

San Antonio

NEW MEXICO
OIL CONSERVATION COMMISSION
GEOTHERMAL DIVISION

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RULES AND REGULATIONS
FOR
GEOTHERMAL RESOURCES

(Proposed)

BEFORE THE	
OIL CONSERVATION COMMISSION	
Santa Fe, New Mexico	
Case No. <u>5285</u>	Exhibit No. <u>A</u>
Submitted by <u>OCC Staff</u>	
Hearing Date <u>June 11, 1974</u>	

These proposed rules and regulations will be considered at public hearing by the New Mexico Oil Conservation Commission at 9:00 o'clock a.m. June 11, 1974, at Morgan Hall, State Land Office Building, Santa Fe, New Mexico.

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NEW MEXICO
OIL CONSERVATION COMMISSION

GEOTHERMAL RESOURCES DIVISION

RULES AND REGULATIONS

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A - DEFINITIONS

COMMISSION shall mean the Oil Conservation Commission created by Section 3, Chapter 168, Laws of 1949.

COMPLETION or COMPLETED WELL shall mean a well upon which drilling operations have been completed and which is capable of producing a geothermal resource or a well upon which no drilling operations have been conducted for at least 30 days.

CONDENSATE shall mean the liquid recovered from the condensation of gases or steam produced from a geothermal reservoir.

CORRELATIVE RIGHTS shall mean the opportunity afforded, insofar as is practicable to do so, to the owner of each property in a geothermal reservoir to produce his just and equitable share of the geothermal resources within such reservoir, being an amount, so far as can be practicably determined, and so far as can be practicably obtained without waste, substantially in the proportion that the quantity of recoverable geothermal resources under such property bears to the total recoverable geothermal resources in the pool, and for such purpose to use his just and equitable share of the natural heat or energy in the reservoir.

could be reservoir

DEVELOPMENT WELL shall mean a well drilled within the established limits of a designated geothermal field or within one mile thereof, for the commercial production of geothermal resources.

DISPOSAL WELL shall mean a well drilled or converted for the purpose of disposing of fluids into a formation other than a geothermal reservoir.

DRILLING OPERATIONS shall mean the actual drilling, redrilling, completion, or recompletion of a well for geothermal production or injection, including the running and cementing of casing, the performance of such operations as logging and perforating, and the installation of wellhead equipment.

EXPLORATORY WELL shall mean a well drilled for the discovery or evaluation of geothermal resources one mile or more beyond the established limits of a designated geothermal field.

GEOHERMAL DIVISION shall mean that division of the Oil Conservation Commission charged with the authority and duty of regulating the drilling, development and production of geothermal resources and with conserving and preventing waste of geothermal resources within this state pursuant to the provisions of Section 1, Chapter 75, Laws of 1973.

GEOHERMAL FIELD shall mean an area defined by the Commission which contains a well, or wells, capable of commercial geothermal production. "Geothermal Field" includes "Low-Temperature Thermal Field."

GEOHERMAL OBSERVATION WELL shall mean a shallow well drilled solely for temperature observation purposes, and which shall not be completed as a geothermal producing well or as an injection well.

GEOTHERMAL RESERVOIR shall mean any common source of geothermal resources, whether the fluids produced from the reservoir are native to the reservoir, or flow into or are injected into said reservoir.

does not include water
GEOTHERMAL RESOURCES shall mean the natural heat of the earth, or the energy, in whatever form, below the surface of the earth present in, resulting from, created by, or which may be extracted from, this natural heat, and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases, and steam, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas and other hydrocarbon substances.

GEOTHERMAL RESOURCES AREA shall mean the same general surface area which is underlain, or appears to be underlain, by one or more formations containing geothermal resources.

GEOTHERMAL WATERS shall mean the water or brine produced from a geothermal reservoir.

INJECTION WELL shall mean a well drilled or converted for the purpose of injecting fluids into a geothermal reservoir.
should include disposal well

LOG or WELL LOG shall mean a systematic detailed and correct recorded description of the lithologic sequence encountered while drilling a geothermal well.

LOW-TEMPERATURE THERMAL FIELD shall mean an area defined by the Commission which contains a well, or wells, capable of production of low-temperature thermal waters.

LOW-TEMPERATURE THERMAL WATER shall mean naturally heated water the temperature of which is less than boiling at the altitude of occurrence, which has value by virtue of the heat contained therein, and is found below the surface of the earth, or in warm springs on the surface.

LOW-TEMPERATURE THERMAL WELL shall mean a well drilled to produce low-temperature thermal water for the purpose of extracting heat for agricultural, industrial, municipal, or domestic uses. *does not include commercial - perhaps should.*

MULTIPLE COMPLETION shall mean the completion of a well in such a manner as to produce from more than one geothermal reservoir.

OPERATOR shall mean any person drilling, maintaining, operating, producing, or in control of any well, and shall include "Owner" when any well is operated or has been operated or is about to be operated by or under the direction of the owner.

OWNER shall mean the person who has the right to drill into and to produce from any geothermal resource area, and to appropriate the geothermal resources thereof for himself or for himself and another.

PERSON shall mean any individual, firm, association, or corporation or any other group or combination acting as a unit.

POTENTIAL shall mean the properly determined ability of a well to produce geothermal resources under conditions prescribed by the Commission.

TEMPORARY ABANDONMENT shall mean a state or period of suspended operations during which no continuous drilling, production, injection, storage, or work-over procedures have taken place. Such period shall be 60 days for drilling wells and six months for all other classes of wells.

UNORTHODOX WELL LOCATION shall mean a location which does not conform to the well location requirements established by the Geothermal Rules and Regulations of the Commission.

WASTE shall mean any physical waste including, but not limited to, underground waste resulting from the inefficient, excessive or improper use or dissipation of reservoir heat or energy or resulting from the location, spacing, drilling, equipping, operation or production of a geothermal resources well in such a manner as to reduce or tend to reduce the ultimate economic recovery of the geothermal resources within a reservoir, and surface waste resulting from the inefficient production, gathering, transportation, storage, or utilization of geothermal resources, and the handling of geothermal resources in such a manner that causes or tends to cause the unnecessary or excessive loss or destruction of geothermal resources obtained or released from a geothermal reservoir.

WELL shall mean any exploratory well, development well, or injection well, as defined herein, drilled below fresh water by an "owner" as defined herein.

B. MISCELLANEOUS RULES

RULE 1. SCOPE OF RULES AND REGULATIONS

(a) The following Geothermal Rules and Regulations are of state-wide application and have been adopted by the Oil Conservation Commission to conserve the natural geothermal resources of the State of New Mexico, to prevent waste, and to protect the correlative rights of all owners of geothermal resources. Special rules, regulations, and orders may be adopted from time to time when required for a particular geothermal resources area, and shall prevail over the Geothermal Rules and Regulations if in conflict therewith. However, when these Geothermal Rules and Regulations do not conflict with special rules hereafter adopted, these Geothermal Rules and Regulations will apply.

(b) The Commission may grant exceptions to these rules and regulations after notice and hearing, when the granting of such exceptions will not result in waste but will protect correlative rights or prevent waste.

RULE 2. ENFORCEMENT OF LAWS, RULES, AND REGULATIONS DEALING WITH CONSERVATION OF GEOTHERMAL RESOURCES

The Commission, its agents, representatives, and employees are charged with the duty and obligation of enforcing all rules and statutes of the State of New Mexico relating to the conservation of geothermal resources. However, it shall be the responsibility of all geothermal resource owners or operators to obtain information pertaining to the regulation of geothermal resources before operations have begun. Minor deviations from the requirements of these rules as to field practices may be permitted by the Commission or its duly authorized representatives where such can be safely done without waste, and burdensome delay or expense to the operator avoided.

RULE 3. WASTE PROHIBITED

(a) The production or handling of geothermal resources of any type or in any form, or the handling of products thereof, in such a manner or under such conditions or in such an amount as to constitute or result in waste is hereby prohibited.

(b) All owners, operators, contractors, drillers, transporters, service companies, pipe pulling and salvage contractors, and other persons shall at all times conduct their operations in the drilling, equipping, operating, producing, plugging and abandonment of geothermal resource wells in a manner that will prevent waste of geothermal resources, and shall not wastefully utilize geothermal resources, or allow leakage of such resources from a geothermal reservoir, or from wells, tanks, containers, or pipe, or other storage, conduit, or operating equipment.

RULE 4. PROTECTION OF LIFE, HEALTH, AND THE ENVIRONMENT

All geothermal operations, exploratory, drilling, and producing, shall be conducted in a manner that will afford maximum reasonable protection to human life and health and to the environment.

