

**Reprint
as at 16 December 2013**



**Geothermal Energy Regulations
1961**

(SR 1961/124)

Cobham, Governor-General

Order in Council

At the Government House at Wellington this 27th day of September
1961

Present:

His Excellency the Governor-General in Council

Pursuant to the Geothermal Energy Act 1953, His Excellency the
Governor-General, acting by and with the advice and consent of the
Executive Council, hereby makes the following regulations.

Contents

	Page
<i>Preliminary</i>	
1	3
2 Interpretation	3

Note

Changes authorised by subpart 2 of Part 2 of the Legislation Act 2012 have been made
in this reprint.

Note 4 at the end of this reprint provides a list of the amendments incorporated.

**These regulations are administered by the Ministry of Business, Innovation, and
Employment.**

3	Geothermal Inspectors	6
	<i>Applications for and granting of authorities and licences</i>	
4	Applications for authorities and licences	10
5	<i>[Revoked]</i>	11
6	<i>[Revoked]</i>	11
7	<i>[Revoked]</i>	11
8	<i>[Revoked]</i>	11
	<i>Authorities</i>	
9		11
10		12
11		12
12		14
13		14
	<i>Licences</i>	
14	<i>[Revoked]</i>	14
14A	Classes of licences	14
14B	Rental	15
15	<i>[Revoked]</i>	15
16		16
17	<i>[Revoked]</i>	16
18	<i>[Revoked]</i>	16
19		16
	<i>Taking of land and compensation</i>	
20	<i>[Revoked]</i>	17
21		17
22	<i>[Revoked]</i>	17
23	<i>[Revoked]</i>	17
	<i>Managers</i>	
24	Appointment of managers	17
25	Duties and responsibilities of managers	18
	<i>Safety</i>	
26	Safety of geothermal work	19
27	Safety and first-aid equipment	20
28	Precautions against hazardous gases	21
29	Use of explosives	22
	<i>Consents</i>	
30	Consents	22

<i>Particular provisions for bores and drilling</i>		
31	Bore identification and location	23
32	Bores 150 metres or more deep	24
33	Bores less than 150 metres deep	24
34	Access to and security of bores	25
35	Downhole surveys	26
35A	Notification of accidents	26
36		27
	Schedule 1	28
	Schedule 2	30
	Information required prior to consent being given	

Regulations

Preliminary

1

- (1) These regulations may be cited as the Geothermal Energy Regulations 1961.
- (2) These regulations shall come into force on the day after the date of their notification in the *Gazette*.

2 Interpretation

- (1) In these regulations, unless the context otherwise requires,—
abandon, in relation to drilling, means to seal a bore to render it permanently inoperative; and **abandonment** has a corresponding meaning

Act means the Geothermal Energy Act 1953

A-grade bore manager means a person with at least 3 years' practical experience in geothermal work, including drilling, and with a sound knowledge of pressure control methods

authority means an authority granted under section 6 of the Act

B-grade bore manager means a person with at least 3 years' practical experience in geothermal work, including drilling

close, as a verb in relation to a bore, means to seal the bore to make it permanently inoperative by cementing or grouting

it to the surface or by such other means as the Minister may approve from time to time

drilling means the drilling of, or in, a bore; and includes—

- (a) the making, completion, suspension, or abandonment of a bore:
- (b) the deepening, repair, or re-drilling of a bore:
- (c) any operation that renders any part of the primary pressure containment system of the bore inactive or inoperable:
- (d) any on-site ancillary operation to the making, completion, suspension, or abandonment of a bore, whether or not before, during, or after the actual making, completion, suspension, or abandonment takes place

geothermal work includes—

- (a) the drilling of any bore to a depth exceeding 2 metres from ground level; and
- (b) any work in the construction or maintenance of any pipeline of 150 mm or less nominal internal diameter in relation to a bore which is not primarily associated with the generation of electricity, including associated fittings, vessels, pumps, and appurtenances necessary for the containment and control of pressure in the pipeline

grout as a noun means a mixture of cement and water which may or may not contain additives considered by an Inspector as suitable for geothermal purposes; and **grout** as a verb means the act of using the grout in a bore

Inspector means an Inspector appointed under these regulations

manager includes the following categories of persons:

- (a) an A-grade bore manager:
- (b) a B-grade bore manager:
- (c) a services manager:
- (d) such persons as satisfy WorkSafe that, by virtue of their qualifications and experience, they could adequately perform the role of an A-grade bore manager, a B-grade bore manager, or a services manager, as the case may be

services manager means a manager of geothermal work which does not involve drilling and in respect of which WorkSafe considers no particular qualifications are necessary, but, where such geothermal work involves geothermal fluid temperatures in excess of 95°C, the services manager shall have at least 3 years' practical experience relevant to that geothermal work

suspend, in relation to drilling, means to render a bore temporarily inoperative, but not to the extent of abandonment; and **suspension** has a corresponding meaning

well-head master valve means the valve or valves of primary containment in relation to a bore

WorkSafe means WorkSafe New Zealand established by section 5 of the WorkSafe New Zealand Act 2013.

- (2) Nothing in these regulations shall derogate from the provisions of the Construction Act 1959, the Boilers, Lifts, and Cranes Act 1950, and the Machinery Act 1950, and the regulations made thereunder or from the need to appoint a safety supervisor in accordance with the Construction Act 1959.

