SECTION 4.2 OF THAT REPORT.
7. THE CONSENT HOLDER SHALL ENSURE ALL AREAS OF EARTH LEFT EXPOSED FOLLOWING CONSTRUCTION OF THE POWER STATION SHALL BE CONTOURED AND REGRASSED (OR STABILISED BY ANOTHER MEANS) TO EFFECTIVELY PREVENT EROSION AS SOON AS PRACTICABLE.
8. THE CONSENT HOLDER SHALL ENSURE ALL LARGE SCALE CONSTRUCTION WORKS SHALL BE SUPERVISED BY A PERSON SUITABLY EXPERIENCED AND QUALIFIED IN EROSION AND SEDIMENT CONTROL. THE CONTACT DETAILS OF THIS PERSON SHALL BE PROVIDED TO

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

COUNCIL PRIOR TO CONSTRUCTION OF LARGE SCALE CONSTRUCTION WORKS.

9. THE CONSENT HOLDER SHALL ENSURE EARTHWORKS ARE MANAGED TO ENSURE NO CONTAMINANTS (INCLUDING BUT NOT LIMITED TO OIL, HYDRAULIC FLUIDS, PETROL, DIESEL, OTHER FUELS, PAINTS OR SOLVENTS) ARE DISCHARGED TO SURFACE WATER FROM CONSTRUCTION ACTIVITY OR ONGOING OPERATIONS. (NOTE THAT THIS DOES NOT APPLY TO SEDIMENT DISCHARGE UNDERTAKEN IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL REQUIREMENTS).
10. THE CONSENT HOLDER SHALL ENSURE APPROPRIATE DUST CONTROL METHODS ARE IMPLEMENTED SO THAT NO OBJECTIONABLE OR OFFENSIVE DUST NUISANCE OCCURS BEYOND THE BOUNDARIES OF THE SITE.
11. THE CONSENT HOLDER SHALL ENSURE THAT AT ALL TIMES DURING LARGE SCALE CONSTRUCTION WORKS, A SUFFICIENT SUPPLY OF WATER SHALL BE AVAILABLE TO THE SITE FOR DUST SUPPRESSION PURPOSES.
12. THE CONSENT HOLDER SHALL ENSURE ALL CONSTRUCTION WORKS ARE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF NZS6803:1999 ACOUSTICS- CONSTRUCTION NOISE.
13. THE CONSENT HOLDER SHALL SEAL THE CONSTRUCTION ACCESS ROAD FROM ORUANUI ROAD TO THE POWER STATION SITE.
14. THE CONSENT HOLDER SHALL ENSURE NO LAY DOWN ACTIVITIES OR INTERNAL ACCESSWAYS SHALL BE LOCATED WITHIN 100 METRES OF THE BOUNDARIES OF LOTS 18 AND 19 DP 14449 (SOUTH AUCKLAND SURVEY DISTRICT) AS PER THE BUFFER AREA SHOWN ON HARRISON GRIERSON PLAN 124922-RC06 REV 7 ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS.
15. THE CONSENT HOLDER SHALL MANAGE ALL CONSTRUCTION WORKS WITHIN THE DEFINED LAY-DOWN AREAS SO AS TO AVOID UNNECESSARY DISRUPTION TO THE NEIGHBOURING PROPERTIES TO THE NORTH OF THE CONSENT AREA (LOTS 18 AND 19 DP 14449 SOUTH AUCKLAND SURVEY DISTRICT).
16. THE CONSENT HOLDER SHALL ENSURE THAT ACCESS TO TRANSPOWER'S TRANSMISSION LINES AND SUPPORT STRUCTURES FOR THE PURPOSES OF INSPECTION, MAINTENANCE OR ALTERATIONS, INCLUDING DISMANTLING, MUST NOT BE PRECLUDED OR OBSTRUCTED AT ANY TIME BY CONSTRUCTION TRAFFIC OR ACTIVITIES.
17. THE CONSENT HOLDER SHALL ENGAGE A SUITABLY QUALIFIED ENGINEER TO PREPARE AN OVERALL CONSTRUCTION MANAGEMENT PLAN (OF WHICH THE EROSION AND SEDIMENT CONTROL PLAN OUTLINED IN CONDITION 6 SHALL FORM A PART) FOR THE CONSTRUCTION OF THE TE MIHI GEOTHERMAL POWER STATION TO DEMONSTRATE HOW CONDITIONS 7 TO 16 OF THIS CONSENT ARE TO BE MANAGED AND COMPLIED WITH.
18. THE CONSENT HOLDER SHALL SUBMIT THE CONSTRUCTION MANAGEMENT PLAN TO THE COUNCIL FOR REVIEW NO LESS THAN 20 WORKING DAYS PRIOR TO ANY CONSTRUCTION WORKS COMMENCING. THE COUNCIL SHALL THEN RETAIN A SUITABLY QUALIFIED PERSON (INTERNAL OR EXTERNAL) TO REVIEW THE PLAN AND CERTIFY THAT IT MEETS THE REQUIREMENTS OF THESE CONDITIONS. THE CONSENT HOLDER SHALL BEAR ALL REASONABLE COSTS ASSOCIATED WITH THIS REVIEW. THE COUNCIL WILL PROVIDE A RESPONSE WITHIN 10 WORKING DAYS

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

FOLLOWING RECEIPT OF THE PLAN DETAILING WHETHER ANY
ADDITIONAL INFORMATION IS NECESSARY TO ENABLE THE REVIEW.

TRAFFIC MANAGEMENT CONDITIONS

19. THE CONSENT HOLDER SHALL ENGAGE A SUITABLY QUALIFIED TRAFFIC ENGINEER TO PREPARE A CONSTRUCTION TRAFFIC MANAGEMENT PLAN FOR THE CONSTRUCTION OF THE TE MIHI GEOTHERMAL POWER STATION.
20. THE CONSENT HOLDER SHALL ENSURE, TO THE EXTENT PRACTICALLY POSSIBLE (REFER TO ADVICE NOTE 3), THAT PRIOR TO ANY CONSTRUCTION ACTIVITIES BEING CONDUCTED A LEFT HAND SLIP LANE IS CONSTRUCTED ON STATE HIGHWAY ONE AT THE INTERSECTION WITH POIHIPI ROAD. THIS SLIP LANE IS TO BE CONSISTENT WITH THE PRELIMINARY DESIGN DRAWING TRAFFIC DESIGN GROUP 9118-5W1/14/REVISION A DATED 23 JUNE 2008 ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS. ALL DESIGN AND CONSTRUCTION WILL BE IN ACCORDANCE WITH NZ TRANSPORT AGENCY'S SPECIFICATIONS AND STANDARDS. FOR THE AVOIDANCE OF DOUBT FOR THE PURPOSES OF THESE CONDITIONS "CONSTRUCTION ACTIVITIES" DO NOT INCLUDE SITE PREPARATION EARTHWORKS.
21. THE CONSENT HOLDER SHALL ENSURE THAT THE INTERSECTION OF POIHIPI ROAD AND ORUANUI ROAD IS UPGRADED IN ACCORDANCE WITH TAUPO DISTRICT COUNCIL'S CODE OF PRACTICE FOR THE DEVELOPMENT OF LAND 2001. THIS WILL REQUIRE AN EXTENSION TO THE EXISTING RIGHT HAND TURNING BAY BY 85 METRES AND SEAL WIDENING TO PROVIDE AN EXTENDED DIVERGE TAPER AND ALSO BANK TRIMMING. THE WIDENING OF THE SEAL IS TO ALLOW WESTBOUND TRAFFIC TO PASS RIGHT TURNING TRAFFIC UNIMPEDED. DETAILED DESIGN PLANS SHALL BE SUBMITTED TO TAUPO DISTRICT COUNCIL'S PLANNING MANAGER, ENVIRONMENTAL SERVICES FOR APPROVAL AND IMPLEMENTATION PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING.
22. THE CONSENT HOLDER SHALL ENSURE SEAL WIDENING OF ORUANUI ROAD AT THE PROPOSED ENTRANCE WILL BE UNDERTAKEN TO ACCOMMODATE CONSTRUCTION TRAFFIC. THESE WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH TAUPO DISTRICT COUNCIL'S CODE OF PRACTICE FOR THE DEVELOPMENT OF LAND 2001. DETAILED DESIGN PLANS SHALL BE SUBMITTED TO TAUPO DISTRICT COUNCIL'S PLANNING MANAGER, ENVIRONMENTAL SERVICES FOR APPROVAL AND IMPLEMENTATION PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING.
23. THE CONSENT HOLDER SHALL INSTALL ROAD MARKINGS INCLUDING A WHITE DASHED CENTRELINE AND SOLID EDGE LINES FOR THE ENTIRE LENGTH OF LINK ROAD BETWEEN ORUANUI ROAD AND STATE HIGHWAY ONE PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING. ALL PAVEMENT MARKINGS TO BE IN ACCORDANCE WITH TAUPO DISTRICT COUNCIL PAVEMENT MARKING STANDARDS.
24. THE CONSENT HOLDER SHALL, IN CONJUNCTION WITH THE TAUPO DISTRICT COUNCIL UNDERTAKE A SURVEY OF THE ROAD CONDITION OF THOSE PARTS OF ORUANUI ROAD AND POIHIPI ROAD THAT ARE USED FOR THE TE MIHI POWER STATION PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING. THE CONSENT HOLDER SHALL MAINTAIN THESE PARTS OF ORUANUI AND POIHIPI ROAD TO A SAFE AND COMFORTABLE DRIVING SURFACE (AT LEAST EQUIVALENT TO THE ROAD SURFACE CONDITION IDENTIFIED BY THE ABOVE SURVEY) FOR THE DURATION OF THE CONSTRUCTION PERIOD. THE ROAD CARRIAGEWAYS USED SHALL BE

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

MADE GOOD AT THE END OF THE CONSTRUCTION PERIOD AND SHALL BE RETURNED TO TAUPO DISTRICT COUNCIL FOR MAINTENANCE RESPONSIBILITY IN A CONDITION NO WORSE THAN THAT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

25. THE CONSENT HOLDER SHALL SUBMIT THE CONSTRUCTION TRAFFIC MANAGEMENT PLAN TO THE COUNCIL AND NZ TRANSPORT AGENCY FOR REVIEW NO LESS THAN 40 WORKING DAYS PRIOR TO ANY CONSTRUCTION WORKS COMMENCING. THE COUNCIL (IN CONSULTATION WITH NZ TRANSPORT AGENCY) SHALL THEN RETAIN A SUITABLY QUALIFIED PERSON (INTERNAL OR EXTERNAL) TO REVIEW THE PLAN AND CERTIFY THAT IT MEETS THE REQUIREMENTS OF THIS CONDITION. THE CONSENT HOLDER SHALL BEAR ALL REASONABLE COSTS ASSOCIATED WITH THIS REVIEW. THE COUNCIL WILL PROVIDE A RESPONSE WITHIN 10 WORKING DAYS FOLLOWING RECEIPT OF THE PLAN DETAILING WHETHER ANY ADDITIONAL INFORMATION IS NECESSARY TO ENABLE THE REVIEW. THE PURPOSE OF THIS REVIEW IS TO ENSURE THE PLAN ACHIEVES THE FOLLOWING OBJECTIVE:

THE OBJECTIVE OF THIS MANAGEMENT PLAN IS TO ENSURE THAT TRAFFIC GENERATED DURING THE CONSTRUCTION PHASE OF THE PROJECT IS EFFECTIVELY MANAGED SO THAT INCREASES IN TRAFFIC VOLUME ARE SAFELY ACCOMMODATED WITHIN THE EXISTING ROAD NETWORK AND SO THAT ANY TRAFFIC EFFECTS ASSOCIATED WITH THIS PHASE OF THE PROJECT ARE NO MORE THAN MINOR. AS A MINIMUM, THE PLAN SHALL INCLUDE:

- a. GENERAL TRAFFIC MANAGEMENT PROCEDURES AND METHODOLOGIES TO BE IMPLEMENTED FOR THE DURATION OF THE CONSTRUCTION PROJECT.
- b. SPECIFIC TRAFFIC MANAGEMENT PROCEDURES TO ENSURE THAT CONSTRUCTION ACTIVITIES ARE SCHEDULED AND MANAGED SO AS TO MINIMISE INTERACTION BETWEEN CONSTRUCTION RELATED TRAFFIC AND NORMAL PEAK TRAFFIC FLOWS INCLUDING:
 - MANAGING SITE OPERATIONS TO ENSURE THAT THE NUMBER OF VEHICLES ON SITE IS KEPT TO A PRACTICAL MINIMUM.
 - THE INSTALLATION OF "NO STOPPING" RESTRICTIONS ON POIHIPI AND ORUANUI ROADS IN THE VICINITY OF THE SITE FOR A DISTANCE OF 1KM IN EACH DIRECTION FROM THE SITE ENTRANCE.
 - MANAGEMENT OF SHIFT TIMES FOR ALL CONTRACTORS AND SUBCONTRACTORS SO THAT THE USE OF THE POIHIPI ROAD / STATE HIGHWAY ONE INTERSECTION IS MINIMISED AS FAR AS PRACTICABLE DURING PEAK COMMUTER AND SCHOOL HOURS (8:00-9:00AM, 2:45-3:45PM, AND 4:45-5:45PM).
 - DELIVERIES TO SITE VIA THE POIHIPI ROAD / STATE HIGHWAY ONE INTERSECTION WILL BE MANAGED WITH BEST ENDEAVOURS TO MINIMISE OR AVOID THE SHIFT CHANGEOVER TIMES REFERRED TO ABOVE.
 - TRAVEL DEMAND MANAGEMENT MEASURES ARE TO BE INCLUDED IN THE CONSTRUCTION TRAFFIC MANAGEMENT PLAN WHICH INCLUDE, BUT ARE NOT LIMITED TO:

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

- PROVISION OF STAFF SHUTTLE VANS/ BUSES FOR TRANSPORTING STAFF TO AND FROM THE SITE AND INCENTIVES FOR HIGH OCCUPANCY VEHICLE USE.
 - MINIMISING ON-SITE PARKING AS FAR AS PRACTICABLE SO AS TO ENCOURAGE HIGH OCCUPANCY VEHICLE USE.
 - MEASURES TO ADDRESS TRAFFIC CONFLICTS DURING MAJOR TAUPO EVENTS SUCH AS THE A1GP, TAUPO IRONMAN AND TAUPO CYCLE CHALLENGE EVENTS.
 - MEASURES TO MINIMISE CONSTRUCTION RELATED TRAFFIC DURING PEAK TRAFFIC DEMAND IN THE VICINITY OF THE STATE HIGHWAY ONE/POIHIPI ROAD INTERSECTION, SUCH AS THE CHRISTMAS AND NEW YEAR HOLIDAY PERIOD.
26. FOLLOWING CONSTRUCTION, THE CONSTRUCTION PARKING AREA SHALL BE RE-VEGETATED AND THE REQUIRED NUMBER OF PARKING SPACES TO MEET SECTION 6 OF THE PLAN SHALL BE PERMANENTLY FORMED, SEALED AND MARKED.

LANDSCAPING CONDITIONS

27. THE CONSENT HOLDER SHALL ENGAGE A SUITABLY QUALIFIED PERSON TO PREPARE A LANDSCAPE MANAGEMENT PLAN FOR THE TE MIHI GEOTHERMAL POWER STATION SITE. THE LANDSCAPE MITIGATION WITHIN THIS LANDSCAPE MANAGEMENT PLAN IS TO FOCUS AS FAR AS IS POSSIBLE AND PRACTICABLE ON THE MITIGATION OF VISUAL EFFECTS FROM THE EXISTING RESIDENTIAL SITES IDENTIFIED IN THE BOARD OF INQUIRY EVIDENCE OF MR B COOMBS.
28. THE CONSENT HOLDER SHALL SUBMIT THE LANDSCAPE MANAGEMENT PLAN TO THE PLANNING MANAGER, ENVIRONMENTAL SERVICES, FOR APPROVAL NO LESS THAN 20 WORKING DAYS PRIOR TO THE COMMENCEMENT OF PERMANENT STRUCTURES BEING ERECTED IN ASSOCIATION WITH THE CONSTRUCTION OF THE TE MIHI GEOTHERMAL POWER STATION. THE COUNCIL SHALL RETAIN A SUITABLY QUALIFIED PERSON (INTERNAL OR EXTERNAL) TO REVIEW THE PLAN AND CERTIFY THAT IT MEETS THE REQUIREMENTS OF THIS CONDITION. THE CONSENT HOLDER SHALL BEAR ALL REASONABLE COSTS ASSOCIATED WITH THIS REVIEW. THE COUNCIL WILL RESPOND WITHIN 10 WORKING DAYS FOLLOWING RECEIPT OF THE PLAN DETAILING WHETHER ANY ADDITIONAL INFORMATION IS NECESSARY. THE PURPOSE OF THIS REVIEW IS TO ENSURE THE PLAN ACHIEVES THE FOLLOWING OBJECTIVE:
- TO MINIMISE AND MITIGATE ANY ADVERSE LANDSCAPE AND/OR VISUAL EFFECTS OF THE TE MIHI GEOTHERMAL POWER STATION AND ASSOCIATED SWITCHYARD.
- THIS PLAN SHALL HAVE PARTICULAR REGARD TO THE FINAL DESIGN OF THE POWER STATION AND THE RECOMMENDATIONS WITHIN THE REPORT TITLED "TE MIHI GEOTHERMAL POWER STATION; LANDSCAPE AND VISUAL ASSESSMENT" PREPARED BY ISTHMUS GROUP LIMITED DATED JULY 2007 AND THE REPORT TITLED "TE MIHI GEOTHERMAL POWER STATION; LANDSCAPE AND VISUAL

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

ASSESSMENT FURTHER INFORMATION" PREPARED BY ISTHMUS GROUP LIMITED DATED OCTOBER 2007.

THE LANDSCAPE MANAGEMENT PLAN SHALL INCLUDE PROVISION FOR THE IMPLEMENTATION OF THE SPECIFIC MITIGATION WORKS OUTLINED IN THE ISTHMUS GROUP LIMITED LANDSCAPE MITIGATION PLAN (BC02) ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS.

AS A MINIMUM, THE LANDSCAPE MANAGEMENT PLAN SHALL PROVIDE THE FOLLOWING INFORMATION:

- BUILDING COLOUR SCHEME(S)/ REFLECTIVITY TO PROVIDE MINIMAL CONTRAST WITH SURROUNDING LAND COVER PATTERNS AND EXISTING STRUCTURES AND BUILDINGS.
- LOCATION AND EXTENT OF ALL PROPOSED LANDFORM MOUNDING AND IN PARTICULAR ITS RELATIONSHIP TO AND WITH THE EXISTING TOPOGRAPHY.
- THE LOCATION AND PATTERN OF ALL SCREEN AND/OR AMENITY PLANTING PROPOSED.
- PLANT SPECIES, PLANTING DENSITIES, MINIMUM HEIGHTS AT TIME OF PLANTING, AND MINIMUM HEIGHTS TO BE ACHIEVED AND MAINTAINED.
- TIMING FOR IMPLEMENTATION OF ALL SITE MITIGATION MEASURES INCLUDING PLANTING.
- PLANTING AND OTHER VEGETATION MAINTENANCE PROCEDURES.

HAZARDOUS SUBSTANCES AND EMERGENCY MANAGEMENT

29. THE CONSENT HOLDER SHALL, UPON THE COMPLETION OF DETAILED DESIGN OF THE POWER STATION, UNDERTAKE A RISK ASSESSMENT (QUALITATIVE OR QUANTITATIVE) OF THE HAZARDOUS SUBSTANCES TO BE STORED AND USED AT THE SITE. THE ASSESSMENT SHALL MEET THE REQUIREMENTS OF STANDARD AS/NZS4360. A COPY OF THE RISK ASSESSMENT SHALL BE PROVIDED TO THE COUNCIL.
30. THE CONSENT HOLDER SHALL ENGAGE A SUITABLY QUALIFIED PERSON TO PREPARE AN EMERGENCY MANAGEMENT PLAN FOR THE TE MIHI GEOTHERMAL POWER STATION.
31. THE CONSENT HOLDER SHALL SUBMIT THE EMERGENCY MANAGEMENT PLAN TO THE PLANNING MANAGER ENVIRONMENTAL SERVICES, FOR APPROVAL NO LESS THAN 20 WORKING DAYS PRIOR TO COMMISSIONING THE TE MIHI GEOTHERMAL POWER STATION. THE COUNCIL SHALL THEN RETAIN A SUITABLY QUALIFIED PERSON (EITHER INTERNALLY OR EXTERNALLY) TO REVIEW THE PLAN WITH THE CONSENT HOLDER BEARING ALL REASONABLE COSTS ASSOCIATED WITH THIS REVIEW. THE PURPOSE OF THIS REVIEW IS TO ENSURE THE PLAN CONTAINS THE MINIMUM REQUIREMENTS PRESCRIBED IN SECTIONS (A) THROUGH TO (I) OF THIS CONDITION. THE COUNCIL WILL RESPOND WITHIN 10 WORKING DAYS FOLLOWING RECEIPT OF THE PLAN DETAILING WHETHER ANY ADDITIONAL INFORMATION IS NECESSARY TO SATISFY THESE REQUIREMENTS. AS A MINIMUM, THE EMERGENCY MANAGEMENT PLAN SHALL INCLUDE;

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

- a. A COMPLETE LIST OF THE HAZARDOUS SUBSTANCES AND THEIR MAXIMUM QUANTITIES STORED ON THE SITE.
 - b. SYSTEMS AND PROCEDURES FOR:
 - i. HAZARDOUS SUBSTANCES STORAGE.
 - ii. SPILL CONTROL AND SPILL RESPONSE.
 - iii. HAZARDOUS SUBSTANCE DELIVERY.
 - iv. MAINTENANCE OF HAZARDOUS SUBSTANCES FACILITIES.
 - c. SYSTEMS TO MINIMISE THE EFFECTS OF NATURAL HAZARD EVENTS.
 - d. SYSTEMS TO ADDRESS ANY RECOMMENDATIONS MADE FOLLOWING THE HAZARDOUS SUBSTANCES RISK ASSESSMENT REQUIRED PURSUANT TO CONDITION 28 OF THIS CONSENT.
 - e. DETAILS AS TO HOW THE EMERGENCY MANAGEMENT PLAN IS TO BE ASSESSED AND REVIEWED OVER THE DURATION OF THE CONSENT.
 - f. ANY OTHER SYSTEMS REQUIRED TO BE ADDRESSED IN ACCORDANCE WITH THE HAZARDOUS SUBSTANCES (EMERGENCY MANAGEMENT) REGULATIONS 2001.
 - g. MANAGEMENT PROCEDURES TO ENSURE ANY DRAINS ARE LEFT CLOSED WHEN NOT IN USE.
 - h. BUNDING OF ALL BULK STORAGE TANKS OR BULK STORAGE AREAS CONTAINING HAZARDOUS SUBSTANCES ON THE SITE. THE BUNDING SHALL BE EITHER:
 - i. SUFFICIENT TO CONTAIN 120% OF THE CAPACITY OF THE LARGEST TANK OR STORAGE CONTAINER WITHIN THE BUNDED AREA; OR
 - ii. SUFFICIENT TO MEET THE REQUIREMENTS OF CLAUSES 37 TO 39 OF THE HAZARDOUS SUBSTANCES (EMERGENCY MANAGEMENT) REGULATIONS 2001 IN COMBINATION WITH APPROPRIATE MANAGEMENT MECHANISMS TO PROVIDE SECURE CONTAINMENT OF HAZARDOUS SUBSTANCES (SUCH AS ROOFING TO EXCLUDE STORMWATER OR MANUAL PUMPS AND REGULAR DAILY VISUAL CHECKS).
 - i. CERTIFICATION OF COMPLIANCE WITH CONDITION 30(h) ABOVE IS TO BE PROVIDED TO COUNCIL PRIOR TO THE OPERATION OF THE POWER STATION.
32. THE CONSENT HOLDER SHALL NOTIFY THE PLANNING MANAGER, ENVIRONMENTAL SERVICES AS SOON AS PRACTICABLE FOLLOWING ANY SIGNIFICANT HAZARDOUS SUBSTANCE SPILL OR OTHER HAZARDOUS SUBSTANCE EMERGENCY ON THE SITE.

OPERATIONAL NOISE

33. LEVELS OF NOISE ARISING FROM THE OPERATION OF THE POWER STATION IN COMBINATION WITH NOISE LEVELS RESULTING FROM THE EXERCISE OF THE RESOURCE CONSENT GRANTED TO GEOTHERM GROUP LIMITED BY TAUPO DISTRICT COUNCIL FOLLOWING A HEARING ON 15 JULY 2003 IN ACCORDANCE WITH THE CONDITIONS AS TO NOISE SPECIFIED IN THAT CONSENT ON ITS GRANT, MEASURED AT OR WITHIN THE NOTIONAL BOUNDARY OF ANY RURAL DWELLING EXISTING AT 21

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

JULY 2008 (A LINE 20 METRES FROM ANY SIDE OF ANY RURAL DWELLING EXISTING AS AT 21 JULY 2008, OR THE LEGAL BOUNDARY WHERE THIS IS CLOSER TO THE DWELLING), SHALL NOT EXCEED THE FOLLOWING NOISE LIMITS:

7.00AM – 10.00PM 55DBA LEQ
10.00PM – 7.00AM 40DBA LEQ AND 70DBA LMAX

NOISE LEVELS SHALL BE MEASURED IN ACCORDANCE WITH THE REQUIREMENTS OF NZS 6801:2008 ACOUSTICS – MEASUREMENT OF ENVIRONMENTAL SOUND AND ASSESSED IN ACCORDANCE WITH THE REQUIREMENTS OF NZS 6802:2008 ACOUSTICS – ENVIRONMENTAL SOUND.