RULE 5. WATER RIGHTS AND WATER PERMITS

It is recognized by the Commission that the appropriation of water, in a liquid or gaseous state, from a geothermal reservoir, or the appropriation of water from any other source for the purpose of injection into a geothermal reservoir is subject to ~~such water rights and permits for water appropriation as may be required under the laws of the State of New Mexico~~ *Concerning water rights and permits for the appropriation of water.*

RULE 6. UNITED STATES GOVERNMENT LEASES

It is recognized by the Commission that all persons conducting geothermal operations on United State Government land shall comply with the United States government regulations. Such persons shall also comply with all applicable State rules and regulations which are not in conflict therewith.

RULE 7. UNITIZED AREAS

one or

After notice and hearing, the Commission may grant approval for the combining of ~~several or~~ more contiguous leases into a unitized area for purposes of exploration for and production of geothermal resources.

RULE 8. CLASSIFYING AND DEFINING POOLS

The Commission will determine whether a particular well or field is a high temperature geothermal well or field or a low-temperature thermal well or field, as the case may be, and will, from time to time, classify and reclassify wells and name pools accordingly, and will determine the limits of any field so designated and from time to time redetermine such limits.

RULE 9. FORMS UPON REQUEST

Forms for written notices, requests, and reports required by the Commission will be furnished upon request.

RULE 10. AUTHORITY TO COOPERATE WITH OTHER AGENCIES

The Commission may from time to time enter into arrangements with State and Federal governmental agencies, industrial committees, and other persons, with respect to special projects, services, and studies relating to conservation of geothermal resources.

C - DRILLING AND PRODUCTION

RULE 101. PLUGGING BOND

(a) Any person who has drilled or is drilling or proposes to drill for geothermal resources shall post with the Commission, and obtain approval thereof, a bond, in a form approved by the Commission, conditioned to plug such well, if non-productive or when abandoned, in such a way as to confine all fluids in their native strata. Each such bond shall be executed by a responsible surety company authorized to transact business in the State of New Mexico and shall describe, or by subsequent rider describe, the name and exact location of the well, or wells, covered by the bond. The bond shall be in the amount prescribed below:

(1) One-well geothermal exploratory, development, or injection well bond: \$5,000.

(2) One-well low-temperature thermal well or geothermal observation well bond: \$2,000

(3) Multiple well geothermal exploratory, development, or injection well bond: \$10,000 (Not more than five such wells may be drilled under such bond. An additional \$10,000 bond must be posted for each additional five wells.)

(4) Multiple well low-temperature thermal well or geothermal observation well bond: \$10,000 (Not more than ten such wells may be drilled under such bond. An additional \$10,000 bond must be posted for each additional ten wells.)

(b) For the purposes of the Commission, the bond required is a plugging bond, not a drilling bond, and shall endure until the well has been plugged and abandoned, and such plugging and abandonment approved by the Commission. Transfer of the well or property does not release the bond. In case of transfer and the principal desires to be released from the bond, he shall proceed as follows:

(1) The principal on the bond shall notify the Commission in writing that the well, or wells, covered by the bond are being or have been transferred to a certain transferee. The notice shall name the wells and shall give their exact location.

(2) On the same instrument the transferee shall recite that he accepts such transfer and accepts the responsibility for such well, or wells, under his bond which shall be tendered therewith.

(3) When the Commission has approved the transfer, the transferor is immediately released of the plugging responsibility of the well, or wells, and if such well, or wells, constitute all of the wells covered by the bond, such bond will be released by written notice from the Commission to the principal and to the surety company.

(c) The Secretary-Director of the Commission is vested with power to act for the Commission in all matters relating to this rule.

RULE 102. NOTICE OF INTENTION TO DRILL

or disposal

(a) Prior to the commencement of operations, notice shall be delivered to the Commission of intention to drill any well for geothermal production or observation, or for injection purposes, on Commission Form G-101, Notice of Intention to Drill, Deepen, or Plug Back-Geothermal Resources Well and approval thereof obtained from the Commission. Form G-101 shall be accompanied by Form G-102, Geothermal Resources, Well Location and Acreage Dedication Plat.

(b) No permit shall be approved for the drilling of any well within the corporate limits of any city, town, or village of this state unless notice of intention to drill such well has been given to the duly constituted governing body of such city, town, or village or its duly authorized agent. Evidence of such notification shall accompany the application for a permit to drill (Form G-101).

RULE 103. SIGN ON WELLS

(a) Each well shall be identified by a sign, posted on the drilling rig or not more than 20 feet from the well. Such sign shall be of durable construction and the lettering thereon kept in legible condition. Lettering shall be such that under normal conditions it shall be legible at a distance of 50 feet. Each sign shall show the name of the owner or operator of the well, the name of the lease, the number of the well, and the location of the well by quarter-quarter section, township, and range. Each lease shall have a different and distinctive name, and the wells thereon shall be numbered in non-repetitive, logical sequence.

RULE 104. WELL SPACING

A. CLASSIFICATION OF WELLS

Any well, other than a geothermal observation well or a low-temperature thermal well, which is drilled a distance of one mile or more from (1) the outer boundary of any defined geothermal field and (2) any well which is within one of such field, shall be classified as an exploratory well, any such well shall be spaced, drilled, operated, and produced in accordance with the New Mexico Geothermal Rules and Regulations.

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Any well, other than a geothermal observation well or a low-temperature thermal well, which is not an exploratory well as defined above shall be classified as a development well, unless such well is being drilled for injection purposes, in which case it will be classified as an injection well.

Any well classified as a development well or an injection well for a given geothermal reservoir shall be drilled, operated, and produced in accordance with the New Mexico Geothermal Rules and Regulations unless special rules in conflict therewith have been promulgated for such reservoir, said special rules than being applicable.

B. ACREAGE AND WELL LOCATION REQUIREMENTS

(1) Exploration Wells

A well classified as an exploratory well shall be located on a lease or drilling parcel comprising at least 40 surface acres and shall be located at least 330 feet from the outer boundary of such lease or drilling parcel, and at least 660 feet from the nearest such other well drilling to or capable of producing from or injection into the same formation to which it is projected, and at least 100 feet from any public road, street, or highway dedicated prior to commencement of drilling.

(2) Development Wells

A well classified as a development well shall be located on a designated drilling tract comprising at least 10 surface acres (being a quarter-quarter-quarter section of the U. S. Public Land Surveys, or a projection thereof if on unsurveyed land or of an independent survey), and shall be located at least 165 feet from the outer boundary of the quarter-quarter-quarter section line, at least 330 feet from the nearest well drilling to or capable of production from or injection into the same geothermal reservoir to which it is projected and at least 100 feet from any public road, street, or highway dedicated prior to commencement of drilling.

(3) Injection Wells

Injection wells drilled for the purpose of injecting into a geothermal reservoir shall be located at least 330 feet from the outer boundary of the lease or drilling parcel and at least 100 feet from any public road, street, or highway dedicated prior to commencement of drilling.

(4) Geothermal Observation Wells and Low-Temperature Thermal Wells

There shall be no restriction as to the placement of geothermal observation wells or low-temperature thermal wells.

C. NON-STANDARD LOCATIONS

(1) The Secretary-Director of the Commission shall have the authority to grant an exception to the well location requirements of Rules B (1), (2), and (3) above without notice and hearing when such application is based upon topographical or geologic or engineering considerations.

(2) Applications for such administrative approval shall be filed in duplicate and shall be accompanied by a plat showing the ownership of surrounding lands (within a 1320-foot radius if application is for exception to Rule 104 B (1) Exploration Wells; within a 660-foot radius if application is for exception to Rule 104 B (2) Development Wells; within a 1320-foot radius if application is for exception to Rule 104 B (3) Injection Wells) and all drilling or completed wells thereon. If the proposed non-standard

location is based upon topography, the plat shall also show the existent topographical conditions. If it is based upon geologic or engineering considerations, the application shall be accompanied by a geologic or engineering analysis, explaining the necessity for the non-standard location.

(3) A copy of the application and accompanying plats and documents shall also be sent to the other owners, if any there be, within the above prescribed radii of the proposed non-standard location and the application shall state that such required copies have been so furnished. The Secretary-Director may approve the non-standard location upon receipt of waivers from the above other owners or if no such other owner has entered an objection to the non-standard location within 20 days after receipt of the application by the Commission. If such objection is received, the matter will be set for hearing if the applicant so desires. If the application is based upon geologic or engineering considerations and the Secretary-Director is not convinced of the necessity or desirability of such exception, he may require supplemental information to justify the exception, or set the matter for hearing if the applicant so desires.

D. OFFSETTING ACTION

Whenever an exception to the well location requirements is granted, the Commission after hearing may take such action as may be necessary to offset any advantage the person securing the exception may gain over other owners within the same geothermal reservoir.