Regulation 2 heading: amended, on 1 April 1987, by regulation 2 of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 2(1) **abandon**: inserted, on 25 June 1992, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **A-grade bore manager**: inserted, on 25 June 1992, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **B-grade bore manager**: inserted, on 25 June 1992, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **close**: inserted, on 1 April 1987, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 2(1) **drilling**: inserted, on 25 June 1992, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **engineer**: revoked, on 1 April 1987, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 2(1) **geothermal work**: replaced, on 25 June 1992, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **grout**: inserted, on 25 June 1992, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **grouting**: revoked, on 25 June 1992, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **manager**: inserted, on 25 June 1992, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **manager** paragraph (d): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 2(1) **Secretary**: revoked, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 2(1) **services manager**: inserted, on 25 June 1992, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **services manager**: amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 2(1) **suspend**: replaced, on 25 June 1992, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **well-head master valve**: replaced, on 25 June 1992, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 2(1) **WorkSafe**: inserted, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

3 Geothermal Inspectors

- (1) For the purposes of the Act and these regulations, WorkSafe may appoint a Chief Geothermal Inspector and as many Geothermal Inspectors as may be required.
- (2) In addition to the powers of a Geothermal Inspector, the Chief Geothermal Inspector has the powers specified in these regulations or as may be reasonably necessary to carry these regulations into effect.
 - (2A) WorkSafe must supply the Chief Geothermal Inspector and every Geothermal Inspector with a certificate of appointment.
 - (2B) *[Revoked]*
 - (2C) *[Revoked]*
 - (2D) *[Revoked]*
 - (2E) Every such certificate of appointment shall contain—
 - (a) a reference to this regulation; and
 - (b) the full name of the appointee.
- (3) Every Inspector may—
 - (a) at all reasonable hours by day or by night enter and inspect and examine any land or building or place wherein he has reasonable cause to believe that any geothermal

- work has been, is being, or is about to be, constructed or carried on:
- (b) take with him any person (including a constable) whom he may think competent to assist him in the execution of his duty:
 - (c) require the production of any record or other document which any person is by the Act or by these regulations required to keep, and may inspect, examine, and copy the same:
 - (d) make such examination and inquiry as he deems necessary in order to ascertain whether the provisions of the Act and these regulations are complied with:
 - (e) examine with respect to matters under the Act, either alone or in the presence of any other person as he thinks fit, every person whom he finds on or in any such land or building or place:
 - (f) require any person connected with a geothermal work to explain to him any aspect thereof:
 - (g) exercise such other powers and authorities as may be necessary for giving effect to the Act and these regulations.
- (4) Any Inspector may, by order in writing to the licensee or other person having control of a geothermal work, suspend the geothermal work or any part thereof. The reason for the suspension shall be set out in the order. Every such suspension shall remain in full force until such time as it is withdrawn by the Inspector by notice in writing.
- (4A) If any Inspector has reasonable cause to believe that a direction under section 12 of the Act to close a bore has not been complied with, or that there has been a failure to comply with any other lawful direction or order given under the Act or these regulations, the Inspector may close the bore or cause it to be closed, or take such steps as are reasonably necessary to cause the direction or order to be complied with, as the case may be; and for those purposes may exercise all or any of the powers conferred by subclause (3).
- (4B) If an Inspector is unable to gain peaceable entry to any land, building, or place pursuant to subclause (3) for the purpose of exercising the Inspector's powers under subclause (4A), or

is unable to peaceably exercise those powers, the Inspector may make an application in writing on oath to a District Court Judge who, if he or she has reasonable grounds for believing that the Inspector cannot peaceably gain such entry or peaceably exercise those powers, may issue a warrant directed to the Inspector by name authorising the Inspector, and any person accompanying the Inspector pursuant to subclause (3)(b), to use such force as may be reasonably necessary to gain such entry or to exercise those powers.

- (4C) Every warrant issued under subclause (4B) shall contain—
- (a) a reference to this regulation; and
 - (b) the full name of the Inspector to whom it is directed; and
 - (c) a description of the land, building, or place in respect of which it was issued; and
 - (d) the date on which it was issued and the date on which it expires.
- (4D) Every such warrant shall authorise the Inspector named in it, and any person accompanying the Inspector pursuant to subclause (3)(b), at any reasonable time or times within 28 days after the date on which it is issued, to use such force as may be reasonably necessary to—
- (a) gain entry to the land, building, or place described in the warrant; and
 - (b) enable the exercise of the Inspector's powers under subclause (4A) on or in that land, building, or place.
- (4E) Every Inspector exercising any power under subclause (4D) shall be in possession of the appropriate warrant, and evidence of identity, and shall produce them to the person in charge of the land, building, or place—
- (a) if practicable, on first entering the land, building, or place; and
 - (b) whenever subsequently reasonably required to do so by that person.
- (5) Every person having control of or connected with any geothermal work shall assist and co-operate with the Inspector in carrying out his functions and shall comply with every direction given by the Inspector relating to any matter coming under the Act or these regulations, including methods of working and

safety of persons and property in the vicinity of the geothermal work.

