

TABLE A.2.3a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Okataina	Deep fluid mixed waters	Moderate	Unnamed	A	G	L	Moderate flows, calm
Ongaroto (excl. Mangakino)	Deep fluid mixed groundwaters	Moderate	Unnamed	A	G	L	Moderate flows, calm
Orakeikorako	Steaming ground	Large	Unnamed	A	G	L	No flows, gentle steaming
	Deep fluid flowing spring	Large	Aorangi geyser, S 1005	Hn	O	N	Strong flows, geyser 15 m high
	Deep fluid flowing spring	Large	Artist's Palette spring, S 741	A	O	N	Strong overflows, steady boiling < 0.2 m
	Deep fluid flowing spring	Small	Bush geyser, S 96	A	G	R	Weak flows < 0.1 L/s, geyser < 0.7 m high
	Deep fluid flowing spring	Small	Cascade geyser, S 97	Hn	G	R	Moderate flows geyser < 3 m high
	Deep fluid flowing spring	Large	Cauldron, S 124	Hn	G	R	Strong flows c. 5 L/s geyser 2 m high
	Deep fluid flowing spring	Large	Diamond geyser, S 95	A	O	R	Moderate flows geyser < 3 m high
	Deep fluid flowing spring	Large	Dreadnought geyser, S 125	Hn	G	R	Strong flows, geyser, 10 m high
	Deep fluid flowing spring	Moderate	Devil's Throat, S 70	A	G	L	Flows of c. 0.5 L/s, boiling < 0.5 m high
	Deep fluid flowing spring	Moderate	Fred and Maggie, S 119	A	G	L	Flows < 0.5 L/s, boiling < 0.5 m high
	Deep fluid flowing spring	Large	Hochstetter Pool or Puia Tuhitarata, S 98	A	O	N	Strong flows c. 10 L/s, hot, calm
	Deep fluid flowing spring	Large	Kurapai, S 708	A	M	N	Strong flows c. 25 L/s, geyser c. 10 m high
	Deep fluid flowing spring	Moderate	Manganese Pool, S 120	A	G	R	Moderate flows, weak bubbling < 0.1 m
	Deep fluid flowing spring	Moderate	My Lady's Lace (Soda Fountain), S 111	A	G	R	Flow c. 0.5 L/s, strong boiling < 0.5 m
	Deep fluid flowing spring	Large	Orakeikorako geyser, S 16	Hh	O	I	Flows c. 50 L/s, geyser 60 m high
	Deep fluid flowing spring	Large	Rahurahu geyser, S 20	Hh	O	I	Flows c. 100 L/s, geyser 35 m high
Deep fluid flowing spring	Large	Terata geyser, S 15	Hh	O	I	Flows c. 50 L/s, geyser 17 m high	
Deep fluid flowing spring	Large	Minginui geyser, S 19	Hh	O	I	Strong flows, geyser c. 10 m high	
Deep fluid flowing spring	Large	Ohaki geyser, S 14	Hh	O	I	Strong flows, geyser c. 8? m high	
Deep fluid flowing spring	Large	Te Mimi-a-Homaiterangi geyser, S 10	Hh	O	I	Strong flows, geyser c. 10? m high	
Deep fluid flowing spring	Large	Ngawha Tuatahi geyser, S 12	Hh	O	I	Strong flows, geyser c. 7? m high	
Deep fluid flowing spring	Moderate	Pyramid of Geysers, S 84 – S 86	A	O	N	Moderate flows, geysers 0.5–2 m high	

TABLE A.2.3b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Okataina	Neutral chloride	Warm 39°C, pH 7 clear upflows	Iron oxides hydroxides	Iron deposits and warm upflows along c. 30 m of shore in east end of lake.
Ongaroto (excl. Mangakino)	Neutral chloride	Warm neutral seeps into Lake Whakamaru	Nil	Warm upflows submerged by filling of Lake Whakamaru.
Orakeikorako	Acid sulphate condensates	Warm to hot ground	Nil, silica residues, sulphur and alums	Slopes of hill on south side of Lake Whakamaru.
	Alkaline chloride	Clear boiling spring 97°C pH 7.9	Silica sinter rim and along outflow	Geysir action before 1961, HE in early 2001, now steady boiling only boils and flows for years, also stops flowing, waterlevel drops c. 4 m.
	Alkaline chloride	Sky blue translucent, 95–98°C, pH 7.6	Strong silica deposition, fretworks, rims	
	Alkaline chloride	Clear, 98°C geyser	Dense silica walls and surface surrounds	Noisy and cryptic. Hidden in shrubs. Plays every 10–20 minutes.
	Alkaline chloride	Clear, 98°C geyser	Dense silica surrounds and algal outflow sinters	Rarely geysers since January 1961 when Lake Ohakuri filled.
	Alkaline chloride	Clear, hot 80–95°C, pH 7.8	Dense silica walls and surface surrounds	Rarely geysers, usually calm and convection, 0.1–0.5 m below overflow.
	Alkaline chloride	Clear, 98°C, pH 8.7, erupts many times daily	Abundant amorphous silica and algal sinters	Activity varying, before 2003 eruptions 3–8 m, since 2004 only 1–2 m high.
	Alkaline chloride	Clear, 85–98°C, inactive, steady boiling	Amorphous silica surrounds and walls	Rarely erupts, usually boiling steadily 0.2–0.8 m below overflow.
	Alkaline chloride	Clear, 98°C, steady boiling	Amorphous silica, black colours	Steadily boils and flows all the time.
	Alkaline chloride	Clear, 98°C, boiling strength oscillates < 0.3 m	Amorphous silica, black colours	Constant boiling but oscillating strength of height and flows.
	Alkaline chloride	Clear, 80°C, pH 8	Algal silica sinters	Calm spring c. 10 m dia. on Rainbow Terrace.
	Alkaline chloride	Clear, boiling	Amorphous silica sinters, mammillary	Active during 2003–2005, eruptions 15–20 minutes every 10–20 hours.
	Alkaline chloride	Clear, calm, 85–95°C, pH 7.5	Amorphous silica sinter surrounds	Flows for months then retreats below overflow for months.
	Alkaline chloride	Clear, boiling flowing spring	Amorphous silica sinter surrounds	Flows for months then retreats below overflow for months.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri in January 1961.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri in January 1961, erupted at angle.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri in January 1961.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri in January 1961.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri.
	Alkaline chloride	Clear, boiling geyser	Abundant amorphous silica and algal sinters	Drowned by filling Lake Ohakuri.
	Alkaline chloride	Clear, boiling 98°C	Abundant silica and algal sinters, yellows-browns	Activity fluctuates and occasionally stops for weeks or months.

TABLE A.2.4a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Orakeikorako (continued)	Deep fluid flowing spring	Large	Psyche's Bath, S 704	A	G	R	No overflow, gentle bubbling
	Deep fluid flowing spring	Large	S 766	Hn	G	L	No overflow, gentle bubbling
	Deep fluid flowing spring	Moderate	S 772	A	G	R	Moderate flows, geysers 7 m high
	Deep fluid flowing spring	Moderate	S 777	A	G	R	Moderate flows, geysers 10 m high
	Deep fluid flowing spring	Moderate	S 778	A	G	R	Moderate flows, geysers 8 m high
	Deep fluid flowing spring	Small	S 795	A	G	I	Small flows < 1 L/s, geysers 2 m high
	Deep fluid flowing spring	Moderate	Sapphire geyser, S 106	A	O	N	Flows c. 3 L/s, geysers 3 m high
	Deep fluid flowing spring	Large	Wairiri geyser, S 126	Hn	O	R	Flows c. 10 L/s, geysers 10 m high
	Silica terrace	Large	Artist's Palette	A	O	I	Numerous boiling springs
	Fumarole	Large	Unnamed	A	G	R	No outflow, strong steam/gas emission
	Mud pool	Large	Unnamed	A	G	R	No outflows, steady moderate boiling
Reporoa	Deep fluid flowing spring	Large	Butcher's Pool	A	M	L	Strong flow, weak bubbling
	Deep fluid flowing spring	Moderate	Pukekahu	A	G	L	Strong flow, calm
Longview Road	Steam & gas heated pool	Moderate	Unnamed	A	M	L	Weak flows, bubbling < 0.1 m high
	Steam & gas heated pool	Large	Unnamed	A	M	L	Weak flows, bubbling < 0.1 m high
	Steam & gas heated pool	Large	Unnamed	A	M	L	Nil flows, bubbling < 0.1m high
	Steam & gas heated pool	Moderate	Unnamed	A	M	L	Nil flows, bubbling < 0.1m high
	Steam & gas heated pool	Moderate	Unnamed	A	M	L	Nil flows, bubbling < 0.5m high
Opakeke (Opateketeke)	Deep fluid flowing spring	Large	Maori North spring	A	O	N	Moderate flow, boiling < 0.3 m high
	Deep fluid flowing spring	Large	Maori South spring	A	M	N	Moderate flow, boiling < 0.3 m high
	Deep fluid flowing spring	Moderate	Scalding Spring	A	M	L	Weak flow, gentle bubbling < 0.05 m
	Deep fluid flowing spring	Moderate	South Spring	A	M	L	Weak flow, cyclical bubbling < 0.1 m
	Deep fluid flowing spring	Large	Southwest Spring	A	M	R	Strong flow, gentle bubbling < 0.1 m
	HE crater	Moderate	Edgecumbe Crater	A	G	L	No outflows, gentle fizzy bubbling < 0.1 m
	Acid turbid pool	Moderate	Unnamed	A	M	L	No outflows, gentle bubbling < 0.1 m
	Barren warm ground	Large	Unnamed	A	M	L	Steaming and sulphur deposits