E. SPECIAL ACREAGE AND WELL LOCATION

In order to prevent waste and protect correlative rights, the Commission may, after notice and hearing, adopt different well location requirements and greater or lesser acreage dedication requirements than those contained in Rules 104 B (1), (2), and (3) above for ~~geothermal wells~~ *a particular geothermal reservoir* and may adopt special well location and acreage dedication requirements for low-temperature thermal fields. *a particular*

RULE 105. ROTARY DRILLING AND CABLE TOOL DRILLING

Rotary drilling equipment, adequately equipped to contain high underground pressures and prevent or control blowouts shall be used for the drilling of all geothermal resources wells except temperature observation wells, low temperature thermal wells and disposal wells, none of which will penetrate any high pressure zone or formation, in which case cable tools may be used.

RULE 106. DRILLING MUD AND MUD PITS

In order to assure an adequate supply of drilling fluid to confine all natural fluids to their respective native strata and to prevent blowouts, each operator shall, prior to commencing drilling operations provide a pit of adequate size to hold such drilling fluid and to receive drill cuttings, *and* such pit shall be so constructed and maintained to prevent contaminants from overflowing on the surface of the ground and from entering any water course.

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RULE 107. SEALING OFF STRATA

(a) During the drilling of any geothermal or low-temperature thermal well, all fresh water strata and/or brackish or briny water strata overlying the geothermal resources strata shall be sealed or separated to prevent the migration of fluids from one stratum to the other.

(b) All fresh waters and waters of present or probable future value for domestic, commercial, agricultural or stock purposes shall be confined to their respective strata and shall be adequately protected by methods approved by the Commission. Special precautions by methods satisfactory to the Commission shall be taken to guard against loss of artesian water from the strata in which it occurs, and to prevent the contamination of such artesian water strata by any objectionable geothermal fluids. Sealing off of strata, and migration prevention shall ordinarily be accomplished by cementing casing.

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RULE 108. CASING AND CEMENTING REQUIREMENTS

A. All wells drilled for the production of geothermal resources, including low-temperature thermal wells, and all specialty wells, including injection and disposal wells, ~~and geothermal observation wells if they penetrate fresh water bearing strata~~, shall be cased and cemented in such a manner as to protect ^{usable} surface waters, if any, ^{and} ground waters, geothermal resources, life, health, and property. ~~Geothermal observation wells, if they penetrate fresh water bearing strata, shall be completed and plugged in such a manner as to protect surface waters, if any, and usable ground waters.~~

B. All casing strings reaching the surface shall provide adequate anchorage for blowout prevention equipment, hole pressure control, and protection for all natural resources. Although specifications for casing programs shall be determined on a well-to-well basis, the following general casing requirements should be used as guidelines in submitting Form G-101, Notice of Intention to Drill:

(1) Conductor Pipe. A minimum of 90 feet and a maximum of 150 feet. In special cases the Commission may allow conductor pipe to be run and cemented at deeper depths. Annular space is to be cemented solid to the surface. An annular blowout-preventer or equivalent approved by the Commission shall be installed on conductor pipe on exploratory wells and on development wells when deemed necessary by the Commission. Note: For low-temperature thermal wells the conductor pipe requirement may be reduced or waived by the Commission.

The above conductor pipe requirements are not meant to be applicable to the single or double joint of large diameter pipe often run to keep mud out of the cellar.

(2) Surface Casing. Except in the case of low-temperature thermal wells, the surface casing hole shall be logged with an induction electrical log, or equivalent, before running casing. Note: This requirement may vary from area to area, depending upon the amount of subsurface data available, and may not be required under certain conditions. Notice of intention to deviate from this rule should be noted on Form G-101 when applying for a drilling permit.

~~Surface casing~~ Surface casing shall provide for control of formation fluids, for protection of shallow usable ground water and for adequate anchorage for blowout-prevention equipment. All surface casing shall be, if possible, cemented solid to the surface.

(a) Length of Surface Casing.

(1) In areas where subsurface geological conditions are variable or unknown, surface casing in general shall be set at a ^{the} depth equaling or exceeding 10 percent of the proposed total depth of well ~~drilled in such areas~~. A minimum of 200 feet and a maximum of 1,300 feet of surface casing shall be set.

(2) In areas of known high formation pressure, surface casing shall be set at a depth determined by the Commission after a careful study of geological conditions. The Commission will make such a determination within 30 days. Drilling shall not commence until such determination has been made.

(3) Within the confines of designated geothermal fields, the depth at which surface casing shall be set shall be determined by the Commission on the basis of known field conditions. Requirements (1) ~~and~~ (2) ~~and~~ (3) above may be waived for low-temperature thermal wells.

(b) Cementing Point for Surface Casing.

(1) In areas where subsurface geological conditions are variable or unknown, surface casing shall be set in accordance with (a) (1) above and through a sufficient series of low permeability, competent lithologic units (such as claystone or siltstone) to ensure a solid anchor for blowout-prevention equipment and to protect ~~usable~~ ^{usable} ground water and surface water from contamination. A second string of surface casing may be required if the first string has not been cemented through a sufficient series of low permeability, competent lithologic units and either a rapidly increasing thermal gradient or rapidly increasing formation pressures are encountered.

(2) In areas of known high formation pressure, surface casing shall be set in accordance with (a) (2) above and through a sufficient series of low permeability, competent lithologic units (such as claystone, siltstone, or basalt) to ensure a solid anchor for blowout-prevention equipment and to protect ~~usable~~ ^{usable} ground water from contamination. A second string of surface casing may be required, before drilling into the known high pressure zone is permitted, if the first string of surface casing has not been cemented through a sufficient series of low-permeability, competent lithologic units ^{and surface water} and either a rapidly increasing thermal gradient or rapidly increasing formation pressures are encountered.

(3) Within the confines of designated geothermal fields, cementing point shall be determined by the Commission on the basis of known field conditions. Requirements (1) ~~and~~ (2) ~~and~~ (3) above may be waived for low-temperature thermal wells.

(c) Mud Return Temperatures. The temperatures of the return 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 working condition, or the temperature shall be read manually. In either case, return mud temperatures shall be entered into the log book after each joint of pipe has been drilled down about 30 feet.

→ formation pressures are encountered -

Section H

(d) Blowout-Prevention Equipment (BOPE). BOPE capable of shutting-in the well during any operation shall be installed on the surface casing and maintained ready for use at all times (see ~~Article 4~~). BOPE pressure tests may be witnessed by a Commission representative on all wells prior to drilling out the shoe of the surface casing. The decision to witness BOPE pressure tests on all wells shall be made on a well-to-well basis. In any case, a Commission representative must be contacted well in advance of a scheduled pressure test to allow time for the representative to travel to the well to witness the test.

(3) 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 shall be, if possible, cemented solid to the surface. This requirement (to circulate cement) may be waived if the production casing will be cemented to the surface.

(4) Production Casing. Production casing may be set above or through the producing or injection zone and cemented above the objective zones. Sufficient cement shall be used to exclude overlying formation fluids from the zone, to segregate zones and to prevent movement of fluids behind the casing into zones that contain usable ground water. Production casing shall either be cemented solid to the surface or lapped into intermediate casing, if run. If the production casing is lapped into an intermediate string, the casing overlap shall be at least 50 feet, the lap shall be cemented solid, and it shall be pressure tested to ensure its integrity.

In order to reduce casing corrosion, production casing used to produce corrosive brine reservoirs shall be of the same nominal inside diameter from the shoe of the casing to the ground surface.

(5) Defective Casing or Cementing. If the casing or cementing of casing in any well appears to be defective or corroded or parted or if there appears to be any underground leakage from whatever other cause, which may cause or permit underground waste, the operator shall proceed with diligence to use the appropriate method or methods to eliminate such hazard. If such hazard of waste cannot be eliminated, the well shall be plugged and abandoned in accordance with a Commission-approved plugging program.

(6) Electric Logging. All wells, except observation wells and low-temperature thermal wells, shall be logged with an induction electrical log, or equivalent, from total depth to the bottom of the conductor pipe, except in the case where air is used as the drilling medium. This requirement may be waived by the Commission and may vary depending on geologic conditions.

RULE 109. DEVIATION TESTS AND DIRECTIONAL DRILLING

Any well which is deepened or drilled with rotary tools shall be tested at reasonably frequent intervals to determine the deviation from the vertical. Such tests shall be made at least each 500 feet or at the first bit change succeeding 500 feet. A tabulation of all deviation tests, sworn to and notarized, shall be filed with Form G-105, Certificate and Compliance and Authorization to Produce Geothermal Resources. When the deviation averages more than five degrees, in any 500 foot interval, the Secretary-Director of the Commission may require that a directional survey be run to establish

the location of the producing interval(s).