- (6) Every person shall have the same privileges in relation to—
 - (a) the production to an Inspector of any record or other document; and
 - (b) the furnishing to an Inspector of any information or particulars; and
 - (c) the answering of questions put by an Inspector—
under this regulation as witnesses have in courts of law.
- (6A) Except as provided by subclause (4E), every Inspector exercising any power of entry under this regulation shall have with him his or her certificate of appointment as an Inspector, and evidence of identity, and shall produce them to the person in charge of the place being entered—
 - (a) if practicable, on first entering the place; and
 - (b) whenever subsequently reasonably required to do so by the person in charge of the place.
- (7) No person shall wilfully impede or obstruct an Inspector in the exercise by him of any power under the Act or these regulations.

Regulation 3 heading: amended, on 1 April 1987, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 3(1): replaced, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 3(2): replaced, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 3(2A): replaced, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 3(2B): revoked, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 3(2C): revoked, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 3(2D): revoked, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 3(2E): inserted, on 1 April 1987, by regulation 3(1) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 3(4A): inserted, on 1 April 1987, by regulation 3(2) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 3(4B): inserted, on 25 June 1987, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 4 (SR 1987/157).

Regulation 3(4C): inserted, on 25 June 1987, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 4 (SR 1987/157).

Regulation 3(4D): inserted, on 25 June 1987, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 4 (SR 1987/157).

Regulation 3(4E): inserted, on 25 June 1987, by regulation 2(1) of the Geothermal Energy Regulations 1961, Amendment No 4 (SR 1987/157).

Regulation 3(6): replaced, on 1 April 1987, by regulation 3(3) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 3(6A): inserted, on 1 April 1987, by regulation 3(3) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 3(6A): amended, on 25 June 1987, by regulation 2(2) of the Geothermal Energy Regulations 1961, Amendment No 4 (SR 1987/157).

Applications for and granting of authorities and licences

4 Applications for authorities and licences

- (1) *[Revoked]*
- (2) *[Revoked]*
- (3) Every application shall be accompanied by the following information—
 - (a) the full name, address, and occupation of the applicant:
 - (b) the description of and a plan of the land affected:
 - (c) the name, address, and occupation of the owner of the land and of the occupier thereof and of every person having any registered interest in the land:
 - (d) whether the consents of the owner and of the occupier of the land have been obtained:
 - (e) as far as is practicable at the time of the application, the nature and particulars of the work proposed, including full technical details of the proposed drilling technique, the provision to be made for controlling the bore and preventing blow-outs, the provision to be made for grouting and cementing, the quality of casing proposed, the provision made for quenching the bore, and the position and depth of all bores proposed:
 - (f) the purpose for which the geothermal energy is to be used:
 - (g) evidence of financial and technical ability to complete the proposals in a satisfactory manner.

- (4) The applicant shall also supply any further information relating to the application that WorkSafe may request.

Regulation 4 heading: amended, on 1 April 1987, by regulation 4 of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

Regulation 4(1): revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

Regulation 4(2): revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

Regulation 4(4): amended, on 16 December 2013, by section 22 of the Work-Safe New Zealand Act 2013 (2013 No 94).

Regulation 4(4): amended, on 1 April 1987, by regulation 4(3) of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

5

[Revoked]

Regulation 5: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

6

[Revoked]

Regulation 6: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

7

[Revoked]

Regulation 7: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

8

[Revoked]

Regulation 8: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

Authorities

9

Every holder of an authority shall proceed diligently to the satisfaction of the Minister with the geothermal work authorised by the authority.

10

Nothing in regulations 4 to 9 shall have any application to any authority given by the Minister under section 6 of the Act to any employee of a government department to carry out tests and measurements without any disturbance of the surface of the land, but the employee so authorised shall comply with the requirements of the said section 6.

11

- (1) Every holder of an authority under which a bore is being bored or drilled or sunk or made shall keep a daily log of the bore showing—
 - (a) the progress of the bore:
 - (b) the wall thickness, diameter, and depth of casing, and the grade of steel used for casing:
 - (c) the temperature at various depths:
 - (d) the output of steam and water:
 - (e) the quantities, pumping pressures, periods of use, rate of loss, and inflow and outflow temperatures, of drilling fluid:
 - (f) ground conditions and changes therein:
 - (g) a complete record of material drawn from the bore.
- (2) Within 1 month after the commencement of the authority and thereafter at intervals of not more than 1 month, every holder of an authority shall supply to WorkSafe information to the satisfaction of WorkSafe regarding the nature of the work carried out under the authority, including a detailed record of all surveys and investigations and duplicate certified copies of all logs required under subclause (1).
- (3) WorkSafe and every employee in the Government service acting in the administration of the Act and of these regulations, including employees of the Department of Scientific and Industrial Research, shall at all times have full and free right of entry in respect of all lands where any geothermal work is being or has been carried on and may inspect the geothermal work and peruse and copy any records required to be kept under these regulations.
- (4) Every holder of an authority shall co-operate with WorkSafe and the said employees as far as may be reasonable by carry-

ing out such tests and supplying such information as may be requested and by providing reasonable facilities for them to make scientific observations (including temperature and pressure measurements during drilling) and take samples and specimens.

