

IDAPA 37 – DEPARTMENT OF WATER RESOURCES

Water Compliance Bureau

37.03.04 – Drilling for Geothermal Resources Rules

Who does this rule apply to?

General public.

What is the purpose of this rule?

These rules govern the regulation of geothermal resource exploration and development and ensure that such activities occur in the public interest. The Rule ensure Idaho's geothermal policy, "to maximize the benefits to the entire state which may be derived from the utilization of our geothermal resources, while minimizing the detriments and costs of all kinds which could results from their utilization" is met.

What is the legal authority for the agency to promulgate this rule?

This rule implements the following statutes passed by the Idaho Legislature:

- [Title 42, Chapter 40, et seq., Idaho Code](#) – Geothermal Resources Act

Who do I contact for more information on this rule?

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37.03.04 – DRILLING FOR GEOTHERMAL RESOURCES RULES

000. LEGAL AUTHORITY (RULE 0).

The Idaho Department of Water Resources, through authority granted by Section 42-4001 through Section 42-4015, Idaho Code, is the regulatory agency for the drilling, operation, maintenance, and abandonment of all geothermal wells in the state. The Department's authority also includes regulatory jurisdiction over other related operations and environmental hazards pertaining to the exploration and development of geothermal resources. (3-20-20)T

001. TITLE AND SCOPE (RULE 1).

The geothermal policy of the state of Idaho as stated in Section 42-4001, Idaho Code, is as follows: "It is the policy and purpose of this state to maximize the benefits to the entire state which may be derived from the utilization of our geothermal resources, while minimizing the detriments and costs of all kinds which could result from their utilization. This policy and purpose is embodied in this act which provides for the immediate regulation of geothermal resource exploration and development in the public interest." (3-20-20)T

002. -- 009. (RESERVED)

010. DEFINITIONS (RULE 10).

For the purpose of these rules, the following definitions apply. (3-20-20)T

01. Applicant. Any person submitting an application to the Department of Water Resources for a permit for the construction and operation of any well or injection well. (3-20-20)T

02. Board. The Idaho Water Resource Board. (3-20-20)T

03. BOPE. An abbreviation for Blow Out Prevention Equipment which is designed to be attached to the casing in a geothermal well in order to prevent a blow out of the drilling mud. (3-20-20)T

04. Completion. A well is considered to be completed thirty (30) days after drilling operations have ceased unless a suspension of operation is approved by the Director, or thirty (30) days after it has commenced producing a geothermal resource, whichever occurs first, unless drilling operations are resumed before the end of the thirty (30) day period or at the end of the suspension. (3-20-20)T

05. Conductor Pipe. The first and largest diameter string of casing to be installed in the well. This casing extends from land surface to a depth great enough to keep surface waters from entering and loose earth from falling in the hole and to provide anchorage for blow out prevention equipment prior to setting surface casing. (3-20-20)T

06. Department. The Idaho Department of Water Resources. (3-20-20)T

07. Director. The Director of the Idaho Department of Water Resources. (3-20-20)T

08. Drilling Logs. The recorded description of the lithologic sequence encountered in drilling a well. (3-20-20)T

09. Drilling Operations. The actual drilling, re-drilling, or recompletion of the well for production or injection including the running and cementing of casing and the installation of well head equipment. Drilling operations do not include perforating, logging, and related operations after the casing has been cemented. (3-20-20)T

10. Exploratory Well. A well drilled for the discovery and/or evaluation of geothermal resources either in an established geothermal field or in unexplored areas. Exploratory well does not include holes six (6) inches in diameter or less if they are used for gathering geotechnical data such as, but not limited to, heat flow, earth temperature, temperature gradient and/or seismic measurements, provided said holes are not greater than one thousand (1000) feet in depth below land surface and provided the material medium is not intended to be encountered. (3-20-20)T

11. Geothermal Area. The same general land area which in its subsurface is underlain or reasonably appears to be underlain by geothermal resources from or in a single reservoir, pool, or other source or interrelated sources, as such area or areas may be designated from time to time by the Director. (3-20-20)T