The Secretary-Director of the Commission, at the request of an offset operator, may require any operator to make a directional survey of any well. Said directional survey and all associated costs shall be at the expense of the requesting party and shall be secured in advance by a \$5,000.00 indemnity bond posted with and approved by the Commission. The requesting party may designate the well survey company, and said survey shall be witnessed by a representative of the Commission.

No well shall be intentionally deviated except toward the vertical without prior permission from the Commission. Permission to deviate a well other than toward the vertical shall be obtained on Commission Form G-103 with copies of said Form G-103 being furnished to all other operators owning leases offsetting the drilling tract, if any there be. Upon request of the Secretary-Director of the Commission, any well which was intentionally deviated shall be directionally surveyed. The Commission may at its option witness such survey and the Santa Fe Office shall be notified of the appropriate time all directional surveys are to be conducted. All directional surveys run on any well which was intentionally deviated in any manner for any reason must be filed with the Commission upon completion of the well. Form G-104, Certificate of Compliance and Authorization to Produce Geothermal Resources, will not be approved until the operator has submitted an affidavit that all such directional surveys have been filed.

RULE 110. SHOOTING AND CHEMICAL TREATMENT OF WELLS

If injury results to the producing formation, casing, or casing seat from shooting or treating a well, the operator thereof shall proceed with diligence to use the appropriate method and means for rectifying such damage. If shooting or chemical treating results in irreparable injury to the well the Commission may require the operator to properly plug and abandon the well.

RULE 111. RIGHT OF ENTRY

The Commission or its duly authorized representatives shall have the right of entry onto any geothermal resources lease for the purpose of inspecting wells and equipment, and for the purpose of determining whether compliance with or violation of these rules is occurring.

RULE 112. NOISE ABATEMENT

Adequate noise abatement equipment shall be installed and maintained in good condition to reduce noise to a level approved by the Commission or its representative on any drilling or producing geothermal resources well located within 1500 feet of a habitation, school, or church.

RULE 113. SAFETY REGULATIONS

The well site around any drilling or producing well shall be kept clear of any rubbish or debris or fuel which may constitute a fire hazard. In any area where there is any likelihood of encountering unexpected hydrocarbons, the drilling mud and cuttings shall be stored in a pit a safe distance from the drilling rig. All waste shall be burned or disposed of in such a manner as to avoid creating a fire hazard.

RULE 114. WELL HEADS AND PRODUCTION EQUIPMENT

Well heads and all fittings appurtenant thereto shall be installed and maintained in first class condition so that all necessary pressure tests may be easily made on flowing wells. The well head and related parts and fittings shall have a test pressure equivalent to at least 150 percent of the calculated or known pressure in the reservoir from which production is expected.

Valves shall be installed and maintained in good order to permit pressures to be obtained on the production casing and the annulus between the casing strings.

Flow lines shall be of adequate pressure rating and capacity and shall be sufficiently equipped with expansion bends to prevent leakage or rupture.

All separators, pumps, mufflers, manifolds, flowlines, and other equipment used for the production of geothermal resources shall be of adequate pressure rating and capacity and shall be maintained in good condition in order to prevent loss of or damage to human life and health or to property or natural resources.

RULE 115. CORROSION

All well head equipment, surface production equipment, flowlines and pipelines, and subsurface casing and tubing shall be subject to periodic surveillance to prevent leakage or rupture and to safeguard life, health, property, and natural resources.

RULE 116. DISPOSAL OF PRODUCED WATERS

The disposal of highly mineralized waters produced from geothermal resources wells shall be in such a manner as to not constitute a hazard to fresh surface waters or underground supplies of fresh water.

RULE 117. NOTIFICATION OF FIRE, BREAKS, LEAKS, SPILLS, AND BLOWOUTS

The Commission shall be notified of any fire, break, leak, spill, or blowout occurring at any geothermal drilling, producing, transporting, treating, *disposal*,

disposal or injection well, or
or utilization facility in the State of New Mexico by the person operating or controlling such facility.

"Facility", for the purpose of this rule, shall include any geothermal drilling or producing well; any pipeline through which geothermal resources or the waste products thereof are gathered or transported; any receiving tank into which geothermal waters or wastes are produced, received, or stored; any treating plant in which geothermal resources are treated or processed; any electrical generating plant in which geothermal resources are utilized; and any drilling pit, slush pit, or storage pit or pond associated with geothermal drilling, producing, treating, or utilization processes in which hydrocarbons or hydrocarbon waste or residue, salt water, strong caustics or acids, or other deleterious chemicals or harmful substances are present.

Notification to the Commission of such fire, break leak spill or blowout shall be in accordance with the provisions set forth below:

(1) Well Blowouts. Notification of well blowouts and/or fires shall be "immediate notification" described below.

well heads,
(2) "Major" Breaks, Spills, or Leaks. Notification of breaks, spills, or leaks of pipelines, tanks, or drilling pits, slush pits, or storage pits or ponds, the result of which 50 barrels or more of liquids containing hydrocarbons or hydrocarbon wastes, salt water, strong caustics or strong acids, or other deleterious substances reach a water course or enter a stream or lake, or in which noxious gases escape or any quantity of fluids are lost which may with reasonable probability endanger human health or result in substantial damage to property, shall be "immediate notification" described below.

well heads,
(3) "Minor" Breaks, Spills, or Leaks. Notification of breaks, spills, or leaks of pipelines, tanks, or drilling pits, slush pits, or storage pits or ponds, the result of which 25 barrels or more but less than 50 barrels of liquids containing hydrocarbons or hydrocarbon wastes, salt water, strong caustics or strong acids, or other deleterious substances are lost or in which noxious gases escape, but in which there is no danger to human health nor of substantial damage to property shall be "subsequent notice" described below.

or
(4) Fires. Notification of fires at geothermal installations in which there is reasonable probability of danger to human health or substantial damage to adjoining properties/substantial loss of geothermal resources shall be "immediate notice" described below. Notification of fires of lesser magnitude but of \$500.00 or more of property damage or \$500.00 or more of geothermal resources loss shall be "subsequent notice" described below.

IMMEDIATE NOTIFICATION - "Immediate Notification" shall be as soon as possible after discovery and shall be in person or by telephone to the Santa Fe office or the nearest district office of the Commission if the incident occurs during business hours. If the incident occurs after business hours, notification shall be in accordance with the latest Commission memorandum on the subject. A complete written report of the incident shall be submitted to the Santa Fe office of the Commission within ten days after discovery of the incident.

SUBSEQUENT NOTIFICATION - "Subsequent Notification" shall be a complete written report of the incident and shall be submitted to the Santa Fe office of the Commission within ten days after discovery of the incident.

CONTENT OF NOTIFICATION - All reports of fires, breaks, spills, leaks, or blowouts, whether verbal or written, shall identify the location of the incident by quarter-quarter, section, township, and range, and by distance and direction from the nearest town or prominent landmark so that the exact site of the incident can be readily located on the ground. The report shall specify the nature and quantity of the loss and also the general conditions prevailing in the area, including precipitation, temperature, and soil conditions. The report shall also detail the measures that have been taken and are being taken to remedy the situation reported.

WATERCOURSE, for the purpose of this rule, is defined as any lake-bed or gully, draw, stream bed, wash, arroyo, or natural or man-made channel through which water flows or has flowed.

RULE 118. MEASUREMENT OF PRODUCTION

All production from a completed geothermal resources well shall be accounted for by continuous metering or by other method approved by the Commission.

RULE 119. UTILIZATION OF GEOTHERMAL RESOURCES

After the completion of a geothermal resources well, all production from said well shall be put to beneficial use. No production shall be permitted unless beneficial use is made thereof except for limited periods of testing, in which case ~~prior~~ disposition of produced liquids shall be made.

proper

D - RECORDS AND REPORTS

RULE 200. GENERAL

A. Books and Records

All producers, transporters, purchasers or utilizers of geothermal resources within the State of New Mexico shall make and keep appropriate books and records for a period of not less than five years, covering their operations in this state, from which they may be able to substantiate the reports required by these rules.

B. Well Records

The owner or operator of any geothermal resources well shall keep, or cause to be kept, a careful and accurate well log, core record, and history of the drilling of any such well, including the lithologic characteristics and depths of formations encountered, ~~the~~ depths, pressures, and temperatures of water ^{deviation and} bearing and steam ~~bearing~~ strata, the temperatures, chemical compositions and physical characteristics of fluids encountered, and electrical logs, directional surveys, physical or chemical logs, tests, including potential tests, and surveys, including temperature surveys.