- (5) During drilling operations such drill cores and cuttings shall be taken by the holder of the authority as may be specified by WorkSafe or an Inspector or any employee of the Department of Scientific and Industrial Research, such cores and cuttings to be adequately marked and recorded and preserved from the weather.
- (6) Before it is allowed to discharge, every bore shall be allowed to stand after completion of drilling until at least 3 temperature profiles taken to full depth have become substantially static.
- (7) If so requested by any employee of the Department of Scientific and Industrial Research the holder of an authority shall provide and install at the head of all bores suitable small valves to facilitate the taking by the Department of Scientific and Industrial Research of water and steam samples.
- (8) Where it is intended to close any bore permanently the Department of Scientific and Industrial Research shall be informed and shall if it so desires be permitted to install a permanent thermocouple chain before the bore is closed.
- (9) Where in the opinion of WorkSafe sufficient geological and geophysical data of a particular kind in respect of the area and depth proposed is already on record WorkSafe may exempt any holder of an authority in whole or in part from any requirement of this regulation.

Regulation 11(2): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 11(3): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 11(4): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 11(5): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 11(9): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

12

Upon the expiry of an authority or its earlier revocation for any reason whatsoever, the holder of the authority shall forthwith cease all work under the authority and shall leave every bore and all other workings in a condition of lasting safety and stability and shall carry out all necessary restoration work to the satisfaction of the Inspector.

13

Should the holder of any authority fail to comply with any obligation within 28 days after being so directed by the Minister, the Minister, without prejudice to any other remedy that may be available, may carry out the necessary work and recover all costs so incurred from the holder of the authority.

*Licences***14**

[Revoked]

Regulation 14: revoked, on 1 January 1968, by section 4(2) of the Geothermal Energy Amendment Act 1966 (1966 No 50).

14A Classes of licences

- (1) Every licence shall be either a class A licence or a class B licence.
- (2) A class A licence shall authorise the licensee to sink such bore, or to tap, take, use, and apply geothermal energy from such bore, as may be specified in the licence.
- (3) A class B licence shall authorise the licensee to use and apply geothermal energy from such bore as may be specified in the licence so long as a class A licence in respect of that bore is for the time being in force.
- (4) Notwithstanding subclause (3), if a class B licence would cease to be in force because the class A licence for the bore to which the class B licence relates has been revoked on the grounds that the class A licensee has not complied with the terms of the class A licence, the Minister, in his or her discretion, may give written notice to the class B licensee that

the class B licence shall continue in force for such period (not exceeding 3 months) as the Minister specifies in the notice.

- (5) Every continuation in force, under subclause (4), of a class B licence shall be subject to—
- (a) the class B licensee paying the rental that would have been payable under the class A licence, had it not been revoked, from the date of revocation of the class A licence; and
 - (b) such other terms and conditions as the Minister specifies in the notice given under the said subclause (4).

Regulation 14A: inserted, on 1 April 1987, by regulation 7 of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

14B Rental

- (1) The rental payable pursuant to section 10(1)(b) of the Act by every person who taps, takes, uses, or applies geothermal energy shall be at the appropriate rate specified in the Schedule.
- (2) The rental shall be payable in arrears at such intervals as the Secretary determines from time to time.
- (3) The rental shall be calculated in accordance with the results of a bore inspection by an Inspector, and those results shall be presumed to be accurate in the absence of proof to the contrary.
- (4) The value of the rental so calculated shall remain effective until such time as an Inspector reinspects the bore and finds change has occurred, whereupon the rental shall be amended with effect from the commencement of the then current instalment period.
- (5) The Minister may refund or remit such proportion of any rental, either generally or in any particular case, as the Minister thinks fit.

Regulation 14B: inserted, on 1 April 1987, by regulation 7 of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

15

[Revoked]

Regulation 15: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

16

- (1) Every licensee shall keep records to the satisfaction of the Secretary showing the amount of energy produced each day and the amount thereof used by the licensee, and shall supply to the Secretary each month a return setting out this information in respect of the preceding month. Such records shall be open at all reasonable times to inspection by an Inspector, who may also inspect and test the meters and other instruments from which the records are compiled. WorkSafe may exempt any licensee either wholly or in part from the provisions of this subclause.
- (2) In respect of all geothermal works carried out under a licence every licensee shall comply with and be bound by the requirements of regulation 11 in so far as that regulation would apply to similar work carried out by the holder of an authority.

Regulation 16(1): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

17

[Revoked]

Regulation 17: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

18

[Revoked]

Regulation 18: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

19

The surrender or expiry or revocation of a licence shall not release the licensee from any liability or obligation which arose during the term of the licence or on the surrender, expiry, or revocation thereof, or from liability to comply with all obligations under the Act and these regulations; and on the surrender, expiry, or revocation of a licence the licensee shall immediately take all necessary steps to make the geothermal work to which the licence relates secure and safe in accordance with subclause (4) of regulation 30.

Taking of land and compensation

20

[Revoked]

Regulation 20: revoked, on 1 April 1987, by regulation 8 of the Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73).

21

Unless the owner of the land otherwise agrees in writing, neither the holder of an authority nor a licensee shall be entitled to any compensation on the surrender, revocation, or expiry of an authority or licence for any buildings or other improvements erected on the land comprised in the authority or licence but shall remove the buildings and improvements before such surrender, revocation, or expiry and, so far as is reasonable and practicable, shall restore the land to its former condition.

22

[Revoked]

Regulation 22: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

23

[Revoked]

Regulation 23: revoked, on 1 October 1991, by section 362 of the Resource Management Act 1991 (1991 No 69).