NOISE FROM STEAM VENTING

34. THE CONSENT HOLDER SHALL ENGAGE A SUITABLY QUALIFIED PERSON TO PREPARE AN ASSESSMENT OF THE BEST PRACTICABLE OPTION FOR MANAGING NOISE RESULTING FROM STEAM VENTING AT THE POWER STATION (“THE STEAM VENTING BEST PRACTICAL OPTION ASSESSMENT”) AS PART OF THE DETAILED DESIGN FOR THE POWER STATION.
35. THE CONSENT HOLDER SHALL SUBMIT THE STEAM VENTING BEST PRACTICAL OPTION ASSESSMENT TO THE COUNCIL FOR REVIEW NO LESS THAN 20 WORKING DAYS PRIOR TO CONSTRUCTION COMMENCING ON THE TE MIHI GEOTHERMAL POWER STATION STEAM VENTING PLANT. THE COUNCIL SHALL THEN RETAIN A SUITABLY QUALIFIED PERSON (EITHER INTERNALLY OR EXTERNALLY) TO REVIEW THE ASSESSMENT WITH THE CONSENT HOLDER BEARING ALL REASONABLE COSTS ASSOCIATED WITH THIS REVIEW. THE COUNCIL WILL RESPOND WITHIN 10 WORKING DAYS FOLLOWING RECEIPT OF THE ASSESSMENT DETAILING WHETHER ANY ADDITIONAL INFORMATION IS NECESSARY TO SATISFY ITSELF THAT THE BEST PRACTICAL OPTION HAS BEEN APPROPRIATELY INVESTIGATED AND A VIABLE DESIGN SOLUTION IDENTIFIED.
36. THE CONSENT HOLDER SHALL INCORPORATE THE DESIGN SOLUTION IDENTIFIED IN THE STEAM VENTING BEST PRACTICAL OPTION ASSESSMENT AS PART OF THE FINAL DESIGN OF THE POWER STATION.

CULTURAL CONDITION

37. THE CONSENT HOLDER SHALL ENSURE NO OPERATIONS OR MAINTENANCE OF THE TE MIHI GEOTHERMAL POWER STATION IS UNDERTAKEN WITHIN 100 METRES OF TE MIHI MAUNGA, RAPARAPA MAUNGA OR THE ROCK ART FEATURES AS IDENTIFIED ON THE PLAN ENTITLED TE MIHI – CULTURAL EXCLUSION ZONES ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS.

REVIEW CONDITION

38. THE COUNCIL MAY REVIEW THE CONDITIONS OF THIS CONSENT PURSUANT TO SECTIONS 128 AND 129 OF THE RESOURCE MANAGEMENT ACT 1991 AT FOUR YEARLY INTERVALS FOLLOWING THE ISSUING OF THIS CONSENT, IN ORDER TO DEAL WITH ANY ADVERSE EFFECT ON THE ENVIRONMENT WHICH MAY ARISE FROM THE EXERCISE OF THIS

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

CONSENT THAT WAS NOT FORESEEN AT THE TIME OF GRANTING CONSENT. THIS REVIEW MAY INCLUDE, BUT IS NOT LIMITED TO THE LANDSCAPE MITIGATION.

ADVICE NOTES

1. PURSUANT TO SECTION 198 OF THE LOCAL GOVERNMENT ACT 2002, A DEVELOPMENT CONTRIBUTION IS PAYABLE ON THIS CONSENT. IF NOT PAID BEFORE APPLICATION FOR BUILDING CONSENT OR WITHIN 12 MONTHS OF THE ISSUE OF AN ASSESSMENT, THE CONTRIBUTION SHALL BE RECALCULATED.
2. IN ACCORDANCE WITH SECTION 36(1)(C) OF THE RESOURCE MANAGEMENT ACT 1991, THE CONSENT HOLDER SHALL PAY THE COUNCIL'S REASONABLE COSTS OF ANY MONITORING THAT MAY BE NECESSARY TO ENSURE COMPLIANCE WITH THE CONDITIONS SPECIFIED.
3. WORK WITHIN THE STATE HIGHWAY ROAD RESERVE WILL REQUIRE THE PRIOR APPROVAL OF NZ TRANSPORT AGENCY, PURSUANT TO SECTION 51 OF THE GOVERNMENT ROADING POWERS ACT 1989.
4. THE CONSENT HOLDER SHALL OBTAIN ALL NECESSARY PERMISSIONS, LICENCES, AND/OR CERTIFICATES UNDER THE HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT 1996 AND REGULATIONS MADE UNDER THAT ACT. IN ADDITION TO OBTAINING RELEVANT PERMISSIONS, LICENCES, AND/OR CERTIFICATES.
5. (NZECP 34:2001 LAND USE ACTIVITY SAFE DISTANCES) ALL LAND USE ACTIVITIES, INCLUDING EARTHWORKS, OPERATION OF MOBILE PLANT, CONSTRUCTION OF BUILDING/STRUCTURES AND FENCES IN THE VICINITY OF TRANSMISSION LINES MUST COMPLY WITH THE NEW ZEALAND CODE OF PRACTICE FOR ELECTRICAL SAFE DISTANCES (NZECP 34:2001). THE CONSENT HOLDER SHOULD CONTACT TRANSPOWER NZ LTD FOR FURTHER ADVICE IN REGARD TO THESE MATTERS. IT IS TRANSPOWER'S PREFERENCE THAT ALL MOBILE PLANT OPERATED IN THE VICINITY OF A TRANSMISSION LINE MAINTAIN A HORIZONTAL DISTANCE OF AT LEAST 12 METRES FROM THE CENTRE OF THE TRANSMISSION LINE AND ITS SUPPORT STRUCTURES.
6. ALL TREES AND VEGETATION PLANTED IN THE VICINITY OF TRANSMISSION LINES MUST COMPLY WITH THE ELECTRICITY (HAZARDS FROM TREES) REGULATIONS 2003.

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

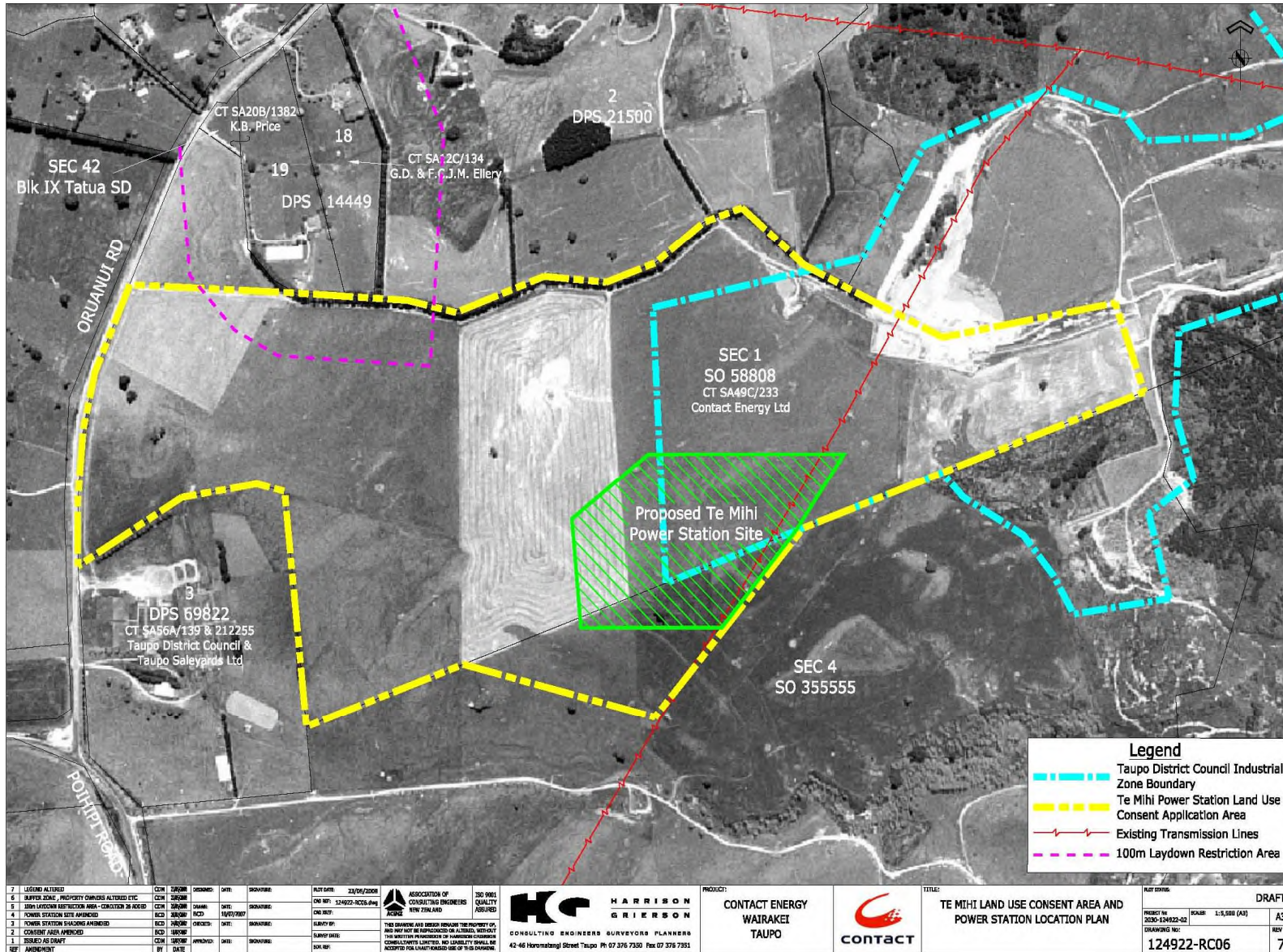
SCHEDULE ONE

1. UPDATED LAND USE CONSENT PLAN SHOWING CONSTRUCTION LAYDOWN BUFFER AREA (HARRISON GRIERSON PLAN 124922-RCO6 REV 7)
 2. TURBINE HALL AND COOLING TOWER MAXIMUM HEIGHT PLAN (PB POWER PLAN 152361-GA-002 REV 2)
 3. LANDSCAPE MITIGATION PLAN (ISTHMUS GROUP LIMITED PLAN BC02, JULY 2008)
 4. TE MIHI – CULTURAL EXCLUSION ZONE PLAN
 5. TRAFFIC DESIGN GROUP PLAN 9118-5W1/14/REVISION A DATED 23 JUNE 2008
-

APPENDIX THREE

Power Station Consent RM070304 Conditions

3 September 2008



7	LEGEND ALTERED	CDM	SURV	DRAWN	DATE	BY	DATE	23/09/2008
6	SHARED ZONE, PROPERTY OWNERS ALTERED ETC	CDM	SURV	DRAWN	DATE	BY	DATE	23/09/2008
5	100M LAYDOWN RESTRICTION AREA - CONDITION AS NOTED	CDM	SURV	DATE	BY	DATE	23/09/2008	23/09/2008
4	POWER STATION SITE AMENDED	BCD	SURV	DATE	BY	DATE	18/07/2007	
3	POWER STATION SIZINGS AMENDED	BCD	SURV	DATE	BY	DATE		
2	CONSENT AREA AMENDED	BCD	SURV	DATE	BY	DATE		
1	ISSUED AS DRAFT	CDM	SURV	DATE	BY	DATE		
REF	AMENDMENT	CDM	SURV	DATE	BY	DATE		

ASSOCIATION OF CONSULTING ENGINEERS NEW ZEALAND

HC HARRISON GRIERSON
CONSULTING ENGINEERS SURVEYORS PLANNERS

42-46 Horomanga Street Taupo Ph: 07 376 7350 Fax: 07 376 7351

PROJECT: CONTACT ENERGY WAIRAKEI TAUPO

TITLE: TE MIHI LAND USE CONSENT AREA AND POWER STATION LOCATION PLAN

300 9861 QUALITY ASSURED

PROJECT NO: 2030-124922-02 SCALE: 1:5,000 (A3)

DRAWING NO: 124922-RC06

DATE: 23/09/2008

BY: [Signature]