TABLE A.2.4b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Orakeikorako (continued)	Weakly acidic sulphate chloride	Pale grey turbid, 75–90°C	Minor silica sinters around walls	Has overflowed historically; usually waterlevel c. 2 m below overflow.
	Weakly acidic sulphate chloride	Pale grey turbid, 75–90°C	Minor silica sinters around walls	Geysered 5 m high many times daily in 2000–2001, now weak bubbling.
	Alkaline chloride	Clear boiling 98°C, pH 8	Dense grey silica sinters all around	Geysers every hour for several minutes with overflows.
	Alkaline chloride	Clear boiling, 98°C, pH 8	Dense grey silica sinters all around	Geysers every few hours, blew out rubble in 2002 (HE).
	Alkaline chloride	Clear boiling, 98°C, pH 8	Dense grey silica sinters all around	Geysers every few hours, blew out rubble in 2002 (HE), alongside S 777.
	Alkaline chloride	Clear boiling	Dark grey silica sinters	Has very unusual double-action eruption style, unique in world.
	Alkaline chloride	Clear boiling	White to pale grey silica sinters, algal in outflows	Erupts every 20 minutes for 2–3 minutes.
	Alkaline chloride	Clear boiling	Massive dense silica sinters	Erupted last c. 2001 for 6 months, many times daily.
	Alkaline chloride	Clear boiling geysers and springs	Massive dense silica sinters	Springs and geysers intermittently active, exchanges of function common.
	Acid condensates	Clear gas plume 101°C	Nil, brick red ground on banks	Powerful fumarole, at Red Hills, c. 5 MW.
	Acid sulphate grey muds	Dark grey muds	Nil, pyrite blackened silica muds	Strong mudpool, boiling < 1 m high.
Reporoa	Neutral bicarbonate	45°C, pH 6.8, fawny turbid, iron deposits	Nil	
	Neutral bicarbonate	45°C, pH 6.8, fawny turbid, iron deposits	Nil	
Longview Road	Neutral bicarbonate sulphate	70°C, greeny grey turbid, pH 5.5	Algal masses of amorphous silica	Severely modified by land drainage, farmer still trying to drain springs.
	Weakly acidic bicarbonate sulphate	33°C, pH 6, algal green suspension	Algal and microbial silica deposits	Severely modified by land drainage, farmer still trying to drain springs.
	Acid sulphate	90°C, pH 3.7, grey turbid suspension	Spicular silica sinters around margins	Severely modified by land drainage, farmer still trying to drain springs.
	Acid sulphate muddy pool	75°C, pH 4.5, dark grey muddy	Nil, amorphous silica suspension	Modified by farmer.
	Acid sulphate mud pool	93°C, viscous muds	Nil, amorphous silica suspension	Modified by farmer.
Opapeke (Opateketeke)	Alkaline chloride	98°C, pH 8, clear	Dense amorphous silica sinters, algal sinters	In small enclave of Maori land, natural condition and large algal terraces.
	Alkaline chloride	97°C, pH 7.8; clear	Dense amorphous silica sinters	Maori land, silica terraces modified by ducting water to bathing shed.
	Neutral chloride	90°C, pH 7, clear	Sparse amorphous silica rim and edge deposits	Land drained, used for scalding animal carcasses.
	Weakly acidic chloride sulphate	90°C, pH 6.7, dark turbid brown	Nil, dark silica and pyrite muds	Within pasture but cattle trample margins and outflow channel.
	Alkaline chloride	96°C, pH 8.7, clear	Sparse amorphous silica rims	Within drained pasture land, fenced off.
	Weakly acidic sulphate	85°C, pH 3.5, dark grey turbid	Weak silica residues around margins	Formed during Edgecumbe earthquake of March 1987.
	Strongly acidic sulphate muddy water	92°C, pH 3	Nil, dark grey muds, pyrite colouring	Fenced off, mud viscosity changes with rainfall.
	Strong acid condensates, odorous	45°C ground	Nil, geothermally altered and steaming, sulphur	Area has been bulldozed to remove old sinter spring cones.

TABLE A.2.5a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Rotiti	Deep fluid flowing spring	Large	Centre Basin	A	G	R	Strongly flowing spring, strong bubbling
Rotokawa (Taupo)	Deep fluid mixed waters	Large	Rotokawa Lake	A	O	N	Outflow c. 30 L/s, weak bubbling centres
	Deep fluid mixed waters	Large	Parakiri Stream	A	G	R	Outflows > 30 L/s, many springs
	Fumarole	Large	Unnamed	A	G	R	Nil flow, steady steaming
	Deep fluid mixed waters	Moderate	Unnamed	M	G	L	Weak flows < 0.1 L/s, gentle bubbling
	Steam heated ground	Strong	Unnamed	M	G	L	No outflows, hissing steaming
Rotokawa (Rotokawa) (Rotorua)	Deep fluid flowing spring	Small	Baths Spring	A	M	L	Flowing c. 0.2 L/s, weak gas bubbling
	Gas upflow	Small	Bubble Bay Spring	Hh	M	L	Cold gas bubbling into lake
	Steaming ground	Moderate	Unnamed	A	M	L	Steam and gases seeping through soil
Taheke	Steam heated mixed waters	Moderate	Kuirau Stream	A	G	L	Outflow c. 3 L/s, steaming ground
	Fumarolic solfatara	Strong	Unnamed	A	M	R	No flows, steaming ground
	Steam heated ground	Strong	Unnamed	A	G	L	No flows, steaming hillsides
	Steam heated mixed waters	Moderate	Unnamed	A	M	L	Flows < 1 L/s, bubbling < 0.1 m
Tarawera	Deep fluid outflows	Moderate	Hot Water Beach	A	G	R	Moderate, moderate < 0.5 m
	Gas and fluid upflows	Large	Red Beach	A	G	L	Strong flows, strong bubbling < 0.2 m
	Deep fluid outflows	Moderate	Wairua Delta	A	G	L	Moderate flows, weak bubbling
Tauhara-Taupo (excl. Wairakei)							
Spa	Deep fluid flowing spring	Large	Eunice Geyser, S 41	Hh	D	N	Strong flow, geyser, c. 10 m high
	Deep fluid flowing spring	Large	Waipikirangi Geyser, S 42	Hh	D	N	Strong flows, geyser; c. 5–8 m high
	Mixed waters and steam	Large	Otumuheke Stream source	A	M	L	Strong flow, moderate bubbling < 0.3 m
	Mixed waters and steam	Large	Kathleen Spring	Hh	D	L	Strong flow, calm spring
	Steam and gas heating	Large	Taupo Pony Club	A	M	L	Weak seepage flows, moderate gas
	Deep fluid flowing spring	Large	Crow's Nest or Tewakaturou Geyser S 43	Hh	D	N	Strong flows, geyser, c. 5–8 m high

TABLE A.2.5b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Rototiti	Alkaline chloride	Clear water, warm	Unknown	On bed of lake; c. 120 m deep large vent in bowl c. 90 m deep, big heatflow.
Rotokawa (Taupo)	Acid sulphate chloride	Turbid grey waters, warm acidic	Weak spicular silica sinters around shore springs	Lake is HE crater, now flowing and gas venting from many sources.
	Acid sulphate chloride	Turbid grey and clear waters, weakly acidic	Silica residues and spicular deposits along banks	Stream has many springs in its bed along channel to Waikato River.
	Acid sulphate condensates and sulphur	Turbid grey and yellow waters, acidic	Nil, sulphur deposits	Several large craters with fumarolic activity, some collapse, some HE craters.
	Acid sulphate chloride	Turbid grey, hot acid springs	Minor spicular silica sinters	Area severely modified by sulphur mining in 1970s to 1980s.
	Acid condensates, alums, sulphur	Barren, sulphur deposits	Silica residues	Thermophilic vegetation and hot ground changed by sulphur mining.
Rotokawau (Rotokawa) (Rotorua)	Neutral chloride bicarbonate	Clear 47°C, pH 6.7, no odours	Nil, slimy grey microbial growths	Spring has bath pool built over top, upflows through floor.
	Unknown	Gas bubbling, cold, no odours	Nil	Gas bubbling from lakebed into shallow water 0.5 m, NE side of lake.
	Unknown, acidic condensates, sulphur	Gas bubbling, cold, no odours	Nil, weak sulphurous deposits	Area c. 10 m dia. of barren ground, weak sulphur cementing.
Taheke	Acid sulphate	Turbid grey mixed waters, 40–70°C, pH 2	Nil, colloidal sulphur and sulphur deposits	Stream is collected outflow from main northern area of solfatara.
	Acid condensates, sulphur deposits	Grey residues and muddy waters, hot acidic	Nil, silica residues and sulphur deposits	Area of c. 1 hectare of solfatara, steaming ground, muddy pools.
	Acid condensates, sulphur deposits	Grey residues, hot decaying ground	Nil, sulphur and alum deposits	Hillsides with strong steaming, decaying and collapsing, landslips.
	Acid sulphate	Turbid grey mixed waters, 90°C, pH 2.5	Nil, sulphur deposits, silica residues	Extensively mined for sulphur in 1980s.
Tarawera	Alkaline chloride	Hot 98°C, pH 8.7, clear	Amorphous silica, rims, crusts, cascades	Numerous minor deposits from many outflows along lakeshore.
	Alkaline bicarbonate	Cold 20°C, pH 7, clear/orangey turbid	Iron oxides and hydroxides abundant	Occurs along shoreline of rhyolite lava cliffs into deep water.
	Alkaline chloride	Hot 70°C, pH 7.5, clear	Nil	Upflows into cold stream and sediments of stream delta.
Tauhara-Taupo (excl. Wairakei)				
Spa	Alkaline chloride	98°C, pH 7.8, clear, geyser	Weak amorphous silica	Dried up by 1950s after blasting of Waikato River channel alongside.
	Alkaline chloride	98°C, pH 8, clear geyser	Moderate amorphous silica	Dried up and cold since early 1950s.
	Acid sulphate	85°C, pH 6.3, clear	Weak amorphous algal silica	Flow has reduced greatly since 1970s.
	Acid sulphate chloride	62°C, pH 7, clear	Weak amorphous silica	Overflowed until 2002, flows weakened over several decades.
	Acid sulphate condensates	98°C, pH < 2, turbid muddy pools	Nil	HE craters and newly formed hot ground, increased steam heating.
	Alkaline chloride	98°C, pH 8, clear geyser	Abundant amorphous silica	Vent of branches set with sinter, destroyed by 1950s.