Managers

Heading: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

24 Appointment of managers

- (1) Before geothermal work is undertaken a manager shall be appointed to take personal supervision of the work, in accordance with this regulation.
- (2) In relation to geothermal work involving drilling where the bore is, or is to be, 150 metres or more in depth, an A-grade manager shall be appointed.

- (3) In relation to geothermal work involving drilling where the bore is, or is to be, up to 150 metres in depth, a B-grade manager shall be appointed.
- (4) In relation to geothermal work other than work referred to in subclauses (2) and (3), a services manager shall be appointed.
- (5) In respect of geothermal work that involves more than 1 of the kinds of work referred to in subclauses (2) to (4), a manager may be appointed in respect of each kind of work.
- (6) Should a manager be unable to perform his or her duties as manager, that manager shall ensure that a suitably qualified alternative manager is appointed for the period during which the manager is unable to perform the duties.
- (7) Nothing in this regulation shall preclude the appointment, in respect of the appropriate work, of persons referred to in paragraph (d) of the definition of the term manager in regulation 2(1).

Regulation 24: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

25 Duties and responsibilities of managers

- (1) It shall be the duty of the manager to ensure that these regulations are complied with in respect of the geothermal work to which the manager's appointment relates, and to exercise daily personal supervision of the geothermal work.
- (2) The manager shall ensure that all persons to be employed on the geothermal work—
 - (a) have been adequately instructed in the provisions of these regulations; and
 - (b) have sufficient knowledge and experience of the work to be carried out; and
 - (c) have been adequately instructed in the potential hazards of the work to be carried out and any necessary precautions to be taken.
- (3) In respect of drilling being carried out the manager shall—
 - (a) keep a daily log of—
 - (i) the data specified in Part 1 of Schedule 1; and
 - (ii) any accident to which regulation 35A applies; and

- (iii) details of any unsafe aspects of the rig and other installations found pursuant to inspections under paragraph (b), and of the remedial steps taken:
 - (b) inspect the rigs and other installations on the work at least once every 24 hours:
 - (c) take steps to remedy, as soon as reasonably practicable, any unsafe aspects of the rig and other installations:
 - (d) prepare a summary report, within 1 month after the completion of the drilling operations, containing the relevant data specified in Part 2 of Schedule 1.
- (4) The manager shall ensure that copies of—
- (a) the Geothermal Energy Act 1953 and of these regulations; and
 - (b) where particular geothermal work is being carried out to which a New Zealand Standard cited under these regulations applies, the relevant New Zealand Standard—
- are at all times kept in a complete and legible condition at a place readily accessible to persons involved in the geothermal work.

Regulation 25: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Safety

Heading: inserted, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

26 Safety of geothermal work

- (1) All bores and pipework shall be constructed of suitable and sound materials.
- (2) All bores and pipework shall be designed, constructed, operated, and maintained in accordance with safe, proper, and proficient geothermal engineering practice.
- (3) The bore, and the equipment used in the geothermal work, shall be maintained so as to prevent damage or risk of damage to the bore and the equipment, and to prevent danger to persons on the site, or in the vicinity, of the geothermal work.
- (4) All geothermal work in circumstances where the heat discharged by any bore is likely to exceed 20 terrajoules measured above 0°C over any period of 12 consecutive months shall

be carried out in accordance with NZS 2402P:1987 “Code of Practice for Geothermal Heating Systems in Rotorua” (except Parts 2, 6, 7, and 10).

- (5) The manager shall ensure that the site of the geothermal work is maintained in a safe condition.

Regulation 26: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

27 Safety and first-aid equipment

- (1) It shall be the duty of the manager to ensure that—

- (a) every person attending moving machinery in or about geothermal work wears close-fitting and close-fastened garments which reduce the likelihood of the person’s hair or garments being caught by or entangled in the machinery:
- (b) every person engaged in drilling is provided with a safety helmet meeting appropriate New Zealand standards and that the person wears the helmet on or about the drilling operation:
- (c) every person in areas designated “safety helmet areas” wears a safety helmet meeting appropriate New Zealand standards:
- (d) every person working as a derrickman is provided with and wears, while drilling operations are in progress, safety belts with a tail-rope attached which is securely attached to a suitable anchoring point in such a manner that there is no danger of its fouling running gear and that there is no unnecessary slack:
- (e) where there is a risk of injury or impairment to a person working on the geothermal work, whether to the body, limbs, lungs, eyes, ears, or other body parts, the person so working—
 - (i) is supplied with appropriate safety equipment or appliances; and
 - (ii) is properly trained in the use of any equipment supplied; and
 - (iii) wears or uses, as the case may be, such equipment or appliances on or about the geothermal work.

- (2) Inspectors may designate areas on or about geothermal work to be “safety helmet areas”, and the manager shall ensure that the points of entry to and egress from the areas are clearly marked by a prominent notice containing the words “SAFETY HELMET AREA”.
- (3) Every manager shall ensure that an appropriate container containing sufficient medical supplies for the treatment of cuts, burns, and fractures is conveniently available at the geothermal work and ready for immediate use.
- (4) Where 5 or more persons are engaged on particular geothermal work the manager shall ensure that prominent notices are posted that indicate the location of the first-aid equipment.
- (5) While drilling operations are in progress the manager shall ensure that there is at least 1 person on site who has been trained in resuscitation techniques.