DATE: 23/09/2008

STATUS: DRAFT

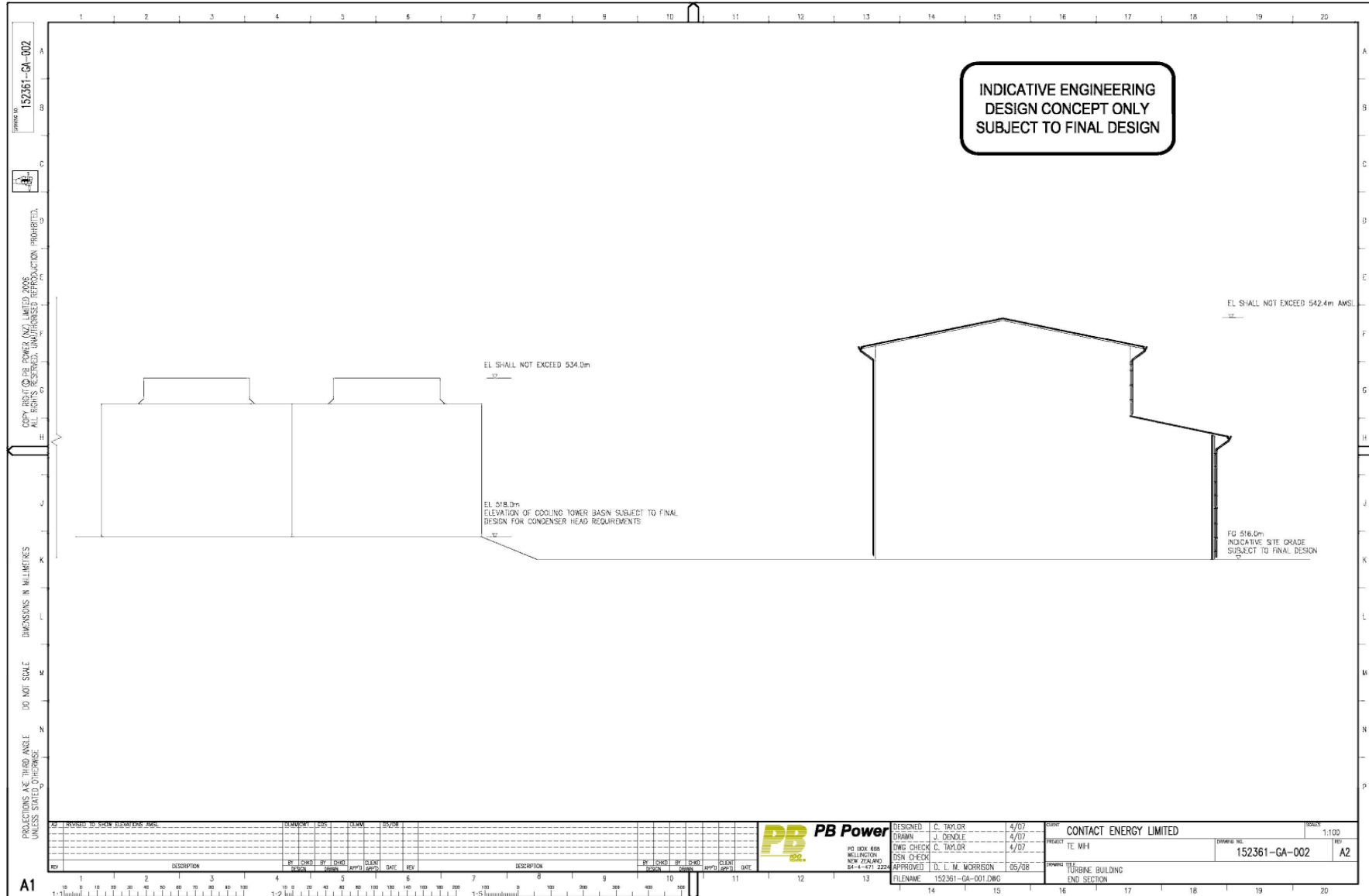
REV: 7

APPENDIX THREE

Te Mihi Land Use Application

Power Station Consent RM070304 Conditions

3 September 2008



APPENDIX THREE

Power Station Consent RM070304 Conditions

3 September 2008

Te Mihi Power Station Landscape Mitigation Plan

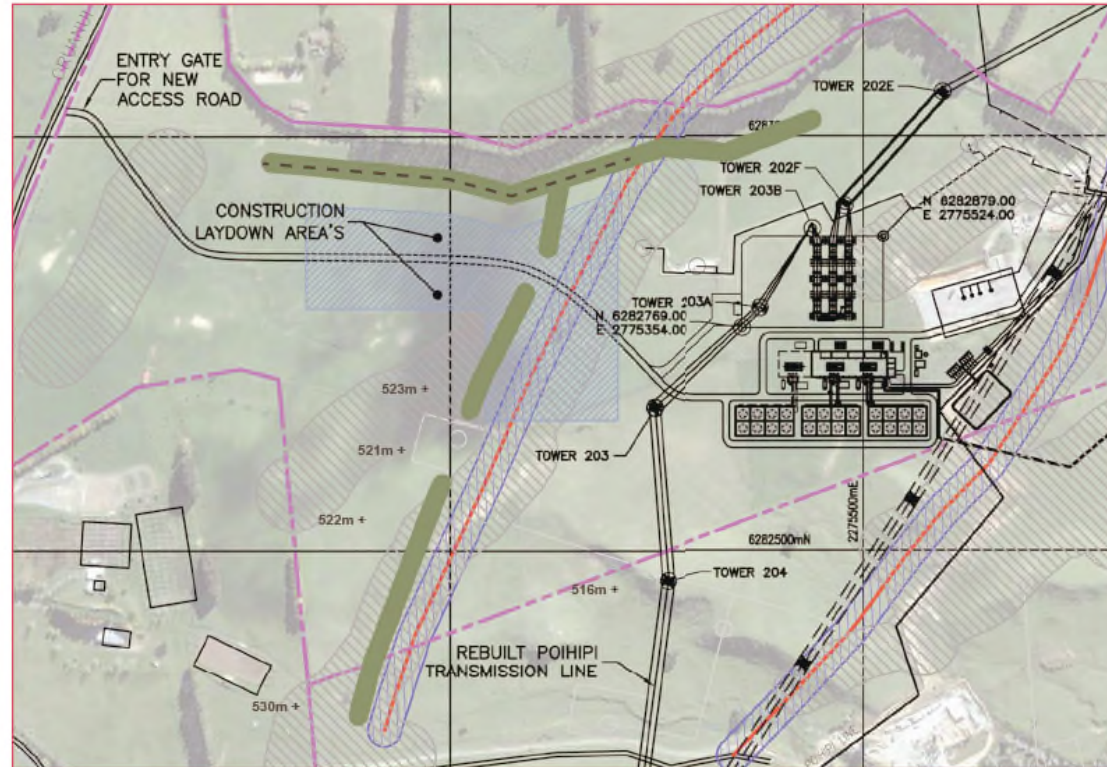


Landscape/Noise Mitigation Planting and Bund

Proposed mitigation planting is a double row of Pine (*Pinus radiata*) and Japanese Cedar (*Cryptomeria japonica*). The mitigation planting will be located on the elevated land to the west and the north-west of the development site, as indicated on this plan. Planting will be carried out at 3.0m spacings, fenced and protected from stock access, and will be subject to normal silvicultural practice. Planting will comprise a staggered double row (one of Pine for fast growth, and one of Japanese Cedar for long term amenity) and will be fenced and maintained.

Once the pine plantings have reached a mature height of 25-30 metres (approximately 20-25 years) they will be removed and replaced with an additional row of Japanese Cedar. The double row of Japanese Cedar shall then be alternated to ensure at least one row of planting is present at any one time.

The bund shall be formed prior to construction of the power station. Once formed the bund shall be planted and all planted areas fenced. The bund shall be a total height of approximately 2m above existing ground level, and a width of 4m. The shape of the bund shall be formed to match into the existing natural topography. A minimum of 500mm topsoil shall be placed on the surface of the bund. Japanese Cedars shall be a minimum of 1m tall at the time of planting. The shape and form of the bund shall be inspected and approved by a qualified landscape architect, prior to planting.



APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008



APPENDIX THREE
Power Station Consent RM070304 Conditions
3 September 2008



APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

SCHEDULE TWO

ARCHAEOLOGICAL / CULTURAL PROTOCOL

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

CULTURAL/ARCHAEOLOGICAL SITES
PROTOCOL

JULY 2008

Prepared for
Contact Energy Limited

Prepared by
Gayle Leaf

Historic Māori Cultural Values Researcher

1.0 INTRODUCTION

This Cultural/Archaeological Sites Protocol (the Protocol) is an Appendix to the Cultural Impact Assessment and has been prepared by Gayle Leaf on behalf of Ngāti Te Rangiita hapū ki Ōruanui.

Ngāti Te Rangiita hapū ki Ōruanui have manawhenua status over the Ōruanui No. 5 Block where the proposed Te Mihi geothermal power station is to be located.

Ngāti Te Rangiita hapū ki Ōruanui adopted the Protocol at a hui on 17th November 2007.

2.0 AIMS OF THE PROTOCOL

The Protocol sets out the process that Contact Energy Limited (Contact Energy) must follow if there is a discovery of a cultural/archaeological site (e.g. Waahi Tapu site that might include historic pā, canoe landing sites, buried whakairo [carvings], kōiwi tāngata [human remains], tohu such as landmarks, pou, urupā [burial sites, where the whenua [placenta] was returned to the earth, or where a certain type of valued resource is found), during the construction, operation and maintenance of the Te Mihi geothermal power station.

The Protocol is intended for use only by Contact Energy for the construction, operation and maintenance of the Te Mihi geothermal power station.

3.0 KNOWN CULTURAL/ARCHAEOLOGICAL SITES

An Archaeological Assessment of the Te Mihi geothermal power station site was undertaken in May 2007 by Clough and Associates.

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

The assessment confirmed that one archaeological site is recorded adjacent to the southern banks of the upper Te Rau-o-te-huia Stream. The rock art and shelter site (U17/17) are located to the north of the Te Mihi project area.

Two similar rock art sites (U17/16 and 21) are also recorded approximately 1.5km to the north of the Wairakei Geothermal Power area, on the southern flanks of Ngangiho hill.

Note that these sites are considered by Ngāti Te Rangiita hapū ki Ōruanui as sites of cultural and spiritual value. The term 'Archaeological Sites' is used in this protocol purely to reference the Clough and Associates Archaeological Report prepared for the Te Mihi geothermal power station resource consent application and also the relevant statutory legislation such as the Historic Places Act 1993.

4.0 PROTOCOL

4.1 Discovery of Cultural/Archaeological sites

During the construction, operation and/or maintenance of the Te Mihi geothermal power station a cultural/archaeological site may potentially be discovered. In the event that a site is discovered, the Protocol provides Contact Energy with a clear process to contact Ngāti Te Rangiita hapū ki Ōruanui and the necessary statutory bodies to collectively arrive at an appropriate and culturally sensitive action plan for dealing with the discovered site.

4.2 Cease operations

If a site is discovered, Contact Energy shall direct the contractor to suspend all, and any, ongoing operations and physical works in the immediate vicinity of the discovered site.

The contractor must mark the site and undertake any necessary temporary measures to protect the site from further exposure to the elements (if uncovered) or damaged from machinery (through removal or repositioning of machinery). This may include, but is not limited to the covering of the site to provide temporary shelter and/or the removal of equipment where this will not further damage the site.

Operations can continue elsewhere, provided that the continuation of operations will not directly or indirectly affect the discovered site. If there is doubt as to whether the continuation of operations will directly or indirectly affect the discovered site, all operations should cease until discussions with representatives of Ngāti Te Rangiita hapū ki Ōruanui and any relevant statutory body can take place, and an action plan is formulated for dealing with the discovered site.

4.3 Contact representatives of Te Rangiita hapū ki Ōruanui and relevant statutory agencies

Once operations have ceased and any necessary measures to protect the discovered site have been undertaken, Contact Energy shall inform in the first instance the representative of Ngāti Te Rangiita hapū ki Ōruanui, and following consultation with the representative of Ngāti Te Rangiita hapū ki Ōruanui, any relevant statutory agency.

In the event that kōiwi are discovered, Contact Energy shall contact and consult with the representative of Ngati Te Rangiita hapu ki Oruanui and advise the Strategic Communications Officer of the Taupo District Council, and then contact the Historic Places Trust, the New Zealand Police on the advice of the representative of Ngati Te Rangiita hapu ki Oruanui. As set out in Section 4.4 of this Protocol, a *Plan of Action* will be developed for the discovery of kōiwi.

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

Contact Energy will engage an archaeologist to provide expert advice and recommendations to the Historic Places Trust as to the significance of the discovered site.

4.4 Assessment by Archaeologist

The archaeologist engaged by Contact Energy will undertake a detailed assessment of the discovered site to determine its significance and will, in consultation with Ngāti Te Rangiita hapū ki

Ōruanui, inform the Historic Places Trust of the discovered site (if this has not already occurred).

As part of the assessment process, the archaeologist, in consultation with Ngāti Te Rangiita hapū ki Ōruanui, can direct Contact Energy to remove any temporary measures put in place to protect the discovered site.

In consultation with Contact Energy, the archaeologist and Ngāti Te Rangiita hapū ki Ōruanui will put in place an agreed *Plan of Action* to appropriately and sensitively deal with the remediation or protection of the discovered site (if this is required). The archaeologist, in conjunction with Ngāti Te Rangiita hapū ki Ōruanui and Contact Energy will provide a recommendation to the Historic Places Trust as to the significance of the discovered site including the agreed *Plan of Action* for appropriately and sensitively dealing with the remediation or protection of the discovered site, and whether any Authorities are required under the Historic Places Act 1991. Refer to Section 5.0 of this Protocol for the *Plan of Action* framework.