12. Geothermal Field. An area designated by the Director which contains a well or wells capable of commercial production of geothermal resources. (3-20-20)T

- 13. Geothermal Resource.** The natural heat energy of the earth, the energy in whatever form which may be found in any position and at any depth below the surface of the earth, present in, resulting from, or created by, or which may be extracted from such natural heat and all minerals in solution or other products obtained from the material medium of any geothermal resource. Geothermal resources are found and hereby declared to be sui generis, being neither a mineral resource nor a water resource but they are also found and hereby declared closely related to and possibly affecting and affected by water and mineral resources in many instances. (3-20-20)T
- 14. Injection Well.** Any special well, converted producing well, or reactivated or converted abandoned well employed for injecting material into a geothermal area or adjacent area to maintain pressures in a geothermal reservoir, pool, or other source, or to provide new material or to serve as a material medium therein, or for reinjecting any material medium or the residue thereof, or any by-product of geothermal resource exploration or development into the earth. (3-20-20)T
- 15. Intermediate String or Casing.** The casing installed within the well to seal out brackish water, caving zones, etc., below the bottom of the surface casing. Such strings may either be lapped into the surface casing or extend to land surface. (3-20-20)T
- 16. Material Medium.** Any substance including, but not limited to, naturally heated fluids, brines, associated gasses and steam in whatever form, found at any depth and in any position below the surface of the earth, which contains or transmits the natural heat energy of the earth, but excluding petroleum, oil, hydrocarbon gas, or other hydrocarbon substances. (3-20-20)T
- 17. Notice of Intent or Notice.** A written statement to the Director that the applicant intends to do work. (3-20-20)T
- 18. Observation Well.** A small diameter well drilled strictly for monitoring purposes. In no case shall an observation well be completed for production of geothermal resources or for use as an injection well. (3-20-20)T
- 19. Operator.** Any person drilling, maintaining, operating, pumping, or in control of any well. The term operator also includes owner when any well is or has been or is about to be operated by or under the direction of the owner. (3-20-20)T
- 20. Owner.** The owner of the geothermal lease or well and includes operator when any well is operated or has been operated or is about to be operated by any person other than the owner. (3-20-20)T
- 21. Permit.** A permit issued pursuant to these rules for the construction and operation of any well or injection well. (3-20-20)T
- 22. Person.** Any individual natural person, general or limited partnership, joint venture, association, cooperative organization, corporation, whether domestic or foreign, agency or subdivision of this or any other state or municipal or quasi-municipal entity whether or not it is incorporated. (3-20-20)T
- 23. Production String.** The casing or tubing through which a geothermal resource is produced. This string extends from the producing zone to land surface. (3-20-20)T
- 24. Production Well.** Any well which is commercially producing or is intended for commercial production of a geothermal resource. (3-20-20)T
- 25. Surface Casing.** The first string of casing which is run after the conductor pipe to anchor blow out prevention equipment and to seal out all existing groundwater zones. (3-20-20)T
- 26. Suspension of Operations.** The cessation of drilling, redrilling, or alteration of casing before the well is officially abandoned or completed. All suspensions must be authorized by the Director. (3-20-20)T
- 27. Waste.** Any physical waste including, but not limited to: (3-20-20)T
- a.** Underground waste resulting from inefficient, excessive, or improper use, or dissipation of

geothermal energy, or of any geothermal resource pool, reservoir, or other source; or the locating, spacing, constructing, equipping, operating, or producing of any well in a manner which results, or tends to result in reducing the quantity of geothermal energy to be recovered from any geothermal area in the state; (3-20-20)T

b. The inefficient above-ground transporting and storage of geothermal energy; and the locating, spacing, equipping, operating, or producing of any well or injection well in a manner causing or tending to cause unnecessary or excessive surface loss or destruction of geothermal energy; the escape into the open air from a well of steam or hot water in excess of what is reasonably necessary in the efficient development or production of a well. (3-20-20)T

28. Well. Any excavation or other alteration in the earth's surface or crust by means of which the energy of any geothermal resource and/or its material medium is sought or obtained. (3-20-20)T

011. -- 024. (RESERVED)