TABLE A.2.6a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
De Bretts (Terraces)	Deep fluid flowing spring	Moderate	Iron Spring	Hh	D	L	Moderate flows, calm
	Deep fluid flowing spring	Small	Soda Bath	Hh	D	L	Weak flows, calm
	Sinter Terraces	Large	Iron Terrace	Hh	D	N	Strong flows, calm
Te Kopia	Steam-heated groundwater		Acid Spring	A	G	R	Moderate flow; weak bubbling < 0.1m
	Steaming ground		Unnamed—Extinct hot spring	Hn	G	R	Steaming ground, weak steam flow
	Deep fluid flowing springs		Unnamed—NW Murphy's springs	A	G	R	Weak flows, weak bubbling
	Steam and gas upflows		Unnamed—Southern Fumaroles	A	G	L	> 5 fumaroles, strong steaming, noisy
	Steam and gas upflows		Unnamed—Steaming Cliffs	A	G	N	Weak-moderate steamflows, noisy
	Steam-heated muddy water		Mud Geyser	A	O	I	Strong flows, geyser erupts 5–8 m high
	Steam-heated muddy water		Murphy's Tomo North	A	G	R	Strong flows, intermittent, 2–5 m high
	Steam-heated muddy water		Murphy's Tomo Middle	A	G	R	Weak steam flow, weak bubbling < 1 m
	Steam-heated muddy water		Murphy's Tomo South	A	G	R	Weak steam flow, weak bubbling < 1 m
	Steam and gas emission		Te Kopia Fumarole	A	O	I	Strong steamflows c. 30 MW
	Steam-heated groundwaters		Unnamed—Southern Lake	A	O	N	Weak flows, weak bubbling
	Steam-heated groundwaters		Unnamed—Middle Lake	A	O	N	Weak flows, weak bubbling
	Steam-heated groundwaters		Unnamed—Northern Lake	A	G	N	Weak flows, weak bubbling
Tikitere (incl. Hell's Gate and Ruahine)	Steam-heated mixed waters	Large	Devil's Bath	A	G	L	No flows, weak bubbling
	Steam-heated mixed waters	Large	Hurutini	A	G	R	No outflow, weak bubbling
	Steam-heated mixed waters	Large	Steaming Cliff	A	G	R	Moderate flow 1 L/s, strong bubbling 1 m
	Steam-heated mixed waters	Moderate	Cooking Pool	A	G	R	Weak flow < 0.2 L/s moderate bubbling 0.2 m
	Steam-heated mixed waters	Large	Sulphur Bath	A	G	R	Moderate flow 3 L/s, bubbling < 0.1 m
	Steam-heated mixed waters	Moderate	Mud Volcano	A	G	R	No outflow, weak bubbling < 1 m high
	Deep fluid mixed groundwater	Moderate	Manupirua Spring	A	G	L	Outflow c. 3 L/s, weak bubbling
	Deep fluid flowing springs	Moderate	Parengarenga Springs	A	G	L	Outflows 1–3 L/s, gentle bubbling

TABLE A.2.6b

Field name	Chemical character	Physical character	Sinter deposition	Comments
De Bretts (Terraces)	Alkaline chloride	Clear, 80°C, pH 7.8	Weak amorphous algal sinters	Spring destroyed by human activity, remains visible in 2005.
	Alkaline chloride	Clear, 56°C	Algal sinters	Does not exist in 2005, destroyed by human activity early 20th century.
	Alkaline chloride	Clear, c. 50°C	Large expanse of algal and iron coloured sinters	No longer recognisable in 2005, destroyed by human activity by c. 1900s.
Te Kopia	Acid sulphate, pH 3.5, no odours	Clear, 80–93°C	Iron deposits on bottom and walls	Flow and temperature fluctuating; old sinter wall along north side.
	Acid condensates	Crumbling hot ground, to 98°C	Silica sinters c. 3 m high along west side	Carbon dated from base of sinters = 3000 y old alkaline spring.
	Alkaline chloride	Clear, hot 60–67°C, pH 7.4	Weak silica inter-grown with green algae	Five springs c. 40 m apart along terrace above cold stream.
	Acid condensates	Hot ground, steaming 98°C, 1–3 MW	No deposits	Scattered along fault scarp slopes at south end of Te Kopia.
	Acid condensates	Hot ground, steaming 98°C, 1–3 MW	Nil	Barren hot steep slopes above lakelets.
	Acid sulphate	Muddy water, hot 98°C, pH 3, mudflows	Nil, but does deposit amorphous silica mounds	Geyser active weeks/months every few years; same since AD 1850s.
	Acid sulphate	Mud pool, 98°C, occas. 2–5 m high mounds	Nil, mud ejecta	Has Hydrothermal Eruptions occasionally, with mud ejecta < 5 m away.
	Acid sulphate	Mud pool, 98°C, occas. < 1 m high mounds	Nil, mud ejectas of amorphous silica	Occasionally has minor HEs and ejects mud.
	Acid sulphate	Mud pool, 98°C, occas. < 1 m high mounds	Nil	Dark grey muds in crater, southernmost of three.
	Acid condensates	Large steam vent > 98°C, very noisy	Nil	Noise = > 20 m <sup>2</sup> velocity, vent c. 5 m dia. with rocks in it.
	Acid sulphate, pH 3–4	Turbid lakelet, 45–55°C, weak bubbling	Nil, prehistorical sinters around this lake	Outflows c. 3 L/s to stream flowing west across paddock.
	Acid sulphate, pH 4.5	Turbid lakelet, 45–55°C, weak bubbling	Nil	Flows c. 2 L/s to SW and joins above lakelet outflow stream.
	Acid sulphate, pH 2.5–3.5	Turbid lakelet, 55–65°C, weak bubbling	Nil, abundant silica residues along east shoreline	Flows south into above lakelet.
Tikitere (incl. Hell's Gate and Ruahine)	Acid sulphate	Brown turbid water, H <sub>2</sub> S odour, 51°C, pH 2.4	Nil, colloidal silica and sulphur in suspension	Bubbles of CO <sub>2</sub> all over, surface area 110 m <sup>2</sup> .
	Acid sulphate	Turbid brown water, H <sub>2</sub> S odour, 40°C, pH 2	Nil, colloidal silica and sulphur in suspension	Bubbling CO <sub>2</sub> all over, surface area 350 m <sup>2</sup> .
	Acid sulphate	Turbid brown water, H <sub>2</sub> S odour, 90°C, pH 6	Nil, colloidal silica and sulphur in suspension	Strong H <sub>2</sub> S smell, has had HE in 1960s.
	Acid sulphate	Turbid brown water, 75°C, pH 6	Weak spicular silica sinters (microbial), dark grey	Pool c. 3 m diameter.
	Acid sulphate	Turbid fawny grey, 47°C, pH 3	Nil, colloidal silica and sulphur in suspension	Pool c. 15 m diameter.
	Acid condensates, pyrite enriched mounds	Dark grey sticky mud, 97°C in vent	Nil, mounds of silica coloured black with pyrite	Mud cone c. 7 m dia. base and c. 2 m high, ejects mud 1–2 m high.
	Acid sulphate bicarbonate chloride	Slight milky turbid, 45°C, pH 6.5	Nil, sulphur deposits	Springs emerge at base of cliff, supply public bathing pools.
	Alkaline chloride bicarbonate	Clear, 65–90°C, pH 7	Dense silica margins and walls	Springs at shoreline of Lake Rototi; sometimes submerged.