In the event that Ngāti Te Rangiita hapū ki Ōruanui and the archaeologist are satisfied that the discovered site is not of any cultural significance or is not an archaeological site and does not require an Authority from the Historic Places Trust, Contact Energy can recommence operations as per the requirements of any resource consents granted for the construction, operation and maintenance of the Te Mihi geothermal power station.

4.5 Application for Authority to the Historic Places Trust

In the event that an Authority is required pursuant to the Historic Places Act 1991, Contact Energy, in consultation with Ngāti Te Rangiita hapū ki Ōruanui, is responsible for developing all such applications to the Historic Places Trust.

It is envisaged by Ngāti Te Rangiita hapū ki Ōruanui that any agreed *Plan of Action* to appropriately and sensitively deal with the remediation or protection of the discovered site will provide the basis of any application for an Authority to the Historic Places Trust.

4.6 Completion of Archaeological Field Work

In accordance with any Authority granted by the Historic Places Trust, or in accordance with the agreed *Plan of Action* for discovered sites that do not require an Authority from the Historic Places Trust, the archaeological field work required to remediate or protect the discovered site will be completed.

Contact Energy will accept and make allowances for all tikanga in accordance with Ngāti Te Rangiita hapū ki Ōruanui kawa. For example if kaumātua are required to bless a site, the representative of Ngāti Te Rangiita hapū ki Ōruanui will organise this process and inform Contact Energy of the necessary arrangements.

If the representative of Ngāti Te Rangiita hapū ki Ōruanui elects not to be present during the completion of the archaeological field work, Contact Energy will advise the representative of Ngāti Te Rangiita hapū ki Ōruanui when the archaeological field work

APPENDIX THREE
Te Mihi Land Use Application
Power Station Consent RM070304 Conditions
3 September 2008

has been completed, or at any stage that has been previously agreed to during the fieldwork.

4.7 Recommencement of Operations

Following the completion of the archaeological field work to remediate or protect the site, and all formal processes conducted by Ngāti Te Rangīita hapū ki Ōruanui, Contact Energy can recommence operations as per the requirements of any resource consents granted for the construction, operation and maintenance of the Te Mihi geothermal power station.

4.8 Submission of Archaeological report to Historic Places Trust

Following the completion of the archaeological field work to remediate or protect the site, and all formal processes conducted by Ngāti Te Rangīita hapū ki Ōruanui, the archaeologist shall submit a report to the Historic Places Trust detailing:

- *The discovery of the site; and*
- *The agreed plan of action (including consultation with Contact Energy and Ngāti Te Rangīita hapū ki Ōruanui); and*
- *The outcome of the archaeological assessment; and*
- *Any Authorities that have been applied for under the Historic Places Act 1991 (including the outcome of this process); and*
- *The remediation or protection of the site; and*
- *Any other issues that the archaeologist deems necessary to include in this report.*

A copy of the report sent to the Historic Places Trust will also be sent to the representative of Ngāti Te Rangīita hapū ki Ōruanui.

5.0 PLAN OF ACTION FRAMEWORK

In the event that a discovered site is of cultural significance to Ngāti Te Rangīita hapū ki Ōruanui a *Plan of Action* will be developed to map out the process for remediating or protecting the site. The *Plan of Action* will include:

- *Location of the discovered site; and*
- *Description of the discovered site; and*
- *Photographic record of the discovered site; and*
- *Agreed process to remediate or protect the discovered site including tikanga in accordance with Ngāti Te Rangīita hapū ki Ōruanui kawa; and*
- *Assessment of the discovered site undertaken by Archaeologist.*

It is envisaged by Ngāti Te Rangīita hapū ki Ōruanui that any Plan of Action developed for a discovered site will form the basis of information submitted to the Historic Places Trust as part of any reporting or application for any Authority required under the Historic Places Act 1993.

6.0 THE POINTS OF CONTACT FOR NGATI TE RANGIITA HAPU KI ORUANUI

The point of contact for Ngati Te Rangīita hapu ki Oruanui is Gayle Leaf.

Contact Details

Secretary Ngati Te rangiita hapu ki Oruanui
Oruanui Road
Taupo
Phone: 07 376 7989
Cell: 021 131 4910
Gayle.Leaf@hotmail.com

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

THIS CONSENT IS GRANTED SUBJECT TO THE FOLLOWING CONDITIONS

GENERAL CONDITIONS

1. THE ACTIVITY SHALL BE UNDERTAKEN IN GENERAL ACCORDANCE WITH:
 - a. THE APPLICATION SUBMITTED BY CONTACT ENERGY LIMITED, DATED 31 JULY 2007 AND FORMALLY RECEIVED BY THE TAUPO DISTRICT COUNCIL ("THE COUNCIL") ON 1 AUGUST 2007.
 - b. THE FURTHER INFORMATION PROVIDED BY CONTACT ENERGY LIMITED, DATED 13 AUGUST 2007, 24 AUGUST 2007, 26 SEPTEMBER 2007, 3 OCTOBER 2007, 14 NOVEMBER 2007, 21 NOVEMBER 2007, 30 NOVEMBER 2007 AND 17 APRIL 2008.

AND AS MORE SPECIFICALLY DESCRIBED IN THE BOARD OF INQUIRY EVIDENCE IN CHIEF OF MR B PUMMER AND THE MODIFIED HARRISON GRIERSON PLAN NO. 124922-RCO8 REV 6 ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS.

2. THE CONSENT HOLDER SHALL BE RESPONSIBLE FOR IMPLEMENTING EACH MANAGEMENT PLAN REQUIRED BY THIS CONSENT.
3. THE CONSENT HOLDER SHALL ENSURE THAT THE CULTURAL/ARCHAEOLOGICAL SITES PROTOCOL ATTACHED AS SCHEDULE TWO SHALL BE ADHERED TO.

ADVICE NOTE: IN ADDITION TO THE ABOVE PROTOCOL, THE CONSENT HOLDER IS ALSO SUBJECT TO THE LEGAL REQUIREMENTS OF THE POLICE, HISTORIC PLACES ACT 1993, ANTIQUITIES ACT 1975 AND ANY OTHER GOVERNING LEGISLATION.

4. THE CONSENT HOLDER SHALL BE RESPONSIBLE FOR MAKING ALL CONTRACTORS AND SUB-CONTRACTORS AWARE OF THE CONDITIONS OF CONSENT AND FOR ENSURING THE CONTRACTORS COMPLY WITH THE CONDITIONS OF CONSENT.
5. FOR THE PURPOSE OF SECTION 125 OF THE RESOURCE MANAGEMENT ACT 1991 THE LAPSE PERIOD FOR THIS CONSENT SHALL BE 9 YEARS FROM THE COMMENCEMENT OF THIS CONSENT.

EARTHWORKS/ CONSTRUCTION CONDITIONS

6. THE CONSENT HOLDER SHALL UNDERTAKE EARTHWORKS AND CONSTRUCTION ACTIVITIES GENERALLY IN ACCORDANCE WITH THE REPORT TITLED "TE MIHI POWER STATION LAND MANGEMENT PRACTICES" PREPARED BY ENVIRONMENTAL MANAGEMENT SERVICES LIMITED, DATED JULY 2007 PROVIDED AS PART OF THE APPLICATION FOR THIS CONSENT AND IN ACCORDANCE WITH AN EROSION AND SEDIMENT CONTROL PLAN TO BE PREPARED AS SET OUT IN SECTION 4.2 OF THAT REPORT.
7. THE CONSENT HOLDER SHALL ENSURE ALL AREAS OF EARTH LEFT EXPOSED FOLLOWING CONSTRUCTION OF THE SWITCH YARD SHALL BE CONTOURED AND REGRASSED (OR STABILISED BY SOME OTHER MEANS) TO EFFECTIVELY PREVENT EROSION AS SOON AS PRACTICABLE.
8. THE CONSENT HOLDER SHALL ENSURE ALL LARGE SCALE CONSTRUCTION WORKS SHALL BE SUPERVISED BY A PERSON SUITABLY EXPERIENCED AND QUALIFIED IN EROSION AND SEDIMENT CONTROL. THE

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

CONTACT DETAILS OF THIS PERSON SHALL BE PROVIDED TO COUNCIL PRIOR TO CONSTRUCTION OF LARGE SCALE CONSTRUCTION WORKS.

9. THE CONSENT HOLDER SHALL ENSURE EARTHWORKS ARE MANAGED TO ENSURE NO CONTAMINANTS (INCLUDING BUT NOT LIMITED TO OIL, HYDRAULIC FLUIDS, PETROL, DIESEL, OTHER FUELS, PAINTS OR SOLVENTS) ARE DISCHARGED TO SURFACE WATER FROM CONSTRUCTION ACTIVITY OR ONGOING OPERATIONS. (NOTE THAT THIS DOES NOT APPLY TO SEDIMENT DISCHARGE UNDERTAKEN IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL REQUIREMENTS)
10. THE CONSENT HOLDER SHALL ENSURE APPROPRIATE DUST CONTROL METHODS ARE IMPLEMENTED SO THAT NO OBJECTIONABLE OR OFFENSIVE DUST NUISANCE OCCURS BEYOND THE BOUNDARIES OF THE SITE.
11. THE CONSENT HOLDER SHALL ENSURE THAT AT ALL TIMES DURING LARGE SCALE CONSTRUCTION WORKS, A SUFFICIENT SUPPLY OF WATER SHALL BE AVAILABLE TO THE SITE FOR DUST SUPPRESSION PURPOSES.
12. THE CONSENT HOLDER SHALL ENSURE ALL CONSTRUCTION WORKS ARE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF NZS6803:1999 ACOUSTICS- CONSTRUCTION NOISE.

HAZARDOUS SUBSTANCES AND EMERGENCY MANAGEMENT

13. HAZARDS ASSOCIATED WITH OIL-FILLED EQUIPMENT, OIL STORAGE, OIL PROCESSING AND FILLING OF EQUIPMENT IN THE SWITCHING STATION SHALL BE MANAGED IN ACCORDANCE WITH TRANSPower NEW ZEALAND LIMITED'S TP:GS.54.01 FOR OIL SPILL MANAGEMENT OR SUBSEQUENT REVISIONS OF THAT DOCUMENT. IN ADDITION, THE REQUIREMENTS OF THE HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT 1996 AND REGULATIONS SHALL APPLY TO ANY CLASSIFIED HAZARDOUS SUBSTANCES STORED OR USED ON SITE.
14. THE REQUIREMENT FOR OIL SPILL MANAGEMENT FACILITIES IN THE SWITCHYARD SHALL BE DETERMINED IN ACCORDANCE WITH THE DESIGN GUIDES IN APPENDIX B OF TP.GS 54.01, OR SUBSEQUENT REVISIONS OF THAT DOCUMENT.
15. AN OIL SPILL MANAGEMENT AND CONTINGENCY PLAN (OSMCP) FOR THE SWITCHYARD SHALL BE PREPARED ACCORDING TO TRANSPower NEW ZEALAND LIMITED'S TP.SS 02.84 STATION OIL SERVICES MAINTENANCE SERVICE SPECIFICATION, OR SUBSEQUENT REVISIONS OF THAT DOCUMENT, AND BE SUBMITTED FOR APPROVAL TO THE PLANNING MANAGER, ENVIRONMENTAL SERVICES.
16. THE CONSENT HOLDER SHALL NOTIFY THE PLANNING MANAGER, ENVIRONMENTAL SERVICES AS SOON AS PRACTICABLE FOLLOWING ANY SIGNIFICANT HAZARDOUS SUBSTANCE SPILL OR OTHER HAZARDOUS SUBSTANCE EMERGENCY ON THE SITE.

REVIEW CONDITION

17. THE COUNCIL MAY REVIEW THE CONDITIONS OF THIS CONSENT PURSUANT TO SECTIONS 128 AND 129 OF THE RESOURCE MANAGEMENT ACT 1991 AT FOUR YEARLY INTERVALS FOLLOWING THE ISSUING OF THIS CONSENT, IN ORDER TO DEAL WITH ANY ADVERSE EFFECT ON THE

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

ENVIRONMENT WHICH MAY ARISE FROM THE EXERCISE OF THIS CONSENT THAT WAS NOT FORESEEN AT THE TIME OF GRANTING CONSENT.