These data shall be kept in the local New Mexico office of the owner or operator of the well or in the office of his statutory agent in New Mexico and shall be subject to inspection, during normal business hours, by the Commission or its representatives, and by the State Engineer or his representatives.

C. Where to File Reports

All forms and reports required by these rules shall be filed with the New Mexico Oil Conservation Commission, Geothermal ^{Division} ~~Department~~, Post Office Box 2088, Santa Fe, New Mexico 87501.

D. Additional Data

These rules shall not be construed to limit or restrict the authority of the Commission to require the furnishing of such additional reports, data, or other information relative to the production, transportation, or utilization of geothermal resources in the State of New Mexico as may appear to be necessary or desirable, either generally or specifically, for the prevention of waste and the conservation of natural resources of the State of New Mexico.

RULE 201. APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK-GEOTHERMAL RESOURCES WELL (FORM G-101)

Before commencement of drilling or deepening operations of any geothermal exploratory, development, temperature observation, injection, or disposal well, or low temperature thermal well, or before plugging a well back to another zone, the operator of the well shall obtain a permit to do so. To obtain such a permit

Four copies one for OCC SF
one for operator
one for NMBM
one for USGS

the operator shall submit to the Commission FOUR copies of Form G-101, Application for Permit to Drill, Deepen or Plug Back-Geothermal Resources Well, completely filled in. If the operator has an approved bond in accordance with Rule 101 and the proposed well meets the spacing and well location requirements (Rule 104), one copy of the Drilling Permit will be returned to him on which will be noted the Commission's approval, with any modification deemed advisable. If the proposal cannot be approved for any reason, the Forms G-101 will be returned with the cause for rejection stated thereon.

Each copy of Form G-101 must be accompanied by one copy of Form G-102, Geothermal Resources Well Location and Acreage Dedication Plat. (See Rule 202.)

If the well is to be drilled on state land, FIVE copies of Forms G-101 and G-102 shall be submitted, the extra copy being for the State Land Office.

RULE 202. GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT.
(FORM G-102)

Form G-102 is a dual purpose form used to show the exact location of the well and the acreage dedicated thereto. The form is also used to show the ownership and status of each lease contained within the dedicated acreage. When there is more than one working interest or royalty owner on a given lease, designation of the majority owner et al. will be sufficient.

Del SE.
All information required on Form G-102 shall be filled in and certified by the operator of the well except the well location on the plat. This is to be plotted from the outer boundaries of the section and certified by a registered professional engineer and/or land surveyor, registered in the State of New Mexico, or a surveyor approved by the Commission.

? *↗*
Form G-102 shall be submitted in QUADRUPLICATE or QUINTUPLICATE as provided in Rule 201.

Amended Form G-102 (in QUADRUPLICATE or QUINTUPLICATE) shall be filed in the event there is a change in any of the information previously submitted. The well location need not be certified when filing amended Form G-102.

RULE 203. SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS (FORM G-103)

Form G-103 is a dual purpose form to be filed with the Santa Fe office of the Commission to obtain Commission approval prior to commencing certain operations and also to report various completed operations.

A. Form G-103 as a Notice of Intention

en Form G-103 shall be filed in DUPLICATE by the operator and approval obtained from the Commission prior to:

441(4) Effecting a change of plans from those previously approved on Form G-101 or Form G-103.

no change

OK (4)(2) Altering a drilling well's casing program or pulling casing or otherwise altering an existing well's casing installation.

OK (4)(3) Temporarily abandoning a well (See Rule 303 B).

OK (4)(4) Plugging and abandoning a well (See Rules 302 and 303 A).

OK (4)(5) Performing remedial work on a well which, when completed, will affect the original status of the well. (This shall include making new perforations in existing wells or squeezing old perforations in existing wells, but is not applicable to new wells in the process of being completed nor to old wells being deepened or plugged back to another zone when such recompletion has been authorized by an approved Form G-101, Application for Permit to Drill, Deepen, or Plug Back, nor to acidizing, fracturing, or cleaning out previously completed wells.)

~~In the case of well plugging operations, the Notice of Intention shall include a detailed statement of the proposed work, including plans for shooting and pulling casing, plans for mudding, including weight of mud, plans for cementing, including number of sacks of cement and depths of plugs, and the time and date of the proposed plugging operations. If not previously filed, a complete log of the well on Form G-105 (see Rule 205) shall accompany the Notice of Intention to plug the well; the bond will not be released until this is complied with. (See Rule 302).~~

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

OK (4)(1) Commencement of drilling operations

OK (4)(2) Casing and cement test

OK (4)(3) Altering a well's casing installation

OK (4)(4) Temporary abandonment

OK (4)(5) Plug and Abandonment

OK (4)(6) Plugging back or deepening

OK (4)(7) Remedial work

OK (4)(8) Change in ownership of a drilling well

OK (4)(9) Such other operations which affect the original status of the well but which are not specifically covered herein

no change

(C) ~~(2)~~ Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form G-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

(2) Report of Results of Test of Casing and Cement Job;
Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 106 or Rule 107. The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

(3) Report of Temporary Abandonment

A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in TRIPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and any other pertinent information relative to the overall status of the well.

(4) Report on Plugging of Well

A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, and any other pertinent information. (See Rules 301-303 regarding plugging operations.)

No plugging report will be approved by the Commission until the pits have been filled and the location levelled and cleared of junk. It shall be the responsibility of the operator to contact the Santa Fe office of the Commission when the location has been so restored in order to arrange for an inspection of the plugged well and the location by a Commission representative.

(5) Report of Remedial Work

A report of remedial work performed on a producing well or former producing well shall be filed by the operator of the well within 30 days following

completion of such work. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed account of the work done and the manner in which such work was performed; the daily production from the well both prior to and after the remedial operation; the size and depth of shots; the quantity of sand, acid, chemical or other materials employed in the operation, and any other pertinent information. Among the remedial work to be reported on Form G-103 are the following:

- (a) Report on shooting, fluid fracturing or chemical treatment of a previously completed well
- (b) Report on squeeze job
- (c) Report on setting of liner or packer
- (d) Report of any other remedial operations which are not specifically covered herein
- (e) Report on Deepening or Plugging Back

A report of deepening or plugging back shall be filed by the operator of the well within 30 days following completion of such operations on any well. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed account of the work done and the manner in which such work was performed. Form G-103 shall also report the daily production from the well both prior to and after recompletion.

(7) Report of Change in Ownership of a Drilling Well

A report of change of ownership shall be filed by the new owner of any drilling well within ten days following actual transfer of ownership. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the name and address of both the new owner and the previous owner, the effective date of the change of ownership, and any other pertinent information. No change in the ownership of a drilling well will be approved by the Commission unless the new owner has an approved bond in accordance with Rule 101. (Form G-104 shall be used to report transfer of ownership of a completed well; see Rule 204.)

(8) Other Reports on Wells

Reports on any other operations which affect the original status of the well but which are not specifically covered herein shall be submitted to the Commission on Form G-103, in DUPLICATE, by the operator of the well within ten days following the completion of such operation.

RULE 204. CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO PRODUCE GEOTHERMAL RESOURCES (FORM G-104)

Prior to placing any geothermal resources well on production or injection, the owner or operator of said well shall file (in *Quintuplicate* ~~QUADRUPLICATE~~) with the Commission and receive approval thereof Form G-104, Certificate of Compliance and Authorization to Produce Geothermal Resources, outlining thereon the

Information required and certifying that all Commission Rules and Regulations pertaining to the well have been complied with. Production of or Injection into any well in violation of this rule shall result in the well being shut in by the Commission subject to the penalties provided by law for violation of the Commission's Rules, Orders, and Regulations. (In addition to Form G-104 being approved, additional approval for injection or disposal must be obtained pursuant to Rules 501-505.) Forms G-104 must be accompanied by two copies of Form G-105, Geothermal Resources Well Log (see Rule 205) outlining the data required and with the attachments required by Rule 205, two copies of Form G-106, Geothermal Resources Well Summary Report (See Rule 206) completely filled in and two copies of Form G-107, Geothermal Resources Well History (See Rule 207) completely filled in.