Regulation 27: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

28 Precautions against hazardous gases

- (1) Geothermal works shall be designed in such a manner that, as far as practicable, the accumulation of hazardous gases is prevented.
- (2) The manager shall ensure that no person works, or is required to work, in an atmosphere containing or likely to contain hazardous gases unless that person is equipped with gas detectors and there is stationed outside the said atmosphere 1 or more persons to whom there is immediately available self-contained breathing apparatus.
- (3) Where 5 or more persons are employed in relation to any geothermal work, the manager shall provide procedures for safe work practices in and around the hazardous atmosphere, which procedures shall be in the form of written instructions to the persons employed, whether provided individually or by prominent notice.

Regulation 28: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

29 Use of explosives

- (1) Where explosives are proposed to be or are used in geothermal work the manager shall—
- (a) ensure that the provisions of NZS 4403:1976 “Code of Practice for the Storage, Handling and Use of Explosives” are complied with;
 - (b) appoint a person to be in charge of the storage, handling, and use of the explosives, which person shall have at least 6 months’ experience in the use of explosives;
 - (c) before the use of the explosives—
 - (i) provide to the Chief Geothermal Inspector a detailed programme for the use of the explosives; and
 - (ii) obtain the written consent of the Chief Geothermal Inspector to the commencement of the use of explosives in accordance with regulation 30; and
 - (iii) clear the immediate vicinity of any waste materials and any possible sources of stray electric currents and radio signals that may ignite or interfere with the blasting operation; and
 - (iv) adequately pressure test any surface-testing equipment and connections;
 - (d) not allow work to resume on the geothermal work, after blasting has occurred, until the equipment used during the blasting operation has been moved to a safe place.
- (2) This regulation shall not derogate from the provisions of any other relevant legislation relating to the storage, handling, and use of explosives.

Regulation 29: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Consents

Heading: inserted, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

30 Consents

- (1) Before the commencement of operations to drill, suspend drilling, to abandon a bore, or to use explosives the manager shall obtain the consent of the Chief Geothermal Inspector.

- (2) Subject to subclauses (3) and (4), the Chief Geothermal Inspector shall not consent to the commencement of the operations if the manager has not supplied the information specified in Schedule 2 which is relevant to the particular consent required.
- (3) The Chief Geothermal Inspector may waive the requirement for information to be supplied pursuant to subclause (2) if the Inspector is satisfied that the commencement of those operations is a matter of urgency and that the information will be supplied soon after the commencement of the operations.
- (4) The Chief Geothermal Inspector may waive the requirement for all relevant information to be supplied pursuant to subclause (2), but require specified minimum information to be supplied, where the circumstances of the matter warrant such a waiver.
- (5) Before the discharge into the atmosphere of geothermal energy, in circumstances where the health or safety of persons present at or near the geothermal work is likely to be endangered, the manager shall obtain the consent of the Chief Geothermal Inspector to the discharge and take such precautions as the Inspector reasonably requires.
- (6) Applicants for consents shall specify an address or facsimile number to which the written outcome of the application may be sent.

Regulation 30: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Particular provisions for bores and drilling

Heading: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

31 Bore identification and location

- (1) Before obtaining a consent to drill the bore owner or manager shall obtain from the Chief Geothermal Inspector the name and number to be given to the proposed bore.
- (2) After the commencement of drilling every bore shall be permanently identified by a sign located on or near the bore which is visible from ground level and which clearly identifies the

correct name and number of the bore by letters and numbers that are not less than 30 millimetres in height.

- (3) Managers shall ensure that in all cases bores are located at a distance of more than 1.5 metres from any building or permanent structure or any underground or above-ground services.
- (4) Bores shall not be enclosed by buildings or structures of any kind except where ventilation to prevent the accumulation of hazardous gases is ensured and where adequate access to properly abandon the bore is maintained.
- (5) The manager shall ensure that the location of every bore is such that reasonable access is available for emergency services.

Regulation 31: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

32 Bores 150 metres or more deep

Bores proposed to be drilled to depths of 150 metres or more shall be constructed, maintained, operated, suspended, and abandoned in accordance with NZS 2403:1991 “Code of Practice for Deep Geothermal Wells”.

Regulation 32: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

33 Bores less than 150 metres deep

- (1) This regulation shall apply to managers of bores which are less than 150 metres deep.
- (2) Bores shall be terminated above ground by a short standpipe and a well-head master valve which shall be designed to withstand service conditions for the expected life of the bore and have ample additional thickness to guard against corrosion and erosion.
- (3) Bore construction shall not commence until there has been assembled on the site, with all necessary connections and materials ready for urgent use, sufficient and efficient plant for cooling and for sealing the bore.
- (4) The characteristics of the drilling fluid, the equipment to handle such fluid, and the method of use of the fluid shall be such as to provide adequate control of the maximum subsurface pressures expected to be encountered in drilling the bore.