025. DRILLING (RULE 25).

01. General. All wells shall be drilled in such a manner as to protect or minimize damage to the environment, waters usable for all beneficial purposes, geothermal resources, life, health, or property. (3-20-20)T

02. Permits and Notices. (3-20-20)T

a. Permit to Drill for Geothermal Resources. Any person, owner, or operator who proposes to construct a well for the production of or exploration for geothermal resources or to construct an injection well shall first apply to the Director for permit. Application for permit shall be on department form 4003-1. Any person, owner, or operator who proposes to construct a hole for the gathering of geotechnical data shall file a notice of intent with the Director twenty (20) days prior to construction. Written approval of the Director is required before construction may begin. The notice of intent shall show the hole location, proposed depth, hole size, construction methods, intended use and abandonment plan together with other information as required by the Director. (3-20-20)T

b. Permit to Deepen or Modify an Existing Well. If the owner or operator plans to deepen, redrill, plug, or perform any operation that will in any manner modify the well, an application shall be filed with the Director and written approval must be received prior to beginning work. Application for permit to alter a geothermal well shall be on department form 4003-2. (3-20-20)T

c. Application for Permit to Convert to Injection. If the owner or operator plans to convert an existing geothermal well into an injection well with no change of mechanical condition, an application for permit shall be filed with the Director and written approval must be received prior to beginning injection. Application for permit shall be made on department form 4003-3. (3-20-20)T

d. Amendment of Permit. No well may be owned or operated by any person whose name does not appear on the permit or permit application and no changes in departure from the procedures, location, data, or persons specified on the face of a permit shall be allowed until an amendment to such permit is approved by the Director. Application for amendment shall be made on department form 4003-1. (3-20-20)T

e. Notice to Other Agencies. Notice of applications, permits, orders, or other actions received or issued by the Director may be given to any other agency or entity which may have information, comments, or jurisdiction over the activity involved. The Director may enter into a memorandum of understanding with other agencies to eliminate duplication of applications or other efforts. (3-20-20)T

f. No filing fee shall be charged for filing a notice of intent to construct a hole for gathering geotechnical data, for abandonment, or for the drilling of an observation well. (3-20-20)T

g. No application shall be accepted and filed by the Director until such filing fee has been deposited with the Director. (3-20-20)T

03. Bonds. (3-20-20)T

a. The Director shall require as a condition of every permit every operator or owner who engages in the construction, alteration, testing, or operation of the well to file with the Director on a form prescribed by the Director a bond indemnifying the state of Idaho providing good and sufficient security conditioned upon the performance of the duties required by these regulations and the Geothermal Resource Act and the proper abandonment of any well covered by such permit. Such bond shall be in an amount which is not less than ten thousand dollars (\$10,000) for each individual well. (3-20-20)T

b. Bonds remain in force for the life of the well or wells and may not be released until the well or wells are properly abandoned or another valid bond is substituted therefor. Any person who acquires the ownership or operation of any well or wells shall within five (5) days after acquisition file with the Director an indemnity bond in the sum of ten thousand dollars (\$10,000) for each well acquired. The Director reserves the right to request additional bonding prior to abandonment if deemed necessary. (3-20-20)T

04. Well Spacing. (3-20-20)T

a. Any well drilled for the discovery and production of geothermal resources or as an injection well shall be located more than one hundred (100) feet from and within the outer boundary of the parcel of land on which the well is situated, or more than one hundred (100) feet from a public road, street, or highway dedicated prior to the commencement of drilling. This requirement may be modified or waived by the Director upon written request. (3-20-20)T

b. For several contiguous parcels of land in one or different ownerships that are operated as a single geothermal field, the term outer boundary line means the outer boundary line of the land included in the field. In determining the contiguity of any such parcels of land, no street, road, or alley lying within the lease or field shall be determined to interrupt such contiguity. (3-20-20)T

c. The Director shall approve the proposed well spacing programs or prescribe such modifications to the programs as he deems necessary for proper development giving consideration to such factors as, but not limited to, topographic characteristics of the area, hydrologic, geologic, and reservoir characteristics of the area, the number of wells that can be economically drilled to provide the necessary volume of geothermal resources for the intended use, minimizing well interference, unreasonable interference with multiple use of lands, and protection of the environment. (3-20-20)T