After approval of Form G-104, distribution of Forms G-104, G-105, G-106 and G-107 shall be made by the Commission as follows:

- (1) one approved copy of Form G-104 shall be returned to the operator;
- (2) one approved copy of Form G-104 shall be forwarded to the purchaser from the well;
- (3) one approved copy of Form G-104 and one copy each of Forms G-105, G-106, and G-107 shall be forwarded to the New Mexico Bureau of Mines; and
- (4) one approved copy of Form G-104 and one copy each of Forms G-105, G-106, and G-107 shall be retained by the Commission

RULE 205. GEOTHERMAL RESOURCES WELL LOG (FORM G-105)

A. For Producing Wells

Form G-105, Geothermal Resources Well Log, shall be filed in ~~DUPLICATE~~ ^{or Injection} with the Form G-104 when it is desired to put any geothermal resources well on production. It shall be accompanied by copies of electric logs, directional surveys, physical or chemical logs, water analyses, tests, including potential tests and temperature surveys. Failure to include these data and materials with the Form G-105 will result in withholding approval of the Form G-104, Certificate of Compliance and Authorization to Produce Geothermal Resources. Distribution of Form G-105 for producing wells shall be one copy to the New Mexico Bureau of Mines and one copy retained by the Commission.

B. For ~~Non-Producing~~ ^{Inactive} or Temporarily Abandoned Wells

Form G-105, Geothermal Resources Well Log, shall be filed in ~~DUPLICATE~~ ^{active or injection} for every geothermal resources well not on producing status within six months after cessation of active drilling operations on the well unless a permit for temporary abandonment shall have been approved for the well in accordance with

Form G-104 shall also be filed ^{in QUADRUPPLICATE} when there is a change in purchaser from a well or when there is a change of ownership of a well other than a drilling well. No change of ownership will be approved if the Commission unless the new owner has a signed bond in accordance

inactive

Rule 303 B. In no event, even in the case of prolonged temporary abandonment approved by the Commission, shall the filing of Form G-105 be delayed for more than five years after cessation of active drilling operations. Distribution of Form G-105 for ~~non-producing~~ or temporarily abandoned wells shall be one copy to the New Mexico Bureau of Mines and one copy retained by the Commission.

C. For Plugged and Abandoned Wells. ^{in duplicate}
~~Form G-105, Geothermal Log, shall be filed for plugged and abandoned wells within one year after~~
RULE 206. GEOTHERMAL RESOURCES WELL SUMMARY REPORT (FORM G-106)

A. For Producing Wells

^{or injection}
Form G-106, Geothermal Resources Well Summary Report, completely filled in, shall be filed in ~~duplicate~~ ^{or injection OK} with the Form G-104 when it is desired to put any geothermal resources well on production. Failure to file a completed Form G-106 will result in withholding approval of the Form G-104, Certificate of Compliance and Authorization to Produce Geothermal Resources. Distribution of Form G-106 for producing wells shall be one copy to the New Mexico Bureau of Mines and one copy retained by the Commission.

^{inactive}
B. For ~~Non-Producing~~ or Temporarily Abandoned Wells

^{active}
Form G-106, Geothermal Resources Well Summary Report, shall be filed in ^{or injection} DUPLICATE for every geothermal resources well not on producing status within 90 days after cessation of active drilling operations. The owner or operator of the well shall state on the form the general results of the well's condition, i.e., whether the well is capable of production of geothermal resources and will be retained for such purpose, whether the well will be used for injection or disposal purposes, whether the well has been or will be plugged and abandoned, or what other disposition of the well is to be made. A summary of the well's casing and cementing program shall be shown on the form, and in case the well is to be retained for production, injection, or disposal purposes, the total mass flow in pounds per hour, flowing temperature in degrees Fahrenheit, and flowing pressure in pounds per square inch gauge. Distribution of Form G-106 for ~~non-producing~~ ^{inactive or temporarily abandoned} wells shall be one copy to the New Mexico Bureau of Mines and one copy retained by the Commission. If Form G-106 is filed for ^{active} ~~an inactive~~ ^{or injection} ~~non-producing~~ or temporarily abandoned well, and the well later goes on production, ^{active} ~~refiling~~ ^{or injection} of Form G-106 in accordance with Rule 206-A above is required.

C. For P & A Wells

RULE 207. GEOTHERMAL RESOURCES WELL HISTORY (FORM G-107)

^{or injection}
A. For Producing Wells

^{or injection}
Form G-107, Geothermal Resources Well History, is a chronological history of the entire operation of drilling and completing the well, and shall be filed in DUPLICATE with the Form G-104 when it is desired to put any geothermal resources well on production. Failure to file a complete Form G-107 will result in withholding approval of Form G-104, Certificate of Compliance and Authorization to Produce Geothermal Resources. Distribution of Form G-107 for producing wells shall be one copy to the New Mexico Bureau of Mines and one copy retained by the Commission.

with Rule 101. The former owner of the well, to obtain release of his bond, shall follow the ^{report} ~~procedures~~ set forth in Rule 101(b). (Form C-103 shall be used to ^{transfer} ~~transfer~~ of ownership of a drilling well; See Rule 203 ~~B~~ (7)).

Inactive
B. For ~~Non-Producing~~ or Temporarily Abandoned Wells

Form G-107, Geothermal Resources Well ^{active or injection} History shall be filed in DUPLICATE for every geothermal resources well not on ^{active or injection} producing status within six months after cessation of active drilling operations on the well unless a permit for temporary abandonment shall have been approved for the well in accordance with Rule 303-B. In no event, even in the case of prolonged temporary abandonment approved by the Commission, shall the filing of Form G-107 be delayed for more than five years after cessation of active drilling operations. Distribution of Form G-107 for ~~non-producing~~ ^{inactive} or temporarily abandoned wells shall be one copy to the New Mexico Bureau of Mines and one copy retained by the Commission.

C. For P & A Wells

RULE 208. MONTHLY GEOTHERMAL PRODUCTION REPORT (FORM G-108)

G-108

After placing any geothermal well on production, the owner or operator thereof shall file in DUPLICATE a monthly production report, Form ~~G-115~~ ^{G-108}, which report shall be due in the Santa Fe office of the Commission by the 20th day of each month and shall show the production from each well and each lease during the preceding calendar month.

RULE 209. MONTHLY GEOTHERMAL PURCHASER'S REPORT (FORM G-109)

The purchaser of production from any geothermal resource shall file in DUPLICATE a monthly purchaser's report, Form G-109, which report shall be due in the Santa Fe office of the Commission by the 15th day of each month and shall show the purchases made from all leases and wells connected to the purchaser's facilities during the preceding calendar month.

RULE 210. MONTHLY GEOTHERMAL INJECTION REPORT (FORM G-110)

After placing any well on injection or disposal in a geothermal resources field or area, the owner or operator thereof shall file in DUPLICATE a monthly injection report, Form G-110, which report shall be due in the Santa Fe office of the Commission by the 20th day of each month and show the zone or formation into which injection is being made, the volume injected, the average temperature of the injected fluid, and the average injection pressure at the well head.

RULE 211. ANNUAL GEOTHERMAL TEMPERATURE AND PRESSURE TESTS (FORM G-111)

Annual temperature and pressure tests shall be submitted by the owner or operator of each geothermal resources producing well in accordance with the annual testing schedule published by the Commission. Flowing temperatures and flowing pressure tests at the wellhead shall be recorded after at least 72 hours of continuous flow at normal producing rates. The well shall then be shut in for 24 hours and shut-in pressure at the wellhead recorded. Results of these tests shall be submitted in DUPLICATE to the Santa Fe office of the Commission.

RULE 212. APPLICATION TO PLACE WELL ON INJECTION-GEOTHERMAL RESOURCES AREA
(FORM G-112)

Before ^{charge,} placing any well on injection in a geothermal resources area, whether for recharge, or disposal purposes, authority to do so shall be obtained on Form G-112 which shall be filed in accordance with Rule 503.

resources, or the leakage of any substance at the surface, all as substantiated by Form G-105, Geothermal Well Log, and Form G-106, Geothermal Well Summary and Report, unless a representative of the Commission has had access to and has inspected the data and materials described in Rule 200B.