TABLE A.2.7a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Tikitere (continued)	Deep fluid flowing springs	Moderate	Otutarara Springs	A	G	L	Outflows 1–3 L/s, gentle bubbling
	Fumarole	Strong	Ruahine Crater	A	G	R	Weak outflow < 0.5 L/s, strong boiling
	Solfatara	Strong	Unnamed (in Hell's Gate)	A	G	R	No outflows, strong steam/gas flows
Tokaanu							
Hipaua	Steaming fumaroles	Small/moderate	Unnamed	A	G	R	Nii, weak to moderate
Tokaanu	Deep fluid flowing bore	Small	Healy Bore No. 3	A	M	R	Weak, moderate < 0.5 m
	Deep fluid flowing spring	Moderate	Hoani A, B	A	G	R	Weak, calm
	Deep fluid flowing spring	Moderate	Matawai	A	G	N	Weak, calm/geyser 2 m
	Deep fluid flowing spring	Large	Paureni	A	G	R	Moderate, calm
	Deep fluid flowing spring	Moderate	Takarea 5, 6	A	G	R	Weak, calm
	Deep fluid flowing spring	Small	Taumatapuhipuhi	A	M	N	Weak, geyser < 2 m
	Deep fluid flowing spring	Small	Te Koro a Te Poinga	Hh	D	L	Nii, calm
	Mixed deep fluid/groundwater	Moderate	Teretere	Hn	G	L	Nii, calm
	Deep fluid flowing spring	Moderate	Tuwhare	A	G	R	Weak/nii, calm
Waihi	Deep fluid flowing spring	Small	Unnamed, springs 35–48	A	G, M	0	Moderate to weak, calm to weak
Tongariro							
Ketetahi	Acid pools	Moderate	Unnamed	A	G	R	Nonflowing, strong boiling < 1 m high
	Fumaroles	Strong	Unnamed	A	G	R	Weak flows, constant boiling < 2 m high
	Warm stream	Large	Mangatipu Stream	A	G	R	Strong flowing
	Hot barren ground	Large	Unnamed	A	G	L	No outflows, hissing steam emissions
	Acid springs	Moderate	Unnamed	A	G	L	Weak flows, constant boiling < 1 m high
Waikite Valley	Deep fluid flowing spring	Small	Baths Supply spring, WE 1021, S5598	A	M	L	Strong, weak < 0.3 m
	Deep fluid flowing spring	Small	Calcite Spring, WE 1030, S5585	Hn	D	N (D)	Weak, weak < 0.3 m
	Deep fluid flowing spring	Large	HT Geyser, WE 1001, S5651	Hn, A	O	N	Strong, weak < 0.3 m
	Deep fluid flowing spring	Large	Manuroa, WE 1031, S5586	A	O	I	Strong, strong < 2 m
	Deep fluid flowing spring	Large	North Gully, WE 1026, S5580	A	O	N	Strong, weak < 0.2 m

TABLE A.2.7b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Tikitere (continued)	Alkaline chloride bicarbonate	Clear, 70–88°C, pH 7	Nil, colloidal silica and sulphur in suspension	Springs in peaty ground, impounded and leakage flow into ground.
	Acid sulphate condensates	Turbid grey, 97°C, pH 2.7	Nil, colloidal silica and sulphur in suspension	HE crater c. 35 m dia. with powerful fumarolic activity.
	Sulphur deposition, acidic	Grey steaming exfoliating ground	Silica residues, exfoliating ground, sulphur	Area c. 2500 m <sup>2</sup> with sulphur mounds and silica crusts.
Tokaanu				
Hipaua	Acid sulphate condensates	Steaming hot altered ground, fumaroles	Nil	Hillslopes hot and decaying, unstable due to fumarolic activity.
Tokaanu	Alkaline chloride	Hot clear flowing bore	Extensive terrace, amorphous silica, iron oxides	Well drilled in 1940s, now constant discharge, iron coloured sinters.
	Alkaline chloride	Hot clear	Active abundant algal, amorphous silica	Broad area of sinter deposition around pool.
	Alkaline chloride	Hot clear, exchange of function common	Active abundant dense amorphous silica	Sometimes geysers, sometimes receives warm inflow from Hoani.
	Alkaline chloride	Hot greeny translucent	Nil	Piped to supply bathing pools.
	Alkaline chloride	Hot clear	Minor dense amorphous silica, algal	Interconnected with drains to supply baths.
	Alkaline chloride	Hot clear	Active minor, amorphous silica	Active geyser but much weaker than historically, land drainage/wells?
	Alkaline chloride	Hot clear	Nil, dense amorphous silica	Historically overflowed, now no flows due to land drainage/well use?
	Mixed neutral groundwater/chloride	Cold turbid dark brown (tannins?)	Nil, extensive silica terrace surrounds	Sometimes erupts, usually cold and calm, no flows.
	Alkaline chloride	Hot clear	Weak, dense amorphous silica	Occasionally overflows.
Waihi	Alkaline bicarbonate chloride, pH 6.6–7.9	Hot clear	Weak rims, crusts of amorphous silica	Many small springs along lake edge, mostly modified to supply baths. Spring at southernmost end of village shoreline named Whakatara.
Tongariro				
Ketetahi	Acid sulphate	Turbid dark grey, 98°C, pH 2	Nil	Pyrite deposits; dark grey muds, no outflows.
	Acid sulphate	Turbid dark grey, 138°C, pH 2	Nil	Some are 'geysiring' steady state ejection of waters < 2 m high.
	Acid sulphate	Turbid dark grey, 54°C, pH 2	Nil	Collected outflow from all fumaroles and acid springs.
	Acid sulphate	Hot ground, barren, salt deposits	Nil	Steam-heated ground with alum salt deposits.
	Acid sulphate	Turbid dark grey, < 98°C, pH 2	Nil	Condensates and rainwaters collect in pools, pyrite rich black sediments.
Waikite Valley	Hot clear	Silica sinter rims and outflow crusts	Spring enclosed by concrete walls to supply swimming pool	Hot, clear
	Hot milky turbid	Pure calcite sinters	Ceased flowing in c. 1995, only pure calcite sinters in TVZ	Hot, milky turbid
	Hot clear	Mixed silica and calcite rims, crusts	Created c. 1984, geysered c. 8–10 m high frequently until c. 1986	Hot, clear.
	Hot clear	Massive dense amorphous silica margins	Spectacular boiling spring and sinters, same as in photo of 1891	Hot, clear.
	Alkaline chloride bicarbonate, pH 8	Hot milky blue turbid	Abundant mixed amorphous silica and calcite	Boiling flowing spring, in 2003 enlarged vent and increased outflows.

TABLE A.2.8a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Waikite Valley (cont'd)	Deep fluid flowing spring	Moderate	Scalding Spring, WE 1008, S5644	A	G	R	Weak, weak < 0.1 m
	Deep fluid flowing spring	Moderate	Squash Supply spring, WE 1022, S5597	A	M	L	Strong, weak < 0.3 m
	Deep fluid mixed groundwater	Large	Submerged spring, WE 1007, S5632	A	G	L	Strong, calm
	Deep fluid mixed groundwater	Moderate	Warm Lakelet spring, WE 1005, S5638	A	G	R	Strong flow, calm
	Steaming barren ground	Large	Unnamed	A	G	L	Nil flow, steaming hissing ground
	Deep fluid mixed groundwater	Large	Unnamed—newly formed	A	G	R	Strong flow, calm
	Deep fluid gas groundwater	Large	Unnamed—HE crater	P	G	L	No flows, calm
	Deep fluid flowing spring	Large	Unnamed—cold and dry spring	P	G	R	No flows, calm
	Deep fluid flowing spring	Large	Unnamed—extensive silica flats	Hh	D	L	No flows, calm
	Deep fluid flowing spring	Small	Bird's Nest Springs	A	G	R	Moderate flows, boiling, c. 0.5 m high
Waimangu (incl. Rotomahana)	Steam upflows	Large	Black Crater	A	G	N	Steam flow moderate, calm
	Mixed groundwater deep fluids	Large	Frying Pan Lake	A	O	I	Strong outflows, weak bubbling < 0.1 m
	Mixed groundwater deep fluids	Large	Inferno	A	O	I	Strong outflows, weak bubbling < 0.1 m
	Deep fluid flowing spring	Large	Iodine Spring	A	O	N	Strong flows, geyser c. 2 m high
	Deep fluid flowing spring	Small	Unnamed	A	O	N	Small flows, boiling spring
	Deep fluid flowing spring	Moderate	Taharoto Geyser	A	G	N	Moderate flow, geyser, c. 3 m high
	Steaming ground	Strong	Cathedral Rocks; Gibraltar Rock	A	G	R	No flow, strong steamflows
	Deep fluid flowing spring	Moderate	Warbrick's Terrace	A	M	N	Moderate flow, boiling < 0.5 m high
	Deep fluid flowing spring	Strong	Hole in The Wall Geyser	A	O	N	Strong overflows, geysers c. 2 m high
	Deep fluid flowing spring	Strong	Pink Terrace Bay Geyser	A	O	N	Strong overflows, geysers c. 10 m high
Waioatapu	Deep fluid flowing spring	Moderate	Black Spring, S 49	A	G	L	Moderate flow, weak < 0.1 m
	Deep fluid flowing spring	Large	Champagne Pool, S 64	A	O	I	Strong flow, weak < 0.05 m
	Deep fluid flowing spring	Small	Lady Knox Geyser, S 52	A	M	R	Strong flow, geyser daily 8–12 m
	Deep fluid and groundwater	Small	NW Spring, S 66	A	G	L	Weak flow, geyser < 2 m
	Deep fluid flowing spring	Large	Post Mistress, S 20	A	O	R	Moderate flow, weak < 0.1 m