ADVICE NOTES

1. PURSUANT TO SECTION 198 OF THE LOCAL GOVERNMENT ACT 2002, A DEVELOPMENT CONTRIBUTION IS PAYABLE ON THIS CONSENT. IF NOT PAID BEFORE APPLICATION FOR BUILDING CONSENT OR WITHIN 12 MONTHS OF THE ISSUE OF AN ASSESSMENT, THE CONTRIBUTION SHALL BE RECALCULATED.
2. IN ACCORDANCE WITH SECTION 36(1)(C) OF THE RESOURCE MANAGEMENT ACT 1991, THE CONSENT HOLDER SHALL PAY THE COUNCIL'S REASONABLE COSTS OF ANY MONITORING THAT MAY BE NECESSARY TO ENSURE COMPLIANCE WITH THE CONDITIONS SPECIFIED.
3. NOISE LEVELS SHALL BE MEASURED AND ASSESSED IN ACCORDANCE WITH THE REQUIREMENTS OF NEW ZEALAND STANDARD NZS 6801:2008 "ACOUSTICS – MEASUREMENT OF ENVIRONMENTAL SOUND" AND NZS 6802: 2008 "ASSESSMENT OF ENVIRONMENTAL SOUND".
4. THE CONSENT HOLDER SHALL OBTAIN ALL NECESSARY PERMISSIONS, LICENCES, AND/OR CERTIFICATES UNDER THE HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT 1996 AND REGULATIONS MADE UNDER THAT ACT. IN ADDITION TO OBTAINING RELEVANT PERMISSIONS, LICENCES, AND/OR CERTIFICATES.
5. (NZECP 34:2001 LAND USE ACTIVITY SAFE DISTANCES) ALL LAND USE ACTIVITIES, INCLUDING EARTHWORKS, OPERATION OF MOBILE PLANT, CONSTRUCTION OF BUILDING/STRUCTURES AND FENCES IN THE VICINITY OF TRANSMISSION LINES MUST COMPLY WITH THE NEW ZEALAND CODE OF PRACTICE FOR ELECTRICAL SAFE DISTANCES (NZECP 34:2001). THE CONSENT HOLDER SHOULD CONTACT TRANSPOWER NZ LTD FOR FURTHER ADVICE IN REGARD TO THESE MATTERS. IT IS TRANSPOWER'S PREFERENCE THAT ALL MOBILE PLANT OPERATED IN THE VICINITY OF A TRANSMISSION LINE MAINTAIN A HORIZONTAL DISTANCE OF AT LEAST 12 METRES FROM THE CENTRE OF THE TRANSMISSION LINE AND ITS SUPPORT STRUCTURES.
6. ALL TREES AND VEGETATION PLANTED IN THE VICINITY OF TRANSMISSION LINES MUST COMPLY WITH THE ELECTRICITY (HAZARDS FROM TREES) REGULATIONS 2003.
7. THE NOISE LEVELS FOR OPERATION OF THE SITE ARE TO BE IN ACCORDANCE WITH THE TAUPO DISTRICT PLAN REQUIREMENTS AS AT THE TIME OF GRANTING THE CONSENT. SHOULD NOISE EMISSIONS EXCEED DISTRICT PLAN NOISE LIMITS WITHIN THE NOTIONAL BOUNDARY OF ANY RURAL DWELLING (EXISTING AT THE TIME OF GRANTING THE CONSENT) LOCATED BEYOND THE DISTRICT PLAN NOISE CONTROL BOUNDARY (SEE RULE 4(B)3.6) THE CONSENT HOLDER SHALL BE REQUIRED TO UNDERTAKE ANY NECESSARY REMEDIAL ACTION TO ENSURE COMPLIANCE WITH THE DISTRICT PLAN.
8. THE MANAGEMENT PLANS REQUIRED BY THIS CONSENT CAN BE EITHER STAND ALONE DOCUMENTS OR INTEGRATED WITH THOSE REQUIRED BY THE TE MIHI GEOTHERMAL POWER STATION LAND USE CONSENT.

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

SCHEDULE ONE

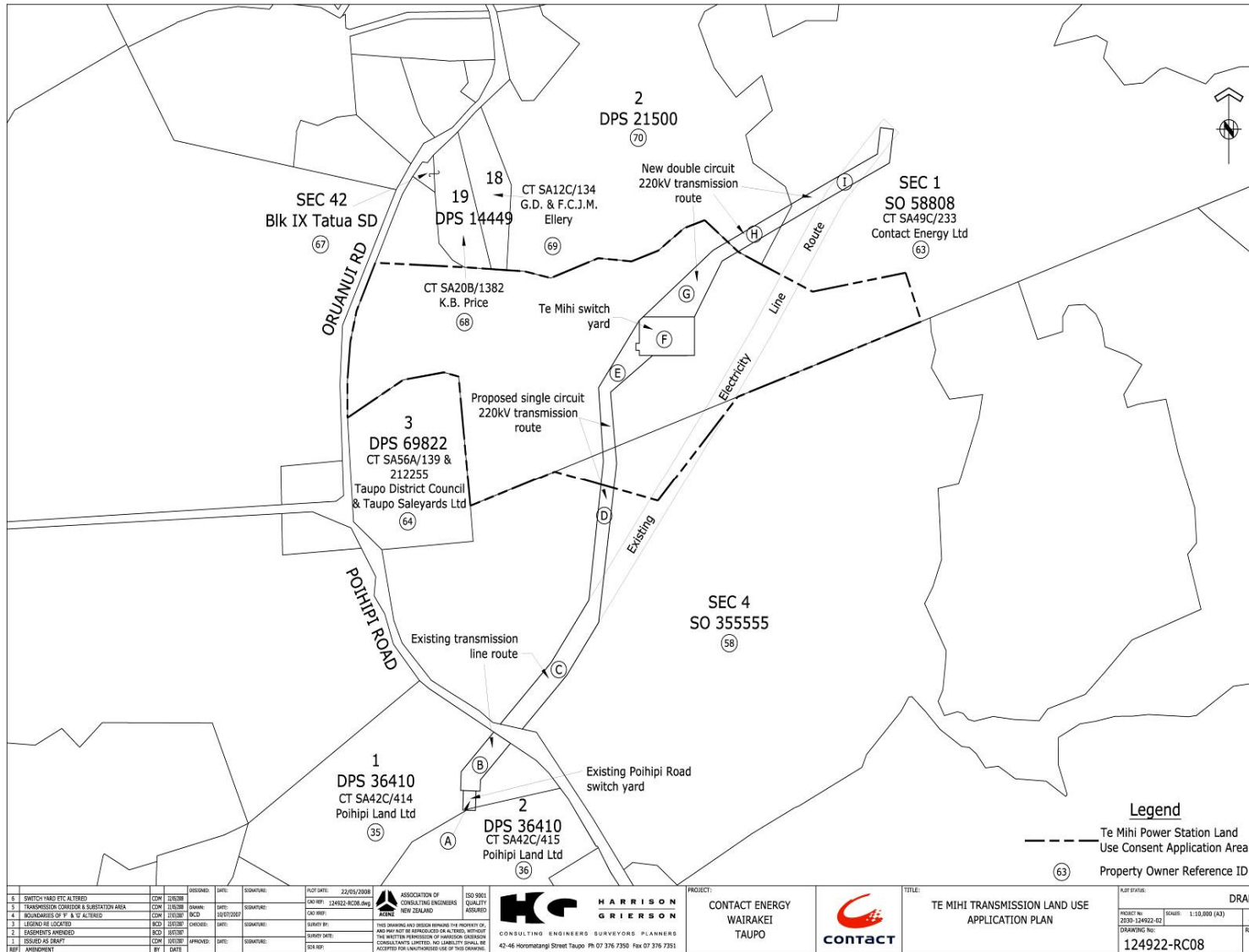
**MODIFIED SWITCHYARD AREA F SHOWN ON HARRISON
GRIERSON PLAN NO. 124922-RCO8 REV 6**

APPENDIX THREE

Te Mihi Land Use Application

Switch Yard Consent RM070305 Conditions

3 September 2008



APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

SCHEDULE TWO

ARCHAEOLOGICAL / CULTURAL PROTOCOL

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

CULTURAL/ARCHAEOLOGICAL SITES PROTOCOL

JULY 2008

Prepared for
Contact Energy Limited

Prepared by
Gayle Leaf
Historic Māori Cultural Values Researcher

1.0 INTRODUCTION

This Cultural/Archaeological Sites Protocol (the Protocol) is an Appendix to the Cultural Impact Assessment and has been prepared by Gayle Leaf on behalf of Ngāti Te Rangiita hapū ki Ōruanui.

Ngāti Te Rangiita hapū ki Ōruanui have manawhenua status over the Ōruanui No. 5 Block where the proposed Te Mihi geothermal power station is to be located.

Ngāti Te Rangiita hapū ki Ōruanui adopted the Protocol at a hui on 17th November 2007.

2.0 AIMS OF THE PROTOCOL

The Protocol sets out the process that Contact Energy Limited (Contact Energy) must follow if there is a discovery of a cultural/archaeological site (e.g. Waahi Tapu site that might include historic pā, canoe landing sites, buried whakairo [carvings], kōiwi tāngata [human remains], tohu such as landmarks, pou, urupā [burial sites, where the whenua [placenta] was returned to the earth, or where a certain type of valued resource is found), during the construction, operation and maintenance of the Te Mihi geothermal power station.

The Protocol is intended for use only by Contact Energy for the construction, operation and maintenance of the Te Mihi geothermal power station.

3.0 KNOWN CULTURAL/ARCHAEOLOGICAL SITES

An Archaeological Assessment of the Te Mihi geothermal power station site was undertaken in May 2007 by Clough and Associates.

The assessment confirmed that one archaeological site is recorded adjacent to the southern banks of the upper Te Rau-o-te-huia Stream. The rock art and shelter site (U17/17) are located to the north of the Te Mihi project area.

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

Two similar rock art sites (U17/16 and 21) are also recorded approximately 1.5km to the north of the Wairakei Geothermal Power area, on the southern flanks of Ngangiho hill.

Note that these sites are considered by Ngāti Te Rangiita hapū ki Ōruanui as sites of cultural and spiritual value. The term 'Archaeological Sites' is used in this protocol purely to reference the Clough and Associates Archaeological Report prepared for the Te Mihi geothermal power station resource consent application and also the relevant statutory legislation such as the Historic Places Act 1993.

4.0 PROTOCOL

4.1 Discovery of Cultural/Archaeological sites

During the construction, operation and/or maintenance of the Te Mihi geothermal power station a cultural/archaeological site may potentially be discovered. In the event that a site is discovered, the Protocol provides Contact Energy with a clear process to contact Ngāti Te Rangiita hapū ki Ōruanui and the necessary statutory bodies to collectively arrive at an appropriate and culturally sensitive action plan for dealing with the discovered site.

4.2 Cease operations

If a site is discovered, Contact Energy shall direct the contractor to suspend all, and any, ongoing operations and physical works in the immediate vicinity of the discovered site.

The contractor must mark the site and undertake any necessary temporary measures to protect the site from further exposure to the elements (if uncovered) or damaged from machinery (through removal or repositioning of machinery). This may include, but is not limited to the covering of the site to provide temporary shelter and/or the removal of equipment where this will not further damage the site.

Operations can continue elsewhere, provided that the continuation of operations will not directly or indirectly affect the discovered site. If there is doubt as to whether the continuation of operations will directly or indirectly affect the discovered site, all operations should cease until discussions with representatives of Ngāti Te Rangiita hapū ki Ōruanui and any relevant statutory body can take place, and an action plan is formulated for dealing with the discovered site.

4.3 Contact representatives of Te Rangiita hapū ki Ōruanui and relevant statutory agencies

Once operations have ceased and any necessary measures to protect the discovered site have been undertaken, Contact Energy shall inform in the first instance the representative of Ngāti Te Rangiita hapū ki Ōruanui, and following consultation with the representative of Ngāti Te Rangiita hapū ki Ōruanui, any relevant statutory agency.

In the event that kōiwi are discovered, Contact Energy shall contact and consult with the representative of Ngāti Te Rangiita hapū ki Ōruanui and advise the Strategic Communications Officer of the Taupo District Council, and then contact the Historic Places Trust, the New Zealand Police on the advice of the representative of Ngāti Te Rangiita hapū ki Ōruanui. As set out in Section 4.4 of this Protocol, a *Plan of Action* will be developed for the discovery of kōiwi.

Contact Energy will engage an archaeologist to provide expert advice and recommendations to the Historic Places Trust as to the significance of the discovered site.

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

4.4 Assessment by Archaeologist

The archaeologist engaged by Contact Energy will undertake a detailed assessment of the discovered site to determine its significance and will, in consultation with Ngāti Te Rangiita hapū ki

Ōruanui, inform the Historic Places Trust of the discovered site (if this has not already occurred).

As part of the assessment process, the archaeologist, in consultation with Ngāti Te Rangiita hapū ki Ōruanui, can direct Contact Energy to remove any temporary measures put in place to protect the discovered site.

In consultation with Contact Energy, the archaeologist and Ngāti Te Rangiita hapū ki Ōruanui will put in place an agreed *Plan of Action* to appropriately and sensitively deal with the remediation or protection of the discovered site (if this is required). The archaeologist, in conjunction with Ngāti Te Rangiita hapū ki Ōruanui and Contact Energy will provide a recommendation to the Historic Places Trust as to the significance of the discovered site including the agreed *Plan of Action* for appropriately and sensitively dealing with the remediation or protection of the discovered site, and whether any Authorities are required under the Historic Places Act 1991. Refer to Section 5.0 of this Protocol for the *Plan of Action* framework.