E - ABANDONMENT, TEMPORARY ABANDONMENT,
AND PLUGGING OF WELLS

RULE 301. LIABILITY

The owner of any well drilled for geothermal exploration or production, or temperature observation, or any seismic, core, or other ~~exploratory~~ hole shall be responsible for the plugging thereof.

drilled for geothermal purposes

RULE 302. NOTICE

Notice of Intention to Plug must be filed with the Commission and approval obtained by the owner or his agent prior to the commencement of plugging operations on Form G-103, Sundry Notices and Reports on Geothermal Wells, which notice shall outline the casing and cementing program of the well, the casing which is to be pulled, the size of proposed cement plugs and their depth, and such other information as may be pertinent. In the case of newly completed ~~dry holes~~ wells which are to be plugged, ~~upon verbal submission of adequate data to the Commission's Santa Fe office, verbal authority and instructions may be given to plug the well.~~ Subsequent written notice and approval shall be required upon submission of the data required by Rule 202 B(1) or Rule 202 B(2) or the filing of Commission Form G-105 (see Rule 202 B and Rule 303 below). ~~See Rule 203 A; also Rule 203 B(4) and Rule 303 A~~

be filed in accordance with Rule 203 A and shall

RULE 303. PLUGGING AND TEMPORARY ABANDONMENT

A. Plugging

Before any well is abandoned, it shall be plugged in a manner that will permanently confine all fluids in the separate strata originally containing them. This operation shall be accomplished by the use of mud-laden fluid, cement, and plugs, used singly or in combination, as may be approved by the Commission. In addition, an adequate cement plug at the surface shall be installed to permanently prevent intrusion of any substance into the well. The exact location of abandoned wells shall be shown by a steel marker at least four inches in diameter set in concrete and extending at least four feet above mean ground level. The name and number of the well and its location (quarter-quarter, section, township and range) shall be welded, stamped, or otherwise permanently engraved into the metal of the marker. Seismic, core, temperature observation, or other exploratory wells drilled to or below fresh water sands shall be plugged in accordance with the applicable provisions recited above. Permanent markers shall not be required on wells not penetrating fresh water.

S.F.

B. TEMPORARY ABANDONMENT

No well shall be temporarily abandoned for a period in excess of six months unless a permit for such temporary abandonment has been approved by the Commission. Such permit shall be for a period not to exceed six months and shall be requested from the Santa Fe office of the Commission by filing Form G-103 in duplicate.

provided written notice to plug shall subsequently be filed within 30 days and approval thereof obtained. Written approval or verbal approval of a plugging program shall be contingent upon evidence being furnished that the plugging program for the well is such as to prevent damage to any producing zone, migration of fluids from one zone to another, the contamination of fresh water or other natural

E-1

No such permit shall be approved unless evidence is furnished that the condition of the well is such as to prevent damage to the producing zone, migration of fluids from one zone to another, the contamination of fresh water or other natural resources, or the leakage of any substance at the surface, as substantiated by Form G-106, Geothermal Well Summary and Report, and Form G-105, Geothermal Well Log, unless a representative of the Commission has had access to and has inspected the data and materials described in Rule ~~201 A.~~ ^{200 B}

The Santa Fe office of the Commission shall have authority to grant one extension to the permit for temporary abandonment. Such extension shall not exceed one year and shall be requested in the same manner as the original permit for temporary abandonment. No extension shall be approved unless good cause therefor is shown, and evidence is furnished that the continued condition of the well is as described above.

Upon expiration of the permit for temporary abandonment and any extension thereto, the well shall be put to beneficial use or shall be permanently plugged and abandoned, unless it can be shown to the Commission after notice and hearing that good cause exists why the well should not be plugged and abandoned, and a permit for further temporary abandonment should be issued. No such permit for further temporary abandonment shall be approved by the Commission unless a one-well plugging bond for the well, in an amount satisfactory to the Commission, but not to exceed \$10,000.00, is on file with the Commission to ensure future plugging of the well.

Clarify that this permit will be for 5 yrs to be compatible w/ the 5-yr rule for filing info.
The requirements of the paragraph immediately above may be waived and additional extensions granted in those cases where it can be shown that a contract exists for the construction of electric power plants and such plants are being designed, on order, or under construction.

C. DRILLING WELLS

When drilling operations on a well have been suspended for 60 days, the well shall be plugged and abandoned unless a permit for temporary abandonment has been obtained for the well in accordance with Section B above.

RULE 304. WELLS TO BE USED FOR FRESH WATER

When the well to be plugged may safely be used as a fresh water well and such utilization is desired by the land owner, the well need not be filled above a sealing plug set below the fresh water formation, provided that written agreement for such use by the owner of the well and by the land owner is filed with the Commission. *See Rule 101 for release of bond*

E - ABANDONMENT, TEMPORARY ABANDONMENT,
AND PLUGGING OF WELLS

RULE 301. LIABILITY

The owner of any well drilled for geothermal exploration or production, or temperature observation, or any seismic, core, or other exploratory hole shall be responsible for the plugging thereof.

drilled for geothermal purposes

RULE 302. NOTICE

Notice of Intention to Plug must be filed with the Commission and approval obtained by the owner or his agent prior to the commencement of plugging operations on Form G-103, Sundry Notices and Reports on Geothermal Wells, which notice shall outline the casing and cementing program of the well, the casing which is to be pulled, the size of proposed cement plugs and their depth, and such other information as may be pertinent. ~~In the case of newly completed dry holes which are to be plugged, upon verbal submission of adequate data to the Commission's Santa Fe office, verbal authority and instructions may be given to plug the well. Subsequent written notice and approval shall be required upon submission of the data required by Rule 202 B(1) or Rule 202 B(2) or the filing of Commission Form G-105 (see Rule 202 D and Rule 303 below).~~

(be filed in accordance with Rule 203 A and shall)

RULE 303. PLUGGING AND TEMPORARY ABANDONMENT

A. Plugging

Before any well is abandoned, it shall be plugged in a manner that will permanently confine all fluids in the separate strata originally containing them. This operation shall be accomplished by the use of mud-laden fluid, cement, and plugs, used singly or in combination, as may be approved by the Commission. In addition, an adequate cement plug at the surface shall be installed to permanently prevent intrusion of any substance into the well. The exact location of abandoned wells shall be shown by a steel marker at least four inches in diameter set in concrete and extending at least four feet above mean ground level. The name and number of the well and its location (quarter-quarter, section, township and range) shall be welded, stamped, or otherwise permanently engraved into the metal of the marker. Seismic, core, temperature observation, or other exploratory wells drilled to or below fresh water sands shall be plugged in accordance with the applicable provisions recited above. Permanent markers shall not be required on wells not penetrating fresh water.

B. TEMPORARY ABANDONMENT

No well shall be temporarily abandoned for a period in excess of six months unless a permit for such temporary abandonment has been approved by the Commission. Such permit shall be for a period not to exceed six months and shall be requested from the Santa Fe office of the Commission by filing Form G-103 in duplicate.

DEC E-1

F - PURCHASE OF GEOTHERMAL RESOURCES

RULE 401. ILLEGAL SALE PROHIBITED

The sale or purchase or acquisition, or the transporting or utilization of geothermal resources produced in violation of the laws of this state, or of these rules, is prohibited.

RULE 402. RATABLE TAKE

Any person now or hereafter engaged in purchasing geothermal resources from one or more producers within a single geothermal reservoir shall be a common purchaser within that geothermal reservoir, and shall purchase geothermal resources of like quality, quantity, and pressure lawfully produced from that geothermal reservoir and tendered to such common purchaser at a reasonable point. Such purchase shall be made without unreasonable discrimination in favor of one producer against another in the price paid, quantities taken, the bases of measurement, or the facilities offered.

In the event such purchaser is also a producer, he is prohibited to the same extent from discriminating in favor of himself on geothermal resource wells in which he has an interest, direct or indirect, as against other geothermal resource wells in the same geothermal reservoir.

For the purposes of this rule, reasonable differences in prices paid or facilities afforded, or both, shall not constitute unreasonable discrimination if such differences bear a fair relationship to difference in quality, quantity, or pressure of the geothermal resource available or to the relative lengths of time during which such geothermal resources will be available to the purchaser.

Any common purchaser taking geothermal resources produced from wells within a geothermal reservoir shall take ratably under such rules, regulations, and orders, concerning quantity, as may be promulgated by the Commission after due notice and public hearing. The Commission, in promulgating such rules, regulations, and orders may consider the quality and the quantity of the geothermal resources available, the pressure and temperature of the product at the point of delivery, acreage attributable to the well, market requirements, and other pertinent factors.

Nothing in this rule shall be construed or applied to require, directly or indirectly, any person to purchase geothermal resources of a quality or under a pressure or under any other condition by reason of which such geothermal resource cannot be economically and satisfactorily used by such purchaser by means of his geothermal utilization facilities then in service.

RULE 403. REGULATION OF GEOTHERMAL RESOURCES PRODUCTION

Upon determination by the Commission that geothermal resources production in the State of New Mexico, or in a particular geothermal resources area, is causing waste, the Commission shall limit and allocate among the producing wells the total amount of geothermal resources which may be produced in the state, or in a particular geothermal area.

G - GEOTHERMAL INJECTION AND DISPOSAL WELLS

RULE 501. GEOTHERMAL INJECTION WELLS

Geothermal injection wells are those wells used for the purpose of injecting fluids ^{into a dry geothermal reservoir, or into a wet} ~~into a~~ geothermal ~~resources~~ reservoir for the purpose of augmenting the natural supply of fluids in the reservoir, pressure maintenance of the reservoir, or such other purpose as authorized by the Commission. No well shall be utilized as a geothermal injection well until authority for such use has been obtained on an approved Form G-112, Application to Place Well on Injection-Geothermal Resources Area. Form G-112 shall be filed in accordance with Rule 503 below.