TABLE A.2.8b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Waikite Valley (cont'd)	Alkaline chloride bicarbonate pH 8	Hot clear	Weak margins, outflows, amorphous silica	Solitary spring in farmland on valley floor, enclosed by railing fence.
	Alkaline chloride bicarbonate pH 8	Hot clear	Weak margin rims, amorphous silica	Enclosed by concrete walls to supply squash club.
	Alkaline chloride bicarbonate pH 8	Warm clear	Nil	Uptows into bed of cold stream from large shaft vent.
	Alkaline chloride bicarbonate pH 8	Warm clear	Nil	Springs at base of cliff flowing into warm lake.
	Acid sulphate condensates	Dry and hot barren ground	Nil	Steaming barren ground at base of cliffs.
	Mixed bicarbonate chloride and freshwater	Warm clear	Abundant amorphous algal silica and algae	Began forming c. 1995, rapidly expanding algal sinter deposits.
	No water, dry	Cold, dry	Nil	5 HE craters formed AD 1320?
	No water, dry	Cold, dry	Massive terrace, prehistorical	Once extensive silica terrace formation filling gully and downslope.
	No water, dry	Cold, dry	Mixed sinters, large expanse, prehistorical	Once extensive flat-lying silica sinters across valley floor.
Waimangu (incl. Rotomahana)	Alkaline chloride	Boiling, clear, 98°C, pH 7.8	Abundant amorphous silica, iron coloured	Actively growing and sinters overwhelmed footprint by 1990s.
	Acid sulphate condensates	Hot steaming ground, barren	Nil	Formed 10 June 1886, steaming altered hot ground in crater.
	Acid sulphate chloride	Clear green hot lake, 55–70°C, pH 5	Nil	Flows are coupled inversely to Inferno Crater flows, cycle c. 6 weeks.
	Acid sulphate chloride	Turbid blue-grey hot warm lake, 55°C, pH 4	Dense amorphous silica rims and muds	Formed 10 June 1886, flows cyclical.
	Alkaline chloride	Clear, 98°C, pH 8.5	Abundant amorphous silica and iron oxides	Rapidly forming large sinter terraces.
	Alkaline chloride	Clear, 98°C, pH 8	Amorphous silica and dense algae	On western shore of Frying Pan Lake.
	Alkaline chloride	Clear, 98°C, pH 8	Iron oxides and amorphous silica	On south shore of Frying Pan Lake, very active in 1980s, now erratic.
	Acid condensates	Mossy and barren ground, 55–95°C	Nil	Hillside along north side of Frying Pan Lake, altered hot cliffs.
	Alkaline chloride	Clear, 98°C, pH 8, steady boiling	Abundant algal amorphous silica and iron colours	Was sandbagged in 1890s but terraces of sinter have overgrown these.
	Alkaline chloride	Clear, 98°C, pH 8, erupts every c. 10 minutes	Dense amorphous silica rims and wall	On cliff just above lake level in Rotomahana.
	Alkaline chloride	Clear, 98°C, pH 7.8, erupts every few hours	Dense amorphous silica surrounds	On NW shore of Rotomahana, in Pink Terrace Bay.
Waioatapu	Neutral chloride, pH 7.2	Hot, clear	Black amorphous silica crusts, rims, spicules	Spicular microbial sinter margins, pyrite blackened.
	Chloride bicarbonate, pH 5.4	Hot, translucent green-yellow	Massive vast deposits, amorphous silica, metals	Outstanding sole remaining NZ large silica terrace, antimony/tungsten
	Neutral chloride, pH 7.4	Hot, clear, soapy smells	Minor soapy stearate-silicate mineral	Geyser with artificial cone, soaped daily at 1015 hours.
	Neutral chloride, pH 6.8	Hot, grey turbid	Dark grey amorphous silica and pyrite	Sporadic geyser action, dark grey sinter surrounds.
	Alkaline chloride, pH 8.0	Hot, clear	Minor dense, amorphous silica rims, crusts	In gully on west side of SH 5, c. 8 m diameter spring.

TABLE A.2.9a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Waiotapu (cont'd)	Deep fluid and groundwater	Large	Venus Bath, S 48	A	G	L	Weak flow, calm
	Deep fluid flowing spring	Small	Waiotapu Geyser, S 70	A	G	R	Moderate flow, geyser 2.5 m
	Steam heated mudpool	Large	Unnamed—large mud pool on Loop Road	A	O	N	No flow, mud splashes < 2 m
	Steam heated groundwaters	Small	Hakareteke geyser, S 49N	A	G	N	Weak flows, moderate, < 2 m high
Wairakei (excl. Tauhara-Taupo)							
Wairakei Geyser Valley	Steaming fumarole	Large	Karapiti Fumarole	Hh	D	I	Steam flow, strong, 38 MW
	Turbid lake	Large	Alum Lake	A	G	N	Moderate flow, weak bubbling
	Deep fluid flowing spring	Large	Great Wairakei Geyser, S 59	Hh	D	I	Strong flow, geyser 30 m high
	Deep fluid flowing spring	Large	Champagne Pool, S 97	Hh	D	I	Strong flow, geyser 2 m high
	Deep fluid flowing spring	Large	Waitangi Pool	Hh	D	R	Strong flow, boiling 1 m high
	Deep fluid flowing spring	Large	Dragon's Mouth Geyser, S 38	Hh	D	N	Strong flow, geyser 5 m high
	Deep fluid flowing spring	Large	Opal Pool	Hh	D	R	Strong flow, boiling flowing spring
	Deep fluid flowing spring	Large	Dancing Rock Geyser, S 190	Hh	D	N	Strong flows, geyser
	Deep fluid flowing spring	Large	Rainbow Pool, S 197	Hh	D	R	Strong outflow, boiling spring
	Deep fluid flowing spring	Large	Ocean Geyser, S 198	Hh	D	N	Strong flows, geyser
	Sinter Terrace	Large	Tuhatahia Terrace	Hh	D	N	Wet, calm
	Steaming mud pool	Large	Devil's Inkpot, or Black Geyser, S 37	A	M	L	No outflow, steaming mud
	Deep fluid flowing spring	Large	Kuiwai Pools, S 48-51	Hh	D	R	Moderate flows, bubbling moderately
	Deep fluid flowing spring	Large	Donkey Engine Geyser, S 54	Hh	D	R	Strong flows, geyser, 3 m high
	Deep fluid flowing spring	Large	Haematite Geyser or Heron's Nest, S 65	Hh	D	R	Strong flows, geyser, 3-5 m high
	Steam heated mud	Large	Packhorse Geyser, S 83	A	M	L	No flow, mudpool, strong splashing
	Deep fluid flowing spring	Large	Eagle's Nest Geyser, S 131	Hh	D	N	Strong flows, geyser 10 m high
	Deep fluid flowing spring	Large	Devil's Punch Bowl, S 185	Hh	D	N	Strong flows, hot spring
	Deep fluid flowing spring	Large	Prince of Wales Feathers Geyser, S 188	Hh	D	N	Strong flows, geyser 18-25 m high
Deep fluid flowing spring	Large	Nga Mahanga or Twins Geyser, S 190	Hh	D	N	Strong flows, geyser 15 m high	

TABLE A.2.9b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Waiotapu (cont'd)	Acid sulphate chloride, pH 4.0	Hot slight grey turbid	Minor colloidal silica sinters	Once used for bath, now too hot.
	Neutral chloride, pH 7.5	Hot clear	Dense amorphous silica apron	Erupts every 2–4 hours < 2 m high for 10–15 minutes.
	Acid sulphate condensates	Hot muddy turbid	Nil	In early 20th century was mud cone c. 3 m high and c. 10 m dia.
	Acid sulphate, pH 3.5	Hot clear	Abundant iron-coloured amorphous silica, spicules	Spicular microbial sinters with red-black iron colouring, only NZ clear acid water geyser.
Wairakei (excl. Tauhara-Taupo)				
Wairakei Geyser Valley	Acid condensates	Powerful fumarole, very noisy	Nil	Greatly reduced steamflows since late 1950s, ceased by early 1970s.
	Acid sulphate	Warm turbid	Nil	Steam-heated waters in HE crater, outflows into stream; erupted 2001.
	Alkaline chloride	Clear boiling geyser	Abundant amorphous silica	Ceased all activity in late 1950s, now steaming and crumbling away.
	Alkaline chloride	Clear boiling spring	Abundant amorphous silica	Ceased flowing in late 1950s, by 2005 water level c. 30 m below overflow.
	Alkaline chloride bicarbonate	Clear boiling spring	Abundant amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling spring	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling spring	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling geyser	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling spring	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling geyser	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling spring	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Clear boiling geyser	Amorphous silica	Ceased all activity and dried up in late 1950s, now badly decayed.
	Alkaline chloride	Silica terrace down slope to stream	Abundant amorphous silica	Ceased depositing sinters when Champagne Pool stopped flowing.
	Acid sulphate condensates	Dark grey mudpool, bubbling, 1 m high	Nil	About 15 m up hillside on east side of lower valley.
	Alkaline chloride	Clear hot spring	Amorphous silica	Dried up by early 1960s.
	Alkaline chloride	Hot clear spring	Abundant amorphous silica	Ceased all geysering and flows in late 1950s, now steaming/decaying.
	Alkaline chloride	Hot boiling geyser	Amorphous silica and brick red colourations	Now cold and decaying, ceased playing in late 1950s.
	Acid sulphate muds	Muddy pool	Nil	Known to have many months of vigorous mud eruptions in historic time.
	Alkaline chloride	Clear boiling spring	Amorphous silica	Dried up by early 1960s, warm and badly decayed now.
	Alkaline chloride	Clear boiling spring	Amorphous silica	Dried up by late 1950s, now decayed.
	Alkaline chloride	Clear boiling geyser	Abundant amorphous silica	Also threw waters sideways for 15 m, had a multiple vent.
	Alkaline chloride	Clear boiling geyser	Abundant amorphous silica	Paddle Wheel and Dancing Rock Geysers both make up the Twins.