- (5) During drilling operations sufficient reserves of water, drilling fluid, and supplies of drilling fluid materials shall be available at the bore site for immediate use.
- (6) All casing strings, except open hole slotted liners, shall be fully cemented into place.
- (7) Where applicable, casing shall be cemented with a uniform quality cement grout which fills the annular space between the casings and from the shoe to the surface.
- (8) Well-heads shall incorporate a suitable sized and rated valve or valves which will allow the following activities to be performed:
 - (a) quenching of a bore under all conditions; and
 - (b) bleeding-off of gases from a bore.
- (9) During drilling, bores shall be equipped with blowout preventers and associated equipment necessary to control any form of geothermal energy, or any flow of fluids or other matter, that may be emitted from the bore.
- (10) The following requirements shall be adhered to in the abandonment of bores:
 - (a) no casing shall be recovered if its recovery exposes any abnormal pressure or lost circulation zone:
 - (b) where practicable, bores shall be completely filled with uniform cement grout which shall be placed into the bore using drill pipe, or other suitable pipe, so that the initial placement of the grout from the bottom end of the pipe commences at the deepest shoe of cemented casing.

Regulation 33: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

34 Access to and security of bores

- (1) Where drilling operations have been carried out and have been terminated (whether temporarily or permanently), the manager shall ensure that adequate security is provided to prevent, as far as practicable, unauthorised operation of well-head equipment and unauthorised access to other potentially hazardous areas of the geothermal work, such as drilling ponds.
- (2) The owner of the bore shall ensure that, on completion of the making of the bore, both visual and physical access to well-

heads is not impeded by equipment, other than that designed for bore use, and that access for drilling rigs is maintained at all times.

Regulation 34: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

35 Downhole surveys

- (1) WorkSafe may require bore owners or users, as the case may be, within a reasonable period of time to cause to be carried out a downhole survey of the bore, which survey shall indicate the condition on the last cemented string of casing of the bore.
- (2) A report on the analysis or interpretation of the survey shall be forwarded to WorkSafe by the bore owner or user, as the case may be, within 1 month after the completion of the downhole survey.
- (3) Should the analysis or interpretation of the survey reveal a dangerous casing condition, the bore owner or user, as the case may be, shall cause repairs to be carried out in order to ameliorate the dangerous condition or shall commence work to abandon the bore pursuant to these regulations.

Regulation 35: replaced, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

Regulation 35(1): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

Regulation 35(2): amended, on 16 December 2013, by section 22 of the WorkSafe New Zealand Act 2013 (2013 No 94).

35A Notification of accidents

- (1) In relation to any geothermal work, should any accident or dangerous incident occur which results or may result in medical attention being required to any person, the manager shall immediately give notice of the accident or incident to an Inspector.
- (2) The notice referred to in subclause (1) may be by telephone or facsimile initially, followed by a complete written report within a reasonable time after the accident or incident.
- (3) Where an accident or incident is of a serious nature the manager shall leave the site where that accident or incident occurred as it was immediately after the accident or incident until

an inspection has been carried out by or on behalf of an Inspector:

provided that this subclause shall not apply where any interference with the site was for the purpose of saving life or of preventing injury.

Regulation 35A: inserted, on 25 June 1992, by regulation 3 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

36

- (1) Every person commits an offence against these regulations who acts in contravention of or fails to comply in any respect with any provision of these regulations or any order, direction, requirement, condition, or restriction given or imposed by or pursuant to these regulations.
- (2) Every person who commits an offence against these regulations shall be liable on conviction to a fine not exceeding £50 and, if the offence is a continuing one, to a further fine not exceeding £5 for every day or part of a day during which the offence continues.

Regulation 36(2): amended, on 1 July 2013, by section 413 of the Criminal Procedure Act 2011 (2011 No 81).

Schedule 1

Part 1

r 25(3)(a)(i)

Data to be kept in daily log by managers

Schedule 1: replaced, on 25 June 1992, by regulation 4 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

The following drilling data shall be kept in a daily log by managers:

- (a) the bore name, number, and location:
- (b) the elevation of the kelly bushing, rotary table, or derrick-floor above mean sea level and above ground level:
- (c) for each 24 hour period, the date, the drilling depths at the beginning and end, and distance drilled:
- (d) the direction and inclination of any deviation in the bore:
- (e) the current diameter of the hole:
- (f) the current operation:
- (g) the completion data on the final daily drilling log:
- (h) the penetration rates or drilling breaks:
- (i) the bore site measurements:
- (j) the cored intervals:
- (k) the details of any casing operations and any subsequent modifications:
- (l) the details of cementing operations, including slurry volumes pumped, the measured density of the annular returns, the setting of plugs, and pressure tests:
- (m) downhole measurements, casing surveys, deviation and temperature surveys, and any other test or survey carried out:
- (n) the record of other operations such as fishing and perforating:
- (o) circulation losses:
- (p) the quantities, pumping pressures, periods of use, rate of loss, and inflow and outflow temperatures, of drilling fluid:
- (q) changes in geothermal activity on the surface in the vicinity of the geothermal work.