In the event that Ngāti Te Rangiita hapū ki Ōruanui and the archaeologist are satisfied that the discovered site is not of any cultural significance or is not an archaeological site and does not require an Authority from the Historic Places Trust, Contact Energy can recommence operations as per the requirements of any resource consents granted for the construction, operation and maintenance of the Te Mihi geothermal power station.

4.5 Application for Authority to the Historic Places Trust

In the event that an Authority is required pursuant to the Historic Places Act 1991, Contact Energy, in consultation with Ngāti Te Rangiita hapū ki Ōruanui, is responsible for developing all such applications to the Historic Places Trust.

It is envisaged by Ngāti Te Rangiita hapū ki Ōruanui that any agreed *Plan of Action* to appropriately and sensitively deal with the remediation or protection of the discovered site will provide the basis of any application for an Authority to the Historic Places Trust.

4.6 Completion of Archaeological Field Work

In accordance with any Authority granted by the Historic Places Trust, or in accordance with the agreed *Plan of Action* for discovered sites that do not require an Authority from the Historic Places Trust, the archaeological field work required to remediate or protect the discovered site will be completed.

Contact Energy will accept and make allowances for all tikanga in accordance with Ngāti Te Rangiita hapū ki Ōruanui kawa. For example if kaumātua are required to bless a site, the representative of Ngāti Te Rangiita hapū ki Ōruanui will organise this process and inform Contact Energy of the necessary arrangements.

If the representative of Ngāti Te Rangiita hapū ki Ōruanui elects not to be present during the completion of the archaeological field work, Contact Energy will advise the representative of Ngāti Te Rangiita hapū ki Ōruanui when the archaeological field work has been completed, or at any stage that has been previously agreed to during the fieldwork.

APPENDIX THREE
Te Mihi Land Use Application
Switch Yard Consent RM070305 Conditions
3 September 2008

4.7 Recommencement of Operations

Following the completion of the archaeological field work to remediate or protect the site, and all formal processes conducted by Ngāti Te Rangiita hapū ki Ōruanui, Contact Energy can recommence operations as per the requirements of any resource consents granted for the construction, operation and maintenance of the Te Mihi geothermal power station.

4.8 Submission of Archaeological report to Historic Places Trust

Following the completion of the archaeological field work to remediate or protect the site, and all formal processes conducted by Ngāti Te Rangiita hapū ki Ōruanui, the archaeologist shall submit a report to the Historic Places Trust detailing:

- *The discovery of the site; and*
- *The agreed plan of action (including consultation with Contact Energy and Ngāti Te Rangiita hapū ki Ōruanui); and*
- *The outcome of the archaeological assessment; and*
- *Any Authorities that have been applied for under the Historic Places Act 1991 (including the outcome of this process); and*
- *The remediation or protection of the site; and*
- *Any other issues that the archaeologist deems necessary to include in this report.*

A copy of the report sent to the Historic Places Trust will also be sent to the representative of Ngāti Te Rangiita hapū ki Ōruanui.

5.0 PLAN OF ACTION FRAMEWORK

In the event that a discovered site is of cultural significance to Ngāti Te Rangiita hapū ki Ōruanui a *Plan of Action* will be developed to map out the process for remediating or protecting the site. The *Plan of Action* will include:

- *Location of the discovered site; and*
- *Description of the discovered site; and*
- *Photographic record of the discovered site; and*
- *Agreed process to remediate or protect the discovered site including tikanga in accordance with Ngāti Te Rangiita hapū ki Ōruanui kawa; and*
- *Assessment of the discovered site undertaken by Archaeologist.*

It is envisaged by Ngāti Te Rangiita hapū ki Ōruanui that any Plan of Action developed for a discovered site will form the basis of information submitted to the Historic Places Trust as part of any reporting or application for any Authority required under the Historic Places Act 1993.

6.0 THE POINTS OF CONTACT FOR NGATI TE RANGIITA HAPU KI ORUANUI

The point of contact for Ngati Te Rangiita hapu ki Oruanui is Gayle Leaf.

Contact Details

Secretary Ngati Te rangiita hapu ki Oruanui
Oruanui Road
Taupo
Phone: 07 376 7989
Cell: 021 131 4910
Gayle.Leaf@hotmail.com

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

THIS CONSENT IS GRANTED SUBJECT TO THE FOLLOWING CONDITIONS

GENERAL CONDITIONS

1. THE ACTIVITY SHALL BE UNDERTAKEN IN GENERAL ACCORDANCE WITH:
 - a. THE APPLICATION SUBMITTED BY CONTACT ENERGY LIMITED, DATED 31 JULY 2007 AND FORMALLY RECEIVED BY THE TAUPO DISTRICT COUNCIL ("THE COUNCIL") ON 1 AUGUST 2007.
 - b. THE FURTHER INFORMATION PROVIDED BY CONTACT ENERGY LIMITED, DATED 13 AUGUST 2007, 24 AUGUST 2007, 26 SEPTEMBER 2007, 3 OCTOBER 2007, 14 NOVEMBER 2007, 21 NOVEMBER 2007, 30 NOVEMBER 2007 AND 17 APRIL 2008.

AND AS MORE SPECIFICALLY DESCRIBED IN THE BOARD OF INQUIRY EVIDENCE IN CHIEF OF MR B PUMMER AND THE MODIFIED HARRISON GRIERSON PLAN NO. 124922-RCO8 REV 6 ATTACHED IN SCHEDULE ONE OF THESE CONDITIONS.

2. THE CONSENT HOLDER SHALL ENSURE THAT THE CULTURAL/ARCHAEOLOGICAL SITES PROTOCOL ATTACHED AS SCHEDULE TWO SHALL BE ADHERED TO.

ADVICE NOTE: IN ADDITION TO THE ABOVE PROTOCOL, THE CONSENT HOLDER IS ALSO SUBJECT TO ANY LEGAL REQUIREMENTS OF THE POLICE, HISTORIC PLACES ACT 1993, ANTIQUITIES ACT 1975 AND ANY OTHER GOVERNING LEGISLATION.

3. THE CONSENT HOLDER SHALL BE RESPONSIBLE FOR MAKING ALL CONTRACTORS AND SUB-CONTRACTORS AWARE OF THE CONDITIONS OF CONSENT AND FOR ENSURING THE CONTRACTORS COMPLY WITH THE CONDITIONS OF CONSENT.
4. FOR THE PURPOSE OF SECTION 125 OF THE RESOURCE MANAGEMENT ACT 1991 THE LAPSE PERIOD FOR THIS CONSENT SHALL BE 9 YEARS FROM THE COMMENCEMENT OF THIS CONSENT.

REVIEW CONDITION

5. THE COUNCIL MAY REVIEW THE CONDITIONS OF THIS CONSENT PURSUANT TO SECTIONS 128 AND 129 OF THE RESOURCE MANAGEMENT ACT 1991 AT FOUR YEARLY INTERVALS FOLLOWING THE ISSUING OF THIS CONSENT, IN ORDER TO DEAL WITH ANY ADVERSE EFFECT ON THE ENVIRONMENT WHICH MAY ARISE FROM THE EXERCISE OF THIS CONSENT THAT WAS NOT FORESEEN AT THE TIME OF GRANTING CONSENT.

ADVICE NOTES

1. PURSUANT TO SECTION 198 OF THE LOCAL GOVERNMENT ACT 2002, A DEVELOPMENT CONTRIBUTION IS PAYABLE ON THIS CONSENT. IF NOT PAID BEFORE APPLICATION FOR BUILDING CONSENT OR WITHIN 12 MONTHS OF THE ISSUE OF AN ASSESSMENT, THE CONTRIBUTION SHALL BE RECALCULATED.

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

2. IN ACCORDANCE WITH SECTION 36(1)(C) OF THE RESOURCE MANAGEMENT ACT 1991, THE CONSENT HOLDER SHALL PAY THE COUNCIL'S REASONABLE COSTS OF ANY MONITORING THAT MAY BE NECESSARY TO ENSURE COMPLIANCE WITH THE CONDITIONS SPECIFIED.
3. NOISE LEVELS SHALL BE MEASURED AND ASSESSED IN ACCORDANCE WITH THE REQUIREMENTS OF NEW ZEALAND STANDARD NZS 6801:2008 "*ACOUSTICS – MEASUREMENT OF ENVIRONMENTAL SOUND*" AND NZS 6802: 2008 "*ASSESSMENT OF ENVIRONMENTAL SOUND*".
4. THE CONSENT HOLDER SHALL OBTAIN ALL NECESSARY PERMISSIONS, LICENCES, AND/OR CERTIFICATES UNDER THE HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT 1996 AND REGULATIONS MADE UNDER THAT ACT. IN ADDITION TO OBTAINING RELEVANT PERMISSIONS, LICENCES, AND/OR CERTIFICATES.
5. (NZECP 34:2001 LAND USE ACTIVITY SAFE DISTANCES) ALL LAND USE ACTIVITIES, INCLUDING EARTHWORKS, OPERATION OF MOBILE PLANT, CONSTRUCTION OF BUILDING/STRUCTURES AND FENCES IN THE VICINITY OF TRANSMISSION LINES MUST COMPLY WITH THE NEW ZEALAND CODE OF PRACTICE FOR ELECTRICAL SAFE DISTANCES (NZECP 34:2001). THE CONSENT HOLDER SHOULD CONTACT TRANSPOWER NZ LTD FOR FURTHER ADVICE IN REGARD TO THESE MATTERS. IT IS TRANSPOWER'S PREFERENCE THAT ALL MOBILE PLANT OPERATED IN THE VICINITY OF A TRANSMISSION LINE MAINTAIN A HORIZONTAL DISTANCE OF AT LEAST 12 METRES FROM THE CENTRE OF THE TRANSMISSION LINE AND ITS SUPPORT STRUCTURES.
6. ALL TREES AND VEGETATION PLANTED IN THE VICINITY OF TRANSMISSION LINES MUST COMPLY WITH THE ELECTRICITY (HAZARDS FROM TREES) REGULATIONS 2003.
7. THE NOISE LEVELS FOR OPERATION OF THE SITE ARE TO BE IN ACCORDANCE WITH THE TAUPO DISTRICT PLAN REQUIREMENTS AS AT THE TIME OF GRANTING THE CONSENT. SHOULD NOISE EMISSIONS EXCEED DISTRICT PLAN NOISE LIMITS WITHIN THE NOTIONAL BOUNDARY OF ANY RURAL DWELLING (EXISTING AT THE TIME OF GRANTING THE CONSENT) LOCATED BEYOND THE DISTRICT PLAN NOISE CONTROL BOUNDARY (SEE RULE 4(B)3.6) THE CONSENT HOLDER SHALL BE REQUIRED TO UNDERTAKE ANY NECESSARY REMEDIAL ACTION TO ENSURE COMPLIANCE WITH THE DISTRICT PLAN.

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

SCHEDULE ONE

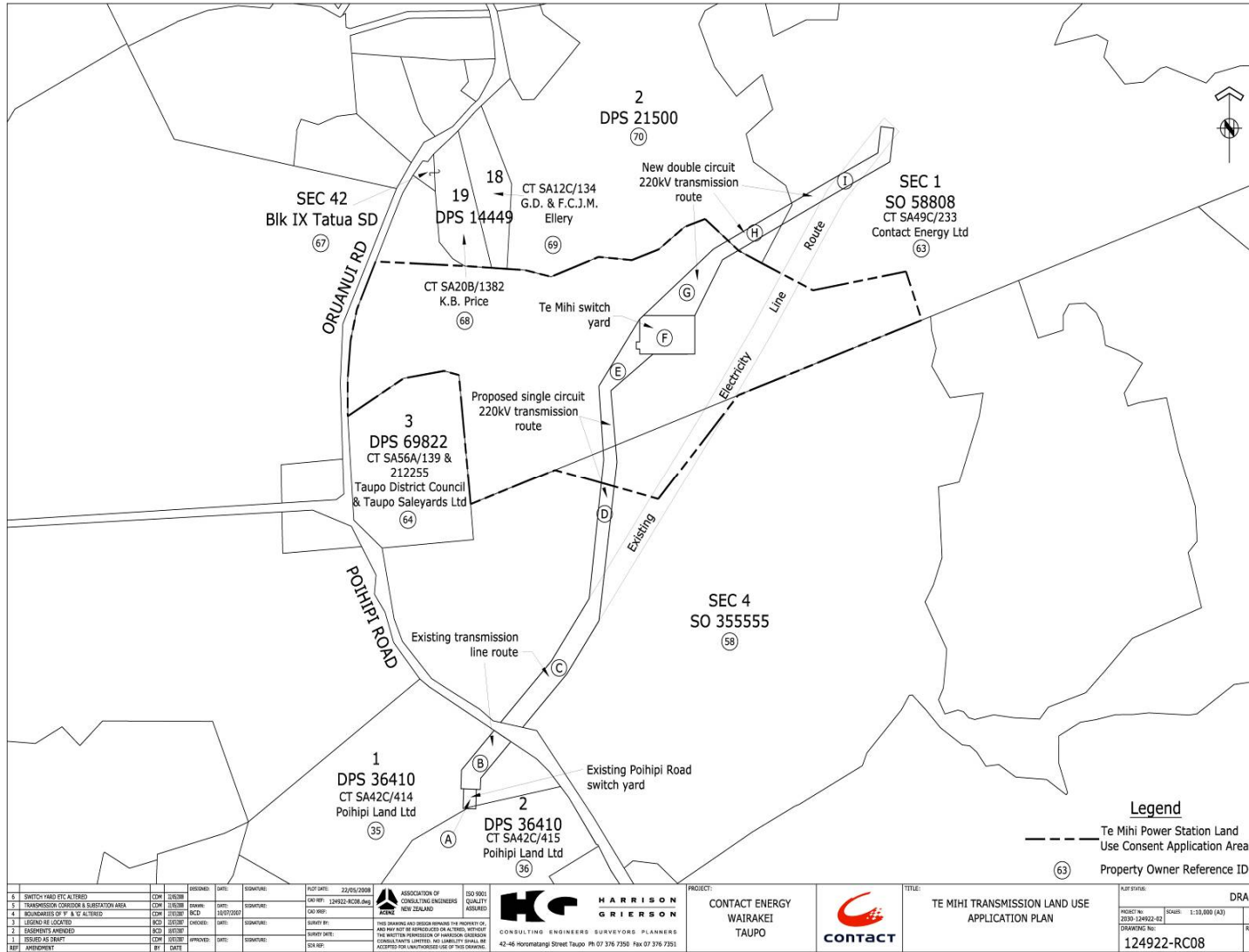
**MODIFIED TRANSMISSION LINE AREAS E & G SHOWN ON
HARRISON GRIERSON PLAN NO. 124922-RC08 REV 6**