TABLE A.2.10a

Field name	Type of feature	Size	Feature name/number	Status (A, Hn, Hh, P, N)	Quality (O, G, M, D)	Representation (I, R, L)	Hydrological character, gaseous character, flow and ebullition
Wairakei Geyser Valley (cont'd)	Deep fluid flowing spring	Large	Bridal Veil, Cascades or Red Coral, S 199	Hh	D	R	Strong flows, geyser 7 m high
	Deep fluid flowing spring	Large	Te Rekereke o Rongokako, S 205	Hh	D	R	Strong flows, continual splasher
Waioara Valley	Steam heated groundwaters	Large	Pirorirori or Blue Lake	Hh	D	L	Strong flowing, bubbling moderately
	Steam heated mudpool	Moderate	Frog Mud Pond	Hh	D	L	No outflow, strongly boiling < 1 m
	Mixed deep and surface water	Large	Kiriheheke Stream	Hh	D	R	Strong flow
	Mixed deep and surface water	Large	Red Lake	Hh	D	N	Moderate flow, gentle bubbling
	Steam fumarole	Large	Great Wairakei Sulphur Crater	A	M	R	Weak steam flow, weak gas flow
	Steam-heated groundwater	Small	Satan's Eyes	Hh	D	L	Weak steam flow, weak gas flow
Whakaari (White Island)	Fumarole	Large	Noisy Nellie	Hn	O	N	Very strong gas flow, noisy, c. 50 m
	Fumarole	Large	Donald Mound	Hn	O	N	Many strong fumaroles, noisy vents
	Condensate mixed water lake	Large	1978 Crater	Hn	O	N	Non-flowing lake, powerful bubbling, 1 m
	Fumarole	Large	Blue Duck	Hn	G	N	Strong gasflow, noisy gas plume, 10 m
Whangairorohea	Deep fluid upflow	Large	Main lakelet	A	G	N	Weak upflow, weak gas bubbling
	Deep fluid flowing spring	Small	Stream springs	A	G	L	Weak upflow, calm
	Deep fluid flowing spring	Small	Hot Spring 1	Hh	D	L	Weak upflow, calm
	Deep fluid flowing spring	Small	Hot Spring 2	Hh	D	L	Weak upflow, calm

TABLE A.2.10b

Field name	Chemical character	Physical character	Sinter deposition	Comments
Wairakei Geyser Valley (cont'd)	Alkaline chloride	Clear boiling geyser	Abundant amorphous silica	Also known as Petrifying Geyser, dried up in late 1950s.
Waioara Valley	Alkaline chloride	Clear boiling spring	Abundant amorphous silica	Also known as Giant's Heal Mark Geyser, played < 12 m high.
	Acid sulphate chloride mixed waters	Clear pale blue colour, bubbling < 0.3 m	Nil	Dried up by early 1960s, now cold and destroyed by road works.
	Acid sulphate muds	Grey muddy, strong bubbling < 1 m	Nil	Dried up by early 1960s, now cold and destroyed by road works.
	Acid sulphate chloride waters	Clear pale blue colour	Silica deposition along channel	Dried up by 1959, but well water diverted back into it in 2001.
	Acid sulphate	Bright red turbid, warm	Nil	Dried up by early 1960s, now cold and destroyed by road works.
	Acid condensates	Warm crater HE?	Nil	Steam flow greatly reduced and largely overgrown/destroyed since 1960s.
	Acid sulphate	Clear boiling pool, pH c. 3, c. 98°C, < 1 m high	Reddish iron oxides, hydroxides	Dried up and cold now, destroyed by early 1960s.
Whakaari (White Island)	CO <sub>2</sub> , H <sub>2</sub> O, HCl, SO <sub>2</sub> very acidic gases	Colourless gas plume, incandescent < 800°C	Gypsum and anhydrite, alums on outer margins	No longer exists, powerful noisy discharge through 1970s to 1980s.
	Ditto	Colourless gases, strong acid condensates	Anhydrite and sulphate salts	Now much weakened and site exhumed by new vents in 1990s.
	Strongly acidic	Yellow green turbid	Nil	Mixture of condensates and rainwaters, with gas products—strong acids.
	Acid gases	Clear gas, 200–500°C during 1970s	Nil: anhydrite inside, gypsum and alums outer rind	No longer exists, all features very short-lived here.
Whangairorohea	Neutral chloride	Warm clear, no odours	Nil	Warm lake in alluvial terrace, seepage outflows.
	Neutral chloride	Warm clear, no odours	Nil	Warm springs rising into bed of flowing cold stream.
	Alkaline chloride	Hot clear	Nil	Hot spring submerged by Lake Ohakuri in January 1961.
	Alkaline chloride	Hot clear	Nil	Hot spring submerged by Lake Ohakuri in January 1961.



# Appendix 3

## G E O T H E R M A L F I E L D S R A N K I N G

This comprises a large spreadsheet split into a number of tables to enable reproduction in this report. To reconstruct the spreadsheet, the tables need to be viewed as follows:

A3.1a	A3.1b	A3.1c
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A3.2a	A3.2b	A3.2c
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A3.3a	A3.3b	A3.3c
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For geothermal fields with with dual names:

- Broadlands see Ohaaki
- Ketetahi see Tongariro
- Hipaua see Tokaanu
- Rotomahana see Waimangu
- Taupo see Tauhara
- Waihi see Tokaanu
- Whale Island see Moutohora
- Whakamaru see Ongaroto

TABLE A 3. 1 a

Geothermal feature type	Atiamuri	Horohoro	Kawerau	Mangakino	Mokai	Moutohora (Whale Is.)	Ngatamariki	Ohaki/ Broadlands	Okataina	Ongaroto (Whakamaru)	Orakeikorako	Reporoa	Rototi
Geyser (alkaline-neutral)	0	0	0	0	0	0	0	0	0	0	20	0	0
Geyser (acid water)	0	0	0	0	0	0	0	0	0	0	0	0	0
Geyser (mud)	0	0	0	0	0	0	0	0	0	0	0	0	0
Alkaline-neutral spring boiling large	0	0	0	0	0	0	0	0	0	0	9	8	0
Alkaline-neutral spring boiling moderate	0	0	0	0	0	0	0	0	0	0	9	7	0
Alkaline-neutral spring boiling small	0	0	6	2	0	0	6	0	0	0	9	3	0
Alkaline-neutral spring hot large	5	0	3	0	0	0	8	0	0	0	6	3	8
Alkaline-neutral spring hot moderate	0	0	3	0	4	0	5	0	0	0	6	3	0
Alkaline-neutral spring hot small	3	3	6	2	0	0	5	0	0	0	6	3	0
Alkaline-neutral spring warm large	0	3	3	0	0	0	6	0	0	0	8	2	0
Alkaline-neutral spring warm moderate	0	0	3	0	4	0	5	0	0	0	8	3	0
Alkaline-neutral spring warm small	0	0	4	0	0	0	4	0	0	0	8	3	0
Alkaline-neutral spring tepid large	0	0	2	0	0	0	6	0	0	0	6	2	0
Alkaline-neutral spring tepid moderate	0	0	2	0	0	0	0	0	0	0	5	2	0
Alkaline-neutral spring tepid small	0	3	2	0	0	0	4	0	0	2	6	2	0
Weak-moderate acid spring boiling large	0	0	0	0	0	0	0	1	0	0	6	2	0
Weak-moderate acid spring boiling moderate	0	0	0	0	0	0	0	0	0	0	6	2	0
Weak-moderate acid spring boiling small	0	0	3	0	0	6	0	0	0	0	6	2	0
Weak-moderate acid spring hot large	0	0	0	0	0	0	5	0	0	0	7	2	0
Weak-moderate acid spring hot moderate	0	0	3	0	0	0	0	0	0	0	6	2	0
Weak-moderate acid spring hot small	0	0	3	0	3	6	0	0	0	0	6	2	0
Weak-moderate acid spring warm large	0	0	0	0	0	0	5	0	0	0	4	2	0
Weak-moderate acid spring warm moderate	0	0	0	0	3	0	0	0	0	0	4	2	0
Weak-moderate acid spring warm small	0	0	0	0	0	6	0	0	0	0	6	2	0
Weak-moderate acid spring tepid large	0	0	3	0	0	0	0	0	0	0	6	2	0
Weak-moderate acid spring tepid moderate	0	0	3	0	0	0	0	0	0	4	5	2	0
Weak-moderate acid spring tepid small	0	0	3	0	0	0	0	0	4	0	5	2	0
Strongly acid spring boiling large	0	0	0	0	0	0	0	0	0	0	0	0	0
Strongly acid spring boiling moderate	0	0	0	0	0	0	0	0	0	0	0	0	0
Strongly acid spring boiling small	0	0	0	0	0	6	0	0	0	0	0	0	0
Strongly acid spring hot large	0	0	0	0	0	0	0	0	0	0	0	2	0
Strongly acid spring hot moderate	0	0	3	0	0	0	0	0	0	0	4	2	0
Strongly acid spring hot small	0	0	3	0	0	5	0	0	0	0	4	2	0
Strongly acid spring warm large	0	0	0	0	0	0	0	0	0	0	9	2	0
Strongly acid spring warm moderate	0	0	0	0	3	0	0	0	0	0	4	2	0
Strongly acid spring warm small	0	0	0	0	3	0	0	0	0	0	4	2	0
Strongly acid spring tepid large	0	0	0	0	0	0	0	0	0	0	0	0	0
Strongly acid spring tepid moderate	0	0	0	0	0	0	0	0	0	0	0	2	0
Strongly acid spring tepid small	0	0	0	0	0	0	0	0	0	0	4	2	0
Mixed water lake boiling	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE A 3. 1b