d. Directional Drilling. Where the surface of the parcel of land containing one acre or more is unavailable for drilling, the surface well location may be located upon property which may or may not be contiguous. Such surface well locations shall not be less than twenty five (25) feet from the outer boundary of the parcel on which it is located, nor less than twenty-five (25) feet from an existing street or road. The production or injection interval of the well shall not be less than one hundred (100) feet from the outer boundary of the parcel into which it is drilled. Directional surveys must be filed with the Director for all wells directionally drilled. (3-20-20)T

05. Casing. (3-20-20)T

a. General. All wells shall be cased in such a manner as to protect or minimize damage to the environment, usable ground waters, geothermal resources, life, health, and property. The permanent well head completion equipment shall be attached to the production casing or to the intermediate casing if production casing does not reach the surface. No permanent well head equipment may be attached to any conductor or surface casing alone. The specification for casing strength shall be determined by the Director on a well-to-well basis. All casing reaching the surface shall provide adequate anchorage for blow out prevention equipment, hole pressure control, and protection for natural resources. Sufficient casing shall be run to reach a depth below all known or reasonably estimated groundwater levels to prevent blow outs or uncontrolled flows. The following casing requirements are general but should be used as guidelines in submitting applications for permit to drill. (3-20-20)T

b. Conductor Pipe. A minimum of forty (40) feet of conductor pipe shall be installed. The annular space is to be cemented solid to the surface. A twenty-four (24) hour cure period for the grout must be allowed prior to drilling out the shoe unless additives sufficient, as determined by the Director, are used to obtain early strength. An annular blow out preventer shall be installed on all exploratory wells and on development wells when deemed

necessary by the Department. (3-20-20)T

c. Surface Casing. The surface casing hole shall be logged with an induction electrical log or equivalent or gamma-neutron log before running casing. This requirement may be waived by the Director. Permission to waive this requirement must be granted by the Director in writing prior to running surface casing. This casing shall provide for control of formation fluids, protection of shallow usable groundwater, and for adequate anchorage for blow out prevention equipment. All surface casing shall be cemented solid to the surface. A twenty-four (24) hour cure period shall be allowed prior to drilling out the shoe of the surface casing unless additives sufficient, as determined by the Director, are used to obtain early strength. (3-20-20)T

i. A minimum of two hundred (200) feet of surface casing shall be set in areas where pressures and formations are unknown. In no case may surface casing be set at a depth less than ten percent (10%) of the proposed total depth of the well. (3-20-20)T

ii. In areas of known high formation pressure, surface casing shall be set at the depth determined by the Director after a study of geologic conditions in the area. (3-20-20)T

iii. In areas where subsurface geological conditions are variable or unknown, surface casing shall be in accordance with specifications as outlined in a. above. The casing must be seated through a sufficient series of low permeability, competent lithologic units such as claystone, siltstone, basalt, etc., to insure a solid anchor for blow out prevention equipment and to protect usable groundwater from contamination. Additional casing may be required if the first string has not been cemented through a sufficient series of such beds, or a rapidly increasing thermal gradient or formation pressures are encountered. (3-20-20)T

iv. The temperature of the return drilling mud shall be monitored continuously during the drilling of the surface casing hole. Either a continuous temperature-monitoring device shall be installed and maintained in a working condition or the temperature shall be read manually. In either case, the return temperature shall be entered into the log book for each thirty (30) feet of depth drilled. (3-20-20)T

v. Blow out prevention equipment capable of shutting in the well during any operation shall be installed on the surface casing and maintained ready for use at all times. BOPE pressure tests shall be performed by the operator for department personnel on all exploratory wells prior to drilling out the shoe of the surface casing. The decision to perform BOPE pressure tests on other types of wells shall be made on a well-to-well basis by the Director. The Director must be notified five (5) days in advance of a scheduled pressure test. Permission to proceed with the test sooner may be given orally by the Director upon request by the operator. (3-20-20)T