APPENDIX THREE

Te Mihi Land Use Application

Transmission Line Consent RM070299 Conditions

3 September 2008



REVISIONS	ISSUED	DATE	BY	DATE	DESCRIPTION
1	CM	12/05/2008			ASSOCIATION OF CONSULTING ENGINEERS NEW ZEALAND
2	CM	12/05/2008			120 000 QUALITY ASSURED
3	CM	12/05/2008			HARRISON GRIERSON
4	CM	12/05/2008			CONSULTING ENGINEERS SURVEYORS PLANNERS
5	CM	12/05/2008			CONTACT ENERGY WAIRAKEI TAUPO
6	CM	12/05/2008			TE MIHI TRANSMISSION LAND USE APPLICATION PLAN

PROJECT	TITLE	MAP SCALE
CONTACT ENERGY WAIRAKEI TAUPO	TE MIHI TRANSMISSION LAND USE APPLICATION PLAN	DRAFT
PROJECT NO.		SCALE
124922-RC08		1:10,000 (A3)
DRAWING No.		REV
124922-RC08		A3

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

SCHEDULE TWO

ARCHAEOLOGICAL / CULTURAL PROTOCOL

APPENDIX FOUR

3 September 2008

CULTURAL/ARCHAEOLOGICAL SITES PROTOCOL

JULY 2008

Prepared for

Contact Energy Limited

Prepared by

Gayle Leaf

Historic Māori Cultural Values Researcher

1.0 INTRODUCTION

This Cultural/Archaeological Sites Protocol (the Protocol) is an Appendix to the Cultural Impact Assessment and has been prepared by Gayle Leaf on behalf of Ngāti Te Rangiita hapū ki Ōruanui.

Ngāti Te Rangiita hapū ki Ōruanui have manawhenua status over the Ōruanui No. 5 Block where the proposed Te Mihi geothermal power station is to be located.

Ngāti Te Rangiita hapū ki Ōruanui adopted the Protocol at a hui on 17th November 2007.

2.0 AIMS OF THE PROTOCOL

The Protocol sets out the process that Contact Energy Limited (Contact Energy) must follow if there is a discovery of a cultural/archaeological site (e.g. Waahi Tapu site that might include historic pā, canoe landing sites, buried whakairo [carvings], kōiwi tāngata [human remains], tohu such as landmarks, pou, urupā [burial sites, where the whenua [placenta] was returned to the earth, or where a certain type of valued resource is found), during the construction, operation and maintenance of the Te Mihi geothermal power station.

The Protocol is intended for use only by Contact Energy for the construction, operation and maintenance of the Te Mihi geothermal power station.

3.0 KNOWN CULTURAL/ARCHAEOLOGICAL SITES

An Archaeological Assessment of the Te Mihi geothermal power station site was undertaken in May 2007 by Clough and Associates.

The assessment confirmed that one archaeological site is recorded adjacent to the southern banks of the upper Te Rau-o-te-huia Stream. The rock art and shelter site (U17/17) are located to the north of the Te Mihi project area.

Two similar rock art sites (U17/16 and 21) are also recorded approximately 1.5km to the north of the Wairakei Geothermal Power area, on the southern flanks of Ngangihio hill.

Note that these sites are considered by Ngāti Te Rangiita hapū ki Ōruanui as sites of cultural and spiritual value. The term 'Archaeological Sites' is used in this

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

protocol purely to reference the Clough and Associates Archaeological Report prepared for the Te Mihi geothermal power station resource consent application and also the relevant statutory legislation such as the Historic Places Act 1993.

4.0 PROTOCOL

4.1 Discovery of Cultural/Archaeological sites

During the construction, operation and/or maintenance of the Te Mihi geothermal power station a cultural/archaeological site may potentially be discovered. In the event that a site is discovered, the Protocol provides Contact Energy with a clear process to contact Ngāti Te Rangiita hapū ki Ōruanui and the necessary statutory bodies to collectively arrive at an appropriate and culturally sensitive action plan for dealing with the discovered site.

4.2 Cease operations

If a site is discovered, Contact Energy shall direct the contractor to suspend all, and any, ongoing operations and physical works in the immediate vicinity of the discovered site.

The contractor must mark the site and undertake any necessary temporary measures to protect the site from further exposure to the elements (if uncovered) or damaged from machinery (through removal or repositioning of machinery). This may include, but is not limited to the covering of the site to provide temporary shelter and/or the removal of equipment where this will not further damage the site.

Operations can continue elsewhere, provided that the continuation of operations will not directly or indirectly affect the discovered site. If there is doubt as to whether the continuation of operations will directly or indirectly affect the discovered site, all operations should cease until discussions with representatives of Ngāti Te Rangiita hapū ki Ōruanui and any relevant statutory body can take place, and an action plan is formulated for dealing with the discovered site.

4.3 Contact representatives of Te Rangiita hapū ki Ōruanui and relevant statutory agencies

Once operations have ceased and any necessary measures to protect the discovered site have been undertaken, Contact Energy shall inform in the first instance the representative of Ngāti Te Rangiita hapū ki Ōruanui, and following consultation with the representative of Ngāti Te Rangiita hapū ki Ōruanui, any relevant statutory agency.

In the event that kōiwi are discovered, Contact Energy shall contact and consult with the representative of Ngāti Te Rangiita hapū ki Ōruanui and advise the Strategic Communications Officer of the Taupo District Council, and then contact the Historic Places Trust, the New Zealand Police on the advice of the representative of Ngāti Te Rangiita hapū ki Ōruanui. As set out in Section 4.4 of this Protocol, a *Plan of Action* will be developed for the discovery of kōiwi.

Contact Energy will engage an archaeologist to provide expert advice and recommendations to the Historic Places Trust as to the significance of the discovered site.

4.4 Assessment by Archaeologist

The archaeologist engaged by Contact Energy will undertake a detailed assessment of the discovered site to determine its significance and will, in consultation with Ngāti Te Rangiita hapū ki

Ōruanui, inform the Historic Places Trust of the discovered site (if this has not already occurred).

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

As part of the assessment process, the archaeologist, in consultation with Ngāti Te Rangiita hapū ki Ōruanui, can direct Contact Energy to remove any temporary measures put in place to protect the discovered site.

In consultation with Contact Energy, the archaeologist and Ngāti Te Rangiita hapū ki Ōruanui will put in place an agreed *Plan of Action* to appropriately and sensitively deal with the remediation or protection of the discovered site (if this is required). The archaeologist, in conjunction with Ngāti Te Rangiita hapū ki Ōruanui and Contact Energy will provide a recommendation to the Historic Places Trust as to the significance of the discovered site including the agreed *Plan of Action* for appropriately and sensitively dealing with the remediation or protection of the discovered site, and whether any Authorities are required under the Historic Places Act 1991. Refer to Section 5.0 of this Protocol for the *Plan of Action* framework.

In the event that Ngāti Te Rangiita hapū ki Ōruanui and the archaeologist are satisfied that the discovered site is not of any cultural significance or is not an archaeological site and does not require an Authority from the Historic Places Trust, Contact Energy can recommence operations as per the requirements of any resource consents granted for the construction, operation and maintenance of the Te Mihi geothermal power station.

4.5 Application for Authority to the Historic Places Trust

In the event that an Authority is required pursuant to the Historic Places Act 1991, Contact Energy, in consultation with Ngāti Te Rangiita hapū ki Ōruanui, is responsible for developing all such applications to the Historic Places Trust.

It is envisaged by Ngāti Te Rangiita hapū ki Ōruanui that any agreed *Plan of Action* to appropriately and sensitively deal with the remediation or protection of the discovered site will provide the basis of any application for an Authority to the Historic Places Trust.

4.6 Completion of Archaeological Field Work

In accordance with any Authority granted by the Historic Places Trust, or in accordance with the agreed *Plan of Action* for discovered sites that do not require an Authority from the Historic Places Trust, the archaeological field work required to remediate or protect the discovered site will be completed.

Contact Energy will accept and make allowances for all tikanga in accordance with Ngāti Te Rangiita hapū ki Ōruanui kawa. For example if kaumātua are required to bless a site, the representative of Ngāti Te Rangiita hapū ki Ōruanui will organise this process and inform Contact Energy of the necessary arrangements.

If the representative of Ngāti Te Rangiita hapū ki Ōruanui elects not to be present during the completion of the archaeological field work, Contact Energy will advise the representative of Ngāti Te Rangiita hapū ki Ōruanui when the archaeological field work has been completed, or at any stage that has been previously agreed to during the fieldwork.

4.7 Recommencement of Operations

Following the completion of the archaeological field work to remediate or protect the site, and all formal processes conducted by Ngāti Te Rangiita hapū ki Ōruanui, Contact Energy can recommence operations as per the requirements of any resource consents granted for the construction, operation and maintenance of the Te Mihi geothermal power station.

APPENDIX THREE
Te Mihi Land Use Application
Transmission Line Consent RM070299 Conditions
3 September 2008

4.8 Submission of Archaeological report to Historic Places Trust

Following the completion of the archaeological field work to remediate or protect the site, and all formal processes conducted by Ngāti Te Rangiita hapū ki Ōruanui, the archaeologist shall submit a report to the Historic Places Trust detailing:

- *The discovery of the site; and*
- *The agreed plan of action (including consultation with Contact Energy and Ngāti Te Rangiita hapū ki Ōruanui); and*
- *The outcome of the archaeological assessment; and*
- *Any Authorities that have been applied for under the Historic Places Act 1991 (including the outcome of this process); and*
- *The remediation or protection of the site; and*
- *Any other issues that the archaeologist deems necessary to include in this report.*

A copy of the report sent to the Historic Places Trust will also be sent to the representative of Ngāti Te Rangiita hapū ki Ōruanui.

5.0 PLAN OF ACTION FRAMEWORK

In the event that a discovered site is of cultural significance to Ngāti Te Rangiita hapū ki Ōruanui a *Plan of Action* will be developed to map out the process for remediating or protecting the site. The *Plan of Action* will include:

- *Location of the discovered site; and*
- *Description of the discovered site; and*
- *Photographic record of the discovered site; and*
- *Agreed process to remediate or protect the discovered site including tikanga in accordance with Ngāti Te Rangiita hapū ki Ōruanui kawa; and*
- *Assessment of the discovered site undertaken by Archaeologist.*

It is envisaged by Ngāti Te Rangiita hapū ki Ōruanui that any Plan of Action developed for a discovered site will form the basis of information submitted to the Historic Places Trust as part of any reporting or application for any Authority required under the Historic Places Act 1993.

6.0 THE POINTS OF CONTACT FOR NGATI TE RANGIITA HAPU KI ORUANUI

The point of contact for Ngati Te Rangiita hapu ki Oruanui is Gayle Leaf.

Contact Details

Secretary Ngati Te rangiita hapu ki Oruanui
Oruanui Road
Taupo
Phone: 07 376 7989
Cell: 021 131 4910
Gayle.Leaf@hotmail.com

Appendix 4:

CS14

Exhibit CS 14. Predicted 99.9%ile 1-hour average concentrations ($\mu\text{g}/\text{m}^3$) of hydrogen sulphide from the existing Poihipi station for an emission rate of 17 g/sec plus the proposed Te Mihi station for an emission rate of 61 g/sec