Geothermal feature type	Rotokawan (Rotorua)	Rotokawa (Taupo)	Rotoma	Ruapehu	Taheke	Tarawera	Tauhara	Te Kopia	Tiketere	Tokaanu	Tongario	Waikite	Waimangu
Geyser (alkaline-neutral)	0	0	0	20	0	0	0	0	0	0	20	0	0
Geyser (acid water)	0	0	0	0	0	0	0	0	0	0	0	10	0
Geyser (mud)	0	0	0	0	0	0	0	0	20	0	0	0	0
Alkaline-neutral spring boiling large	0	0	0	7	0	0	0	0	0	0	7	0	10
Alkaline-neutral spring boiling moderate	0	0	0	8	0	0	6	0	0	0	5	0	8
Alkaline-neutral spring boiling small	4	0	0	8	0	0	6	0	0	6	3	0	9
Alkaline-neutral spring hot large	4	0	6	8	0	0	0	0	0	0	5	0	8
Alkaline-neutral spring hot moderate	4	0	4	8	0	0	4	0	0	0	5	0	8
Alkaline-neutral spring hot small	4	0	5	8	0	0	4	0	0	4	2	0	8
Alkaline-neutral spring warm large	4	0	6	7	0	0	6	0	0	0	4	0	5
Alkaline-neutral spring warm moderate	4	0	5	7	0	0	6	3	6	0	4	0	5
Alkaline-neutral spring warm small	2	0	6	7	0	0	6	5	6	4	4	0	5
Alkaline-neutral spring tepid large	0	0	6	7	8	0	0	3	0	4	4	0	8
Alkaline-neutral spring tepid moderate	0	0	5	7	0	0	6	3	0	4	3	0	6
Alkaline-neutral spring tepid small	0	0	5	7	0	0	6	3	0	3	5	0	3
Weak-moderate acid spring boiling large	0	0	0	0	0	0	0	0	0	0	0	0	0
Weak-moderate acid spring boiling moderate	0	0	0	5	0	0	0	0	0	0	0	0	0
Weak-moderate acid spring boiling small	0	0	0	5	0	0	0	0	0	0	0	0	0
Weak-moderate acid spring hot large	0	4	0	5	0	0	0	0	6	5	0	0	0
Weak-moderate acid spring hot moderate	0	3	0	5	0	0	0	0	4	4	4	0	0
Weak-moderate acid spring hot small	0	3	0	5	0	0	0	4	4	4	4	0	0
Weak-moderate acid spring warm large	0	4	0	4	0	0	0	0	0	0	0	0	6
Weak-moderate acid spring warm moderate	0	3	0	4	0	0	0	0	0	0	0	0	0
Weak-moderate acid spring warm small	2	3	0	4	0	0	0	0	4	4	0	0	0
Weak-moderate acid spring tepid large	0	7	0	4	0	0	0	0	4	4	0	0	0
Weak-moderate acid spring tepid moderate	0	3	0	4	0	0	0	0	4	4	4	0	5
Weak-moderate acid spring tepid small	0	3	0	4	0	0	0	0	4	4	0	0	5
Strongly acid spring boiling large	0	0	0	0	0	0	0	0	0	0	0	8	0
Strongly acid spring boiling moderate	0	3	0	0	0	0	0	5	8	4	0	8	0
Strongly acid spring boiling small	0	3	0	4	0	0	0	0	4	4	6	8	0
Strongly acid spring hot large	0	3	0	4	0	0	0	0	6	4	0	0	0
Strongly acid spring hot moderate	0	3	0	4	0	0	0	0	6	4	0	0	0
Strongly acid spring hot small	0	3	0	4	0	0	0	0	6	4	6	0	0
Strongly acid spring warm large	0	3	0	4	9	0	0	0	0	4	0	0	0
Strongly acid spring warm moderate	0	3	0	4	0	0	0	3	0	4	4	0	0
Strongly acid spring warm small	0	3	0	4	0	0	0	0	4	4	4	0	0
Strongly acid spring tepid large	0	3	0	5	0	0	0	0	8	4	4	0	0
Strongly acid spring tepid moderate	0	3	0	5	0	0	0	0	6	5	4	0	0
Strongly acid spring tepid small	0	3	0	4	0	0	0	0	6	5	4	0	0
Mixed water lake boiling	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE A.3.1c

Geothermal feature type	Watotapu	Wairakei (excl. Tauhara)	Whakaari	Whangaioro-hea
Geyser (alkaline-neutral)	16	0	0	0
Geyser (acid water)	20	0	0	0
Geyser (mud)	0	0	0	0
Alkaline-neutral spring boiling large	9	0	0	0
Alkaline-neutral spring boiling moderate	6	0	0	0
Alkaline-neutral spring boiling small	6	0	0	0
Alkaline-neutral spring hot large	9	0	0	0
Alkaline-neutral spring hot moderate	6	0	0	0
Alkaline-neutral spring hot small	6	0	0	0
Alkaline-neutral spring warm large	4	0	0	4
Alkaline-neutral spring warm moderate	0	0	0	4
Alkaline-neutral spring warm small	4	0	0	4
Alkaline-neutral spring tepid large	4	0	0	6
Alkaline-neutral spring tepid moderate	4	0	0	0
Alkaline-neutral spring tepid small	4	0	0	0
Weak-moderate acid spring boiling large	0	2	0	0
Weak-moderate acid spring boiling moderate	8	2	0	0
Weak-moderate acid spring boiling small	6	2	0	0
Weak-moderate acid spring hot large	6	0	0	0
Weak-moderate acid spring hot moderate	6	0	0	0
Weak-moderate acid spring hot small	6	0	0	0
Weak-moderate acid spring warm large	4	0	0	0
Weak-moderate acid spring warm moderate	4	0	0	0
Weak-moderate acid spring warm small	4	0	0	0
Weak-moderate acid spring tepid large	4	2	0	0
Weak-moderate acid spring tepid moderate	4	2	0	0
Weak-moderate acid spring tepid small	4	2	0	0
Strongly acid spring boiling large	0	3	8	0
Strongly acid spring boiling moderate	6	3	6	0
Strongly acid spring boiling small	6	3	8	0
Strongly acid spring hot large	6	2	8	0
Strongly acid spring hot moderate	6	2	6	0
Strongly acid spring hot small	6	2	6	0
Strongly acid spring warm large	4	3	6	0
Strongly acid spring warm moderate	4	2	4	0
Strongly acid spring warm small	4	2	4	0
Strongly acid spring tepid large	6	2	0	0
Strongly acid spring tepid moderate	4	2	0	0
Strongly acid spring tepid small	4	2	0	0
Mixed water lake boiling	0	0	0	0

TABLE A 3. 2a

Geothermal feature type	Attamuri	Horohoro	Kawerau	Mangakino	Mokai	Moutohora (Whale Is.)	Ngatamariki	Ohaki/ Broadlands	Okataina	Ongaroto (Whakamaru)	Orakeikorako	Reporoa	Rotiti
Mixed water lake hot	0	0	0	0	0	0	0	0	0	0	4	2	0
Mixed water lake warm	0	0	0	0	0	0	0	0	0	0	4	3	0
Mixed water lake tepid	0	0	2	0	0	0	0	0	0	0	4	3	0
Mixed water pool boiling	0	0	0	0	0	0	0	0	0	0	0	3	0
Mixed water pool hot	0	0	0	0	3	0	3	0	0	0	6	3	0
Mixed water pool warm	0	0	2	0	3	0	0	0	0	0	4	3	0
Mixed water pool tepid	0	0	2	0	3	0	0	0	0	0	4	2	0
Mud lake boiling	0	0	0	0	3	0	0	0	0	0	0	0	0
Mud lake hot	0	0	0	0	3	0	0	0	0	0	0	0	0
Mud lake warm	0	0	0	0	3	0	0	0	0	0	0	0	0
Mud lake tepid	0	0	0	0	3	0	0	0	0	0	0	0	0
Mud pool boiling	3	0	3	0	3	0	5	3	0	0	0	4	0
Mud pool hot	0	0	3	0	3	0	5	3	0	0	4	4	0
Mud pool warm	0	0	0	0	3	0	5	0	0	0	4	4	0
Mud pool tepid	0	0	0	0	3	0	0	0	0	0	4	0	0
Mud pot boiling	0	0	3	0	3	0	0	0	0	0	4	4	0
Mud pot hot	0	0	0	0	3	0	5	4	0	0	4	4	0
Mud pot warm	0	0	0	0	0	0	0	0	0	0	6	4	0
Mud pot tepid	0	0	0	0	0	0	0	0	0	0	5	0	0
Mud cone boiling	0	0	0	0	4	0	0	0	0	0	0	0	0
Fumarole large > 2 MW	0	0	0	0	4	0	0	0	0	0	8	0	0
Fumarole moderate 2-0.5 MW	0	0	0	0	0	0	0	0	0	0	8	0	0
Fumarole small < 0.5 MW	0	0	3	0	0	6	4	3	0	0	8	0	0
Solfatara large > 1 hectare	0	0	0	0	0	0	0	0	0	0	0	0	0
Solfatara moderate 0.5-1 hectare	0	0	0	0	0	5	0	0	0	0	0	0	0
Solfatara small < 0.5 hectare	0	0	5	0	0	5	0	3	0	0	0	0	0
Hot ground large	0	0	5	0	0	5	4	3	0	0	6	4	0
Hot ground moderate	0	0	5	0	0	5	4	0	0	3	6	4	0
Hot ground small	0	0	5	0	3	0	4	0	0	3	6	4	0
Warm ground large	0	0	5	0	0	5	4	3	0	0	8	4	0
Warm ground moderate	0	0	5	0	3	5	4	0	0	3	8	4	0
Warm ground small	0	0	5	0	3	0	4	0	4	0	8	4	0
Sinter deposits large > 1 hectare	0	0	0	0	0	0	0	7	0	0	0	0	0
Sinter deposits moderate 0.5-1 hectare	0	0	0	0	0	0	0	0	0	0	0	0	0
Sinter deposits small < 0.5 hectare	3	2	2	2	0	0	0	0	0	0	8	8	0
Hydrothermal Eruption Crater	2	5	7	0	5	0	4	0	0	0	6	4	6
Collapse (Doline) Crater	0	0	0	0	0	0	0	0	0	0	6	0	0
Altitude (metres range divided by 100)	0.90	0.25	1.00	0.65	2.46	3.53	4.00	0.43	0.01	0.45	0.85	0.40	0.15
Features Score:	16.90	16.25	121.0	6.65	85.86	58.53	114.0	30.43	8.01	15.45	353.85	160.4	14.15