d. Intermediate Casing. Intermediate casing shall be required for protection against anomalous pressure zones, cave-ins, washouts, abnormal temperature zones, uncontrollable lost circulation zones or other drilling hazards. Intermediate casing strings when installed shall be cemented solidly to the surface or to the top of the casing. (3-20-20)T

e. Production Casing. Production casing may be set above or through the producing or injection zone and cemented either below or just above the objective zones. Sufficient cement shall be used to exclude overlying formation fluids from the geothermal zone, to segregate zones, and to prevent movement of fluids behind the casing into possible fresh groundwater zones. Production casing shall either be cemented solid to the surface or lapped into the intermediate casing if run. If the production casing is lapped into an intermediate string, the casing overlap shall be at least fifty (50) feet, the lap shall be cemented solid, and the lap shall be pressure tested to insure its integrity. (3-20-20)T

06. Electric Logging. All wells except observation wells shall be logged with an induction electrical log or equivalent or gamma-neutron log from the bottom of the hole to the bottom of the conductor pipe. This requirement may be modified or waived by the Director upon written request. (3-20-20)T

026. -- 029. (RESERVED)

030. RECORDS (RULE 30).

01. General. The owner or operator of any well shall keep or cause to be kept a careful and accurate log, core record, temperature logs, and history of the drilling of the well. These records shall be kept in the nearest office of the owner or operator or at the well site and together with all other reports of the owner and operator regarding the well shall be subject to inspection by the Director during business hours. All records unless otherwise specified must be filed with the Director within thirty (30) days of completion of the well. (3-20-20)T

02. Records to Be Filed with the Director. (3-20-20)T

a. Drilling Logs and Core Record. The drilling log shall include the lithologic characteristics and depths of formations encountered, the depth and temperatures of water-bearing and steam-bearing strata, the temperatures, chemical compositions and other chemical and physical characteristics of fluids encountered from time to time so far as ascertained. The core record shall show the depth, lithologic character, and fluid content of cores obtained so far as determined. (3-20-20)T

b. Well History. The history shall describe in detail in chronological order on a daily basis all significant operations carried out and equipment used during all phases of drilling, testing, completion, and abandonment of any well. (3-20-20)T

c. Well Summary Report. The well summary report shall accompany the core record and well history reports. It is designed to show data pertinent to the condition of a well at the time of completion of work done. (3-20-20)T

d. Production Records. The owner or operator of any well producing geothermal resources shall file with the Director on or before the 20th day of each month for the preceding month a statement of production utilized in such a form as the Director may designate. Copies of monthly geothermal energy report forms are available from the Director; however, production data can be submitted on non-department forms such as computer print-outs if they have been approved by the Director. (3-20-20)T

e. Injection Records. The owner or operator of any well injecting geothermal fluids or waste water for any purpose shall file with the Director on or before the twentieth day of each month for the preceding month a report of the injection in such form as the Director may designate. Copies of monthly injection report forms are available from the Director. Injection data may be submitted on non-department forms if they have been approved by the Director. (3-20-20)T

f. Electric Logs and Directional Surveys, If Conducted. Electric logs and directional surveys shall be filed with the Director within sixty (60) days of completion, cessation of drilling operations, excluding any approved suspension of operations, or abandonment of any well. Like copies shall be filed upon recompletion of any well. Upon a showing of hardship, the Director may extend the time within which to comply for a period not to exceed six (6) additional months. (3-20-20)T

03. Confidential Status. Information on file with the Director is open to public inspection except any reports, logs, records, or histories derived from the drilling of a well and filed with the Director shall not be available for public inspection and shall be kept confidential by the Director for a period of one year from receipt provided, however, that the Director may use any such reports, logs, records, or histories in any action in any court to enforce the provisions of the Geothermal Act or any order or regulation adopted hereunder. (3-20-20)T

04. Inspection of Records. The records filed by an operator with the Director which relates to the data gathered from the drilling operation shall be open to inspection only to those authorized in writing by the operator and designated personnel. The records of any operator filed for a completed or producing well that has been transferred by sale, lease, or otherwise shall be available to the new owner or lessee for his inspection or copying and shall be available for inspection or copying by others upon written authorization of such new owner or lessee. (3-20-20)T