Part 2

r 25(3)(d)

Data to be inserted in summary report by managers

The following data shall be inserted by managers in a summary report of completed drilling:

- (a) the name and address of the bore owner and the manager:

Part 2—*continued*

- (b) the bore name and number, casing head flange elevation with respect to Moturiki datum, and location in terms of metre co-ordinates of the New Zealand Map Grid to the nearest half metre:
 - (c) description of the work carried out on the bore:
 - (d) the date of commencement of workover or well-drilling operations, or spudding-in of the bore, when total depth was reached and when the rig was released:
 - (e) the total depth reached:
 - (f) the details of the completed bore and well-head with dimensioned schematic drawing:
 - (g) the hole sizes and depths:
 - (h) the casing and liner details including size, weight, grade, thread, and coupling, number of joints, details of slotting, and setting depths:
 - (i) the casing cementing details including the quantities used, whether single or multi-stage, and whether or not casing to casing (and casing to formation) annuli were completely filled:
 - (j) the details of any equipment left in the hole:
 - (k) summary details of well-head pressures, chemical sampling, downhole measurements, and their interpretation:
 - (l) details of directional drilling including kick-off depth, angle build up, average and maximum deviation and severity, and depth of any dog-legs, including side tracking:
 - (m) the drilling fluids used:
 - (n) drilling fluid or circulation losses:
 - (o) the perforation record including casing size, intervals, hole density, and size of holes:
 - (p) geological description of bore lithology and stratigraphy.
-

r 30(2)

Schedule 2
Information required prior to consent
being given

Schedule 2: inserted, on 25 June 1992, by regulation 4 of the Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119).

- 1 The following information shall be required before the Chief Geothermal Inspector may consent to drilling:
 - (a) the names and addresses of the bore owner and manager:
 - (b) the name and number for the bore provided in accordance with regulation 31:
 - (c) the date on which drilling is estimated to commence:
 - (d) the location of the bore in metre co-ordinates in terms of the New Zealand Map Grid and the proposed depth:
 - (e) the provisions made for site safety against blow-out (eg, site grouting):
 - (f) the specifications and capacity of the rig, including the pumps, tank capacity, blow-out prevention equipment, and water supply:
 - (g) the proposed spudding-in date and the anticipated date of completion:
 - (h) the objectives in drilling or working over the bore:
 - (i) the anticipated casing programme including hole sizes, the specifications, sizes and proposed setting depths, both vertical and measured along the hole:
 - (j) the grouting/cementing programme including details of the casing used and amount of cement to be used:
 - (k) the (proposed) well-head master valve used or well-head arrangement including class, type, and factor of safety against the maximum well-head pressure expected for the bore:
 - (l) the expected depth of the water table and whether or not near surface ground waters are likely to be at, or approaching, boiling point temperatures for depth conditions:
 - (m) the downhole bore measurement programme:
 - (n) a summary of the predicted geology:
 - (o) address where the daily logs are to be kept:

- (p) the proposed sampling programme for the collection of drill cuttings:
 - (q) the proposed coring programme:
 - (r) the proposed drilling fluids programme:
 - (s) the proposed logging programme specifying the types of logs to be run, the intervals to be logged, and the proposed deviation, casing, and other bore surveys.
- 2 The following information shall be required before the Chief Geothermal Inspector may consent to the suspension of a bore:
- (a) the name and address of the bore owner and manager:
 - (b) the bore name and number:
 - (c) the reason for suspension:
 - (d) the anticipated period for which suspension is required:
 - (e) the status of the bore and full details of the drilling at the time the bore is to be suspended:
 - (f) the method of suspension.
- 3 The following information shall be required before the Chief Geothermal Inspector may consent to the abandonment of a bore:
- (a) the name and address of the owner and manager:
 - (b) the bore name and number:
 - (c) the estimated date of abandonment:
 - (d) a summary of the reasons for abandonment:
 - (e) relevant data and information on the bore, including well-head pressures, loss zones, and downhole pressures and temperatures:
 - (f) a detailed programme of abandonment indicating the sequence of operations, the positions of cement or bridge plugs, the method of emplacing and testing the integrity of plugs, the details of any intention to recover casing, tubing, surface, or downhole equipment, and the details of any junk to be left in the hole.
- 4 The following information shall be required before the Chief Geothermal Inspector may consent to the use of explosives:
- (a) the name of the person appointed to be in charge, as required by regulation 29(1)(b):

-
- (b) depth and density of perforations:
 - (c) type of gun, including pressure rating:
 - (d) sequence of perforating:
 - (e) type of detonator and primer.

T J Sherrard,
Clerk of the Executive Council.

Issued under the authority of the Legislation Act 2012.
Date of notification in *Gazette*: 28 September 1961.

Reprints notes

1 *General*

This is a reprint of the Geothermal Energy Regulations 1961 that incorporates all the amendments to those regulations as at the date of the last amendment to them.

2 *Legal status*

Reprints are presumed to correctly state, as at the date of the reprint, the law enacted by the principal enactment and by any amendments to that enactment. Section 18 of the Legislation Act 2012 provides that this reprint, published in electronic form, will have the status of an official version once issued by the Chief Parliamentary Counsel under section 17(1) of that Act.

3 *Editorial and format changes*

Editorial and format changes to reprints are made using the powers under sections 24 to 26 of the Legislation Act 2012. See also <http://www.pco.parliament.govt.nz/editorial-conventions/>.

4 *Amendments incorporated in this reprint*

WorkSafe New Zealand Act 2013 (2013 No 94): section 22
Criminal Procedure Act 2011 (2011 No 81): section 413
Geothermal Energy Regulations 1961, Amendment No 6 (SR 1992/119)
Resource Management Act 1991 (1991 No 69): section 362
Geothermal Energy Regulations 1961, Amendment No 4 (SR 1987/157)
Geothermal Energy Regulations 1961, Amendment No 2 (SR 1987/73)
Geothermal Energy Amendment Act 1966 (1966 No 50): section 4(2)