TABLE A.3.2b

Geothermal feature type	Rotokawan (Rotorua)	Rotokawa (Taupo)	Rotoma	Ruapehu	Taheke	Tarawera	Tauhara	Te Kopia	Tikitere	Tokaanu	Tongariro	Waikite	Waimangu
Mixed water lake hot	0	0	6	7	0	0	0	0	0	0	5	0	0
Mixed water lake warm	0	0	4	7	0	0	0	3	0	0	3	0	0
Mixed water lake tepid	3	5	4	7	0	0	0	2	0	0	3	0	9
Mixed water pool boiling	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed water pool hot	0	3	4	5	0	0	0	0	0	2	0	0	7
Mixed water pool warm	0	3	4	5	0	0	0	0	0	3	0	0	5
Mixed water pool tepid	0	3	4	5	0	0	0	0	0	2	0	0	5
Mud lake boiling	0	0	0	7	0	0	0	0	8	0	0	0	0
Mud lake hot	0	0	0	7	0	0	0	0	6	0	0	0	0
Mud lake warm	0	0	0	7	0	0	0	0	6	0	0	0	0
Mud lake tepid	0	0	0	7	0	0	0	0	6	0	0	0	0
Mud pool boiling	0	5	4	7	0	0	0	0	8	6	0	0	0
Mud pool hot	0	4	0	7	0	0	0	0	8	6	0	0	0
Mud pool warm	0	3	0	7	0	0	0	0	8	4	0	0	0
Mud pool tepid	0	3	0	7	0	0	0	0	8	4	0	0	0
Mud pot boiling	0	6	4	7	0	0	0	0	6	4	7	0	0
Mud pot hot	0	6	4	7	0	0	0	0	6	4	6	0	0
Mud pot warm	0	5	0	7	0	0	0	0	6	5	6	0	0
Mud pot tepid	0	0	0	7	0	0	0	0	6	5	6	0	0
Mud cone boiling	0	0	0	7	0	0	0	0	6	8	6	0	0
Fumarole large > 2 MW	0	0	0	0	9	0	0	0	10	6	0	9	0
Fumarole moderate 2-0.5 MW	0	3	0	7	0	0	0	0	9	0	8	8	8
Fumarole small < 0.5 MW	0	3	6	7	0	6	6	3	6	6	8	5	6
Solfataral large > 1 hectare	0	3	5	9	0	5	0	0	0	5	0	0	0
Solfataral moderate 0.5-1 hectare	0	3	6	7	0	3	0	5	8	3	0	0	0
Solfataral small < 0.5 hectare	0	5	6	7	0	3	0	3	6	3	0	6	0
Hot ground large	0	3	4	7	0	5	0	3	8	5	8	4	3
Hot ground moderate	0	3	4	7	0	3	6	3	8	5	4	4	5
Hot ground small	0	3	4	7	0	3	0	3	8	5	4	4	5
Warm ground large	0	3	4	6	9	5	8	3	6	5	6	4	3
Warm ground moderate	2	3	3	7	6	5	6	3	6	5	6	4	3
Warm ground small	2	3	3	6	6	3	4	3	6	5	6	0	3
Sinter deposits large > 1 hectare	0	0	0	0	0	0	0	0	0	0	3	0	5
Sinter deposits moderate 0.5-1 hectare	0	0	0	0	8	0	0	0	4	0	3	0	9
Sinter deposits small < 0.5 hectare	0	0	0	7	0	0	6	0	6	0	5	0	8
Hydrothermal Eruption Crater	4	4	0	8	9	0	0	8	9	4	0	0	7
Collapse (Doline) Crater	0	4	4	5	0	0	0	0	6	4	0	0	0
Altitude (metres range divided by 100)	0.15	1.15	1.30	1.90	11.70	0.40	6.50	1.43	2.60	1.27	3.56	1.00	2.00
Features Score:	15.15	156.7	134.30	421.9	75.70	41.40	92.50	72.43	314.60	215.27	221.56	79.00	192.00

TABLE A.3.2c

Geothermal feature type	Watotapu	Wairakei (excl. Tauhara)	Whakaari	Whangairoro-hea
Mixed water lake hot	6	5	0	0
Mixed water lake warm	6	3	0	0
Mixed water lake tepid	8	3	0	0
Mixed water pool boiling	6	5	0	0
Mixed water pool hot	6	5	0	0
Mixed water pool warm	8	3	0	0
Mixed water pool tepid	9	3	0	0
Mud lake boiling	9	3	0	0
Mud lake hot	8	3	0	0
Mud lake warm	6	3	0	0
Mud lake tepid	6	3	0	0
Mud pool boiling	8	5	0	0
Mud pool hot	8	5	0	0
Mud pool warm	6	5	0	0
Mud pool tepid	6	5	0	0
Mud pot boiling	6	3	0	0
Mud pot hot	4	3	0	0
Mud pot warm	4	3	0	0
Mud pot tepid	4	3	0	0
Mud cone boiling	9	3	0	0
Fumarole large > 2 MW	0	7	9	0
Fumarole moderate 2-0.5 MW	8	7	9	0
Fumarole small < 0.5 MW	6	7	9	0
Solfataral large > 1 hectare	6	5	8	0
Solfataral moderate 0.5-1 hectare	4	5	4	0
Solfataral small < 0.5 hectare	4	5	4	0
Hot ground large	7	3	6	0
Hot ground moderate	4	3	4	0
Hot ground small	4	3	4	0
Warm ground large	4	3	4	0
Warm ground moderate	4	3	4	0
Warm ground small	4	3	4	0
Sinter deposits large > 1 hectare	10	2	0	0
Sinter deposits moderate 0.5-1 hectare	8	2	0	0
Sinter deposits small < 0.5 hectare	6	2	0	0
Hydrothermal Eruption Crater	9	5	6	0
Collapse (Doline) Crater	9	3	6	0
Altitude (metres range divided by 100)	3.70	2.10	3.21	0.10
Features Score:	443.70	85.10	140.21	18.10

TABLE A.3.3a

Geothermal feature type	Atiamuri	Horohoro	Kawerau	Mangakino	Mokai	Moutohora (Whale Is.)	Ngatamariki	Ohaki/Broadlands	Okataina	Ongaroto (Whakamaru)	Orakeikorako	Reporoa	Rototiti
<b>Naturalness/human modification</b>													
Vegetation intactness	0.3	0.3	0.5	0.3	0.3	0.8	0.3	0.3	1	0.3	0.3	0.3	1.0
Landscape intactness	0.7	0.3	0.2	0.3	0.3	0.8	0.8	0.3	1	0.7	0.7	0.3	1.0
Feature type intactness	0.8	0.8	0.2	0.3	0.8	0.8	0.7	0.1	1	0.8	0.1	0.7	1.0
Intactness Score (average of above three)	0.60	0.47	0.3	0.3	0.47	0.8	0.6	0.23	1.0	0.6	0.367	0.433	1.0
Geothermal Field Ranking (= Features score x Intactness score)	10.14	7.64	36.30	2.00	40.35	46.82	68.40	7.00	8.01	9.27	129.86	69.45	14.15



TABLE A.3.3b

Geothermal feature type	Rotokawanu (Rotorua)	Rotokawanu (Taupo)	Rotoma	Ruapehu	Taheke	Tarawera	Tauhara	Te Kopia	Tiketere	Tokaanu	Tongarua	Waikite	Waimangu
<b>Naturalness/human modification</b>													
Vegetation intactness	0.3	0.3	0.8	0.2	1.0	0.7	0.9	0.4	0.9	0.7	0.9	1.0	0.3
Landscape intactness	0.3	0.3	0.7	0.3	1.0	0.3	1.0	0.3	0.9	0.7	0.9	1.0	0.7
Feature type intactness	0.3	0.7	0.8	0.4	1.0	0.7	1.0	0.2	1.0	0.7	0.9	1.0	0.7
Intactness Score (average of above three)	0.3	0.43	0.767	0.3	1.0	0.567	0.967	0.300	0.933	0.700	0.900	1.00	0.567
Geothermal Field Ranking	4.55	67.38	103.01	126.6	75.70	23.47	89.45	21.73	293.52	150.69	199.40	79.00	108.86
(= Features score x Intactness score)													

TABLE A.3.3c

Geothermal feature type	Watotapu	Wairakei (excl. Tauhara)	Whakaari	Whangairo-ro-hea
<b>Naturalness/human modification</b>				
Vegetation intactness	0.6	0.2	1.0	0.7
Landscape intactness	0.7	0.2	0.9	0.4
Feature type intactness	1.0	0.1	1.0	0.7
Intactness Score (average of above three)	0.767	0.167	0.967	0.600
Geothermal Field Ranking (= Features score x Intactness score)	340.32	14.21	135.58	10.86

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