031. -- 034. (RESERVED)

035. BLOW OUT PREVENTION (RULE 35).

01. Unexplored Areas. (3-20-20)T

a. A department employee may be present at the well at any time during the initial phases of drilling until the surface casing has been cemented and the BOPE has been satisfactorily pressure tested. The Department employee may be present during any drilling operations at the well and if in his opinion conditions warrant he may order additional casing to be run. (3-20-20)T

b. A logging unit equipped to continuously record the following data shall be installed and operated continuously by a technician approved by the Director after drilling out the shoe of the conductor pipe until the well has been drilled to the total depth. (3-20-20)T

i. Drilling mud temperature (in and out). (3-20-20)T

ii. Drilling mud pit level. (3-20-20)T

iii. Drilling mud pump volume. (3-20-20)T

iv. Drilling mud weight. (3-20-20)T

v. Drilling rate. (3-20-20)T

vi. Hydrocarbon and hydrogen sulfide gas volume (with alarm). (3-20-20)T

c. An annular BOPE with a minimum working pressure of one thousand (1,000) PSI shall be installed on the surface casing. If unusual conditions are anticipated, a BOPE may be required on the conductor pipe. (3-20-20)T

d. If drilling mud temperature out, reaches one hundred twenty-five (125) Degrees C (Celsius), drilling operations shall cease, drilling mud circulation will continue and the Director must be notified immediately. The operator must obtain the Director's approval of his proposed course of action prior to resuming drilling operations. (3-20-20)T

e. The above requirements for BOPE may be modified by the Director and any proposed modification by the applicant must be approved by the Director in writing. (3-20-20)T

02. Explored Areas. (3-20-20)T

a. A gate valve with a minimum working pressure rating of three hundred (300) PSI must be installed on the well head. (3-20-20)T

b. The temperature of the return mud shall be monitored continuously. Either a continuous temperature monitoring device shall be installed and maintained in working condition or the temperature shall be read manually. In either case, return mud temperatures shall be entered into the log book for each thirty (30) feet of depth drilled. (3-20-20)T

c. An annular BOPE with a minimum working pressure of one thousand (1,000) PSI shall be installed on the surface casing. (3-20-20)T

d. Additional requirements may be set forth by the Director depending upon the knowledge of the area. Such requirements will be set forth on the approved application for permit to drill a geothermal well. Modification of said requirements may be made in the field by Department personnel monitoring construction of the well. (3-20-20)T

036. -- 039. (RESERVED)

040. INJECTION WELLS (RULE 40).

01. Construction. The owner or operator of a proposed injection well or series of injection wells shall

provide the Director with such information he deems necessary for evaluation of the impact of such injection on the geothermal reservoir and other natural resources. Such information shall include existing reservoir conditions, method of injection, source of injection fluid, estimates of daily amount of material medium to be injected, zones or formations affected, and analysis of fluid to be injected and of the fluid from the intended zone of the injection. Such information shall be on department form 4003-3. (3-20-20)T

02. Surveillance. (3-20-20)T

a. When an operator or owner proposes to drill or modify an injection well or convert a producing or idle well to an injection well, he shall be required to demonstrate to the Director by means of a test that the casing has complete integrity. This test shall be conducted in a method approved by the Director. (3-20-20)T

b. To establish the integrity of the annular cement above the shoe of the casing, the owner or operator shall make sufficient surveys within thirty (30) days after injection is started into a well to prove that all the injected fluid is confined to the intended zone of injection. Thereafter, such surveys shall be made at least every two (2) years or more often if necessary. The Director shall be notified forty-eight (48) hours in advance of such surveys in order that a representative may be present if deemed necessary. If in the Director's opinion such tests are not necessary, he may grant a waiver excepting the operator from such tests. (3-20-20)T

c. After the well has been placed on injection, the injection well site will be visited periodically by Department personnel. The operator or owner will be notified of any necessary remedial work. Unless modified by the Director, this work must be performed within ninety (90) days or approval for the injection well issued by the Director will be rescinded. (3-20-20)T

041. -- 044. (RESERVED)

045. ABANDONMENT (RULE 45).

01. Objectives. The objectives of abandonment are to block interzonal migration of fluids so as to: (3-20-20)T

a. Prevent contamination of fresh water or other natural resources; (3-20-20)T

b. Prevent damage to geothermal reservoirs; (3-20-20)T

c. Prevent loss of reservoir energy; (3-20-20)T

d. Protect life, health, environment and property. (3-20-20)T

02. General Requirements. The following are general requirements which are subject to review and modification for individual wells or field conditions. (3-20-20)T

a. A notice of intent to abandon geothermal resource wells is required to be filed with the Director five (5) days prior to beginning abandonment procedures. A permit to abandon may be given orally by the Director provided the operator submits a written request for said abandonment on a form approved by the Director within twenty-four (24) hours of the oral request. (3-20-20)T

b. A history of geothermal resource wells shall be filed within sixty (60) days after completion of abandonment procedures. (3-20-20)T

c. All wells abandoned shall be monumented and the description of the monument shall be included in the history of well report. Such monument shall consist of a four (4) inch diameter pipe ten (10) feet in length of which four (4) feet shall be above ground. The remainder shall be embedded in concrete. The name, number, and location of the well shall be shown on the monument. Alternate methods of monumentation may be approved by the Director where land surface use indicates the above described method is not satisfactory. (3-20-20)T

d. Good quality heavy drilling fluid shall be used to replace any water in the hole and to fill all

- portions of the hole not plugged with cement. (3-20-20)T
- e. All cement plugs with a possible exception of the surface plug shall be pumped into the hole through drill pipe or tubing. (3-20-20)T
 - f. All open annuli shall be filled solid with cement to the surface. (3-20-20)T
 - g. A minimum of one hundred (100) feet of cement shall be emplaced straddling the interface or transition zone at the base of groundwater aquifers. (3-20-20)T
 - h. One hundred (100) feet of cement shall straddle the placement of the shoe plug on all casings including conductor pipe. (3-20-20)T
 - i. A surface plug of either neat cement or concrete mix shall be in place from the top of the casing to at least fifty (50) feet below the top of the casing. (3-20-20)T
 - j. All casing shall be cut off at least five (5) feet below land surface. (3-20-20)T
 - k. Cement plugs shall extend at least fifty (50) feet over the top of any liner installed in the well. (3-20-20)T
 - l. Abandonment. Injection wells are required to be abandoned in the same manner as other wells. (3-20-20)T
 - m. Other abandonment procedures may be approved by the Director if the owner or operator can demonstrate that the geothermal resource, groundwaters, and other natural resources will be protected. Such approval must be given in writing by the Director prior to the beginning of any abandonment procedures. (3-20-20)T
 - n. Within five (5) days after the completion of the abandonment of any well or injection well, the owner or operator of the abandoned well or injection well shall report in writing to the Director on such form as may be prescribed by the Director on all work done with respect to the abandonment. (3-20-20)T

046. -- 049. (RESERVED)

050. MAINTENANCE (RULE 50).

01. General. All well heads, separators, pumps, mufflers, manifolds, valves, pipelines, and other equipment used for the production of geothermal resources shall be maintained in good condition in order to prevent loss of or damage to life, health, property, and natural resources. (3-20-20)T

02. Corrosion. All surface well head equipment and pipelines and subsurface casing and tubing will be subject to periodic corrosion surveillance in order to safeguard health, life, property, and natural resources. (3-20-20)T

03. Tests. The Director may require such tests or remedial work as in his judgment are necessary to prevent damage to life, health, property, and natural resources, to protect geothermal reservoirs from damage or to prevent the infiltration of detrimental substances into underground or surface water suitable for irrigation or other beneficial uses to the best interest of the neighboring property owners and the public. Such tests may include, but are not limited to, casing tests, cementing tests, and equipment tests. (3-20-20)T

051. -- 054. (RESERVED)

055. HEARINGS, NOTICE, PROCEDURE (RULE 55).

Any applicant or the Director shall have the right to a hearing concerning the propriety of issuing a permit for which an application has been filed. Any applicant who desires a hearing pursuant to Section 42-4004, Idaho Code, must file a written request therefor with the Director of the Department of Water Resources. Any person may file a petition with the Director requesting that the Director hold a hearing concerning the propriety of issuing a permit for which an

application has been filed. The petitioner must serve a copy of the petition upon the applicant and set forth in the petition all reasons for requesting the hearing. The applicant may respond to the petition within ten (10) days of its service. However, failure of the applicant to respond shall not be prejudicial to his right to appear at the hearing and present such evidence as he deems proper, if the Director grants the petition for such hearing. The hearing shall be set by the Director at any location deemed appropriate. Notice of the time and location shall be served on the applicant and/or the petitioner by the Director at least twenty (20) days before said date by certified mail addressed to applicant's address as stated in the application and to the petitioner at the address given in the petition. The hearing shall be conducted in the manner prescribed in the general rules and procedures of the Department. (3-20-20)T

056. -- 059. (RESERVED)

060. HEARINGS ON REFUSED, LIMITED, OR CONDITIONED PERMIT (RULE 60).

Any applicant who is granted a limited or conditioned permit, or who is denied a permit or any person aggrieved by a decision of the Director may seek a hearing on said action of the Director by serving on the Director written notice and request for a hearing before the Board within thirty (30) days of service of the Director's decision. Said hearing will be set, conducted, and notice given as set forth in Rule 055 above. Any applicant may appeal the decision of the Board to the District Court within thirty (30) days of service of the decision. All hearings under this rule shall be conducted in the manner prescribed in the general rules and procedures of the Department. (3-20-20)T

061. -- 064. (RESERVED)

065. PENALTIES (RULE 65).

01. Order by Director. If the Director finds that any person is constructing, operating, or maintaining any hole, well or injection well not in accordance with any applicable permit or in a fashion so as to involve an unreasonable risk of, or so as to cause, damage to life or property or subsurface, surface, or atmospheric resources, the Director may issue an order to such person to correct or to stop such practices as are found to be improper and to mitigate any injury of any sort caused by such practices. (3-20-20)T

02. Enforcement by Director. The Director may enforce any provision of this act or any order or regulation issued or adopted pursuant thereto by an appropriate action in the District Court. The Director may bring action in the District Court to have enjoined any threatened noncompliance with any provision of this act or any order or regulation adopted pursuant hereto or any threatened harm to life, property, or surface, subsurface or atmospheric resources which would be caused by such noncompliance. (3-20-20)T

03. Willful Violations or Failure to Comply. Any willful violations of or failure to comply with any provision of these rules, or if such order or regulation has been served on such person or is otherwise known to him, any valid order or regulation issued or adopted hereto shall be a misdemeanor punishable by fine of up to five thousand dollars (\$5,000) for each offense or a sentence of up to six (6) months in a county jail or both; each day of a continuing violation shall be a separate offense under this subdivision. A responsible or principal executive officer or any corporate person may be liable under this subdivision if such corporate person is not in compliance with any provision of this act or with any valid order or regulation adopted pursuant hereto. (3-20-20)T

066. -- 069. (RESERVED)

070. FORMS (RULE 70).

Forms required by these rules. (3-20-20)T

01. Samples of Forms. Samples of all forms required by these rules are available from the Department to interested parties upon request. (3-20-20)T

02. Forms. The forms include the following: (3-20-20)T

a. Form 4003-1, Application for Permit to Drill for Geothermal Resources; (3-20-20)T

b. Form 4003-2, Application for Permit to Alter a Geothermal Well; (3-20-20)T

- c. Form 4003-3, Application for Permit to Convert a Well to a Geothermal Injection Well; (3-20-20)T
 - d. Form 4005, Geothermal Resources Surety Bond; (3-20-20)T
 - e. Form 4007, Notice of Intent to Abandon a Well; (3-20-20)T
 - f. Form 4009, Report of Abandonment of a Well; (3-20-20)T
 - g. Form 4010-1, Monthly Injection Report for Geothermal Wells; and (3-20-20)T
 - h. Form 4010-2, Monthly Energy Report for Geothermal Wells. (3-20-20)T
- 071. -- 999. (RESERVED)**

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