RULE 502. GEOTHERMAL DISPOSAL WELLS

Geothermal disposal wells are those wells used for the purpose of disposing of waters produced from a geothermal ~~resources~~ reservoir when disposal is into a zone or formation not classified as a geothermal ~~resources~~ reservoir. No well shall be utilized as a geothermal disposal well until authority for such use has been obtained on an approved Form G-112, Application to Place Well on Injection-Geothermal Resources Area. Form G-112 shall be filed in accordance with Rule 503 below.

RULE 503. METHOD OF MAKING APPLICATION

Application for authority to inject fluids into a geothermal ~~resources~~ reservoir or to dispose of geothermal waters into a zone or formation not classified as a geothermal ~~resources~~ reservoir shall be made in DUPLICATE on Commission Form G-112, Application to Place Well on Injection, Geothermal Resources Area, and shall be accompanied by one copy of each of the following:

- (1) A plat showing the location of the proposed injection/disposal well and the location of all other wells within a radius of ~~two miles~~ ^{one mile} from said well, and indicating the perforated or open-hole interval in each of said wells. The plat shall also indicate the ownership of all geothermal leases within said two-mile radius;
- (2) The log of the proposed injection well, if available;
- (3) A diagrammatic sketch of the proposed injection well showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or open-hole interval, tubing strings, including diameters and setting depths, and the type and location of packers, if any;
- (4) ~~Structure map showing the contours on a geologic marker at or near the intended zone of injection, and~~

out

Put on Form → add something or fluids
see Cal Act 6 1968

~~(5) At least one cross section showing the proposed injection/
disposal well and at least two offsetting wells in opposite
directions.~~

Copies of the Form G-112 (without the above attachments) shall be sent to all other geothermal lease owners, if any there be, within a one-half mile radius of the proposed injection/disposal well.

If no objection is received within 20 days from the date of receipt of the application, and the Secretary-Director of the Commission is satisfied that all of the above requirements have been complied with, that the proposal is in the interest of conservation and will prevent waste and protect correlative rights, and that the well is cased, cemented, and equipped in such a manner that there will be no danger to any natural resource, including geothermal resources, ^{usable underground} ~~fresh~~ water supplies, and surface resources, Form G-112 will be approved. In the event the form is not approved because of objection from an affected geothermal lease owner or for other reason, the application will be set for public hearing, if the applicant so requests.

The Secretary-Director may dispense with the 20-day waiting period if waivers of objection are received from all geothermal lease owners within a one-half mile radius of the proposed injection/disposal well.

RULE 504. INJECTION REPORTS

Monthly injection reports shall be filed for injection/disposal wells in accordance with Rule 210 of these rules and regulations.

RULE 505. SURVEILLANCE

(a) Surveillance of
is necessary on a continuing basis in order to establish to the satisfaction of the Commission that all water is confined to the intended zone of injection.

(b) When an operator proposes to drill an injection well, convert a producing or ^{inactive} ~~idle~~ well to an injection well, or rework an injection well and return it to injection service, he shall be required to demonstrate to the Commission by means of such tests as the Commission may deem necessary that the casing has complete integrity.

(c) To establish the integrity of the annular cement above the shoe of the casing, the operator shall make sufficient surveys, within 30 days after injection is started into a well, to demonstrate that all the injected fluid is confined to the intended zone of injection. Thereafter, such surveys shall be made at least every two years, or more often if ordered by the ^{Commission} ~~supervisor~~. All such surveys ^{may} ~~shall~~ be witnessed by a representative of the Commission.

(d) After the well has been placed on injection, a Commission representative shall visit the wellsite periodically. At these times, surface conditions shall be noted and if any unsatisfactory conditions exist, the operator

Do we need to provide that efforts
can witness tests also? See Packer Leakage
Test Rule

may
shall be notified of needed remedial work. If this required work is not performed within 90 days, the approval issued by the Commission shall be rescinded. If it is determined that damage is occurring at a rapid rate, the Commission may order that the repair work be done immediately.

by the Commission representative
(X) Injection pressures shall be recorded and compared with the pressure reported on the appropriate forms. Any discrepancies shall be rectified immediately by the operator. A graph of ^{daily} pressures and rates versus time shall be maintained by the operator. Reasons for anomalies shall be promptly ascertained. If these reasons are such that it appears damage is being done, approval by the Commission may be rescinded, and injection shall cease.

period of
(c) ~~At the discretion of the Secretary Director of the Commission,~~
When an injection well has been left idle for a ~~significant length of time~~, the operator shall be informed by letter that approval for use of the well for injection purposes has been rescinded. In the event the operator intends to again use the well as an injector, he shall be required to file a notice proposing to demonstrate by means of surveys that the injected water will be confined to the intended zone of injection.

RULE 506 ABANDONMENT

plugged and
Injection or disposal wells are required to be abandoned in the same manner as other wells. (See Sec. E, ABANDONMENT, TEMPORARY ABANDONMENT, AND PLUGGING OF WELLS.)

Make compatible with TA rule.

H - BLOWOUT PREVENTION

RULE 601. GENERAL

In areas where high subsurface pressures are known to exist, or where there is a history of lost circulation and/or blowouts, or in areas where subsurface pressures are not known, all proper and usual precautions shall be taken for keeping the well under control, including the use of blowout preventers and high pressure fittings attached to properly cemented casing strings.

Blowout preventers shall not be required for the drilling of low-temperature thermal wells nor for the drilling of shallow temperature observation wells.

RULE 602. BLOWOUT PREVENTION EQUIPMENT (BOPE)

The following standards are not given as final blowout prevention equipment requirements for the drilling of any geothermal resources well but are given as guidelines for the preparation of a minimum blowout prevention program for certain categories of wells.

A. Using Mud as the Drilling Fluid

(1) Wells in geothermal resources areas known to contain geothermal fluids at a temperature greater than 212° F. at depths less than 2,000 feet, and geothermal exploratory wells in areas where subsurface temperatures and pressures are unknown and the proposed depth of the well is less than 2,000 feet.

Requirements: API Class 2 M-A or 2M-RR

(a) An annular BOPE and a spool, fitted with a low-pressure safety pop-off and blow-down line, installed on the conductor pipe may be required for wells in the above categories to ensure against possible gas blowouts during the drilling of the surface casing hole.

(b) ^{2,000} Annular BOPE or pipe-ram/blind-ram BOPE with minimum working-pressure ratings of 1,000 psi shall be installed on the surface casing so that the well can be shut-in at any time.

(c) Hydraulic actuating system.

(d) Kelly cock.

(e) A fill-up line installed above the BOPE.

(f) A kill line installed below the BOPE, leading directly to the mud pumps and fitted with a valve through which cement could be pumped, if necessary.

Clarify when?

(g) A blow-down line fitted with two valves installed below the BOPE. The blow-down line shall be directed in such a manner so as to permit containment of produced fluids and to minimize any safety hazard to personnel.

(h) All lines and fittings shall be steel and have a minimum working-pressure rating of at least that of the BOPE.

~~(i) The temperature of the return mud during the drilling of the surface casing hole 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 after each joint of pipe is drilled down. See Rule 106(b).~~

(2) Wells in geothermal resources areas known to contain geothermal fluids at temperatures greater than 212° F. at depths more than 2,000 feet, and geothermal exploratory wells in areas where subsurface temperatures and pressures are unknown and the proposed depth of the well is more than 2,000 feet.

Requirements: API Class 2M-RSRA or Equivalent

(a) An annular BOPE and a spool, fitted with a low-pressure safety pop-off and blow-down line, installed on the conductor pipe may be required to ensure against possible gas blowouts during the drilling of the surface casing hole.

(b) Annular BOPE and pipe-ram/blind-ram BOPE with a minimum working-pressure rating of 2,000 psi shall be installed so that the well can be shut-in at any time. The double-ram preventer shall have a mechanical locking device.

(c) A hydraulic actuating system utilizing an accumulator of sufficient capacity and a high pressure auxiliary backup system. This total system shall be equipped with dual controls: one at the driller's station and one at least 50 feet away from the wellhead.

(d) Kelly cock and standpipe valve.

(e) A fill-up line installed above the BOPE.

(f) A kill line installed below the BOPE, leading directly to the mud pumps and fitted with a valve through which cement could be pumped if necessary.

(g) A blow-down line fitted with two valves installed below the BOPE. The blow-down line shall be directed in such a manner ~~so~~ as to permit containment of produced fluids and to minimize any safety hazard to personnel.

(h) All lines and fittings shall be steel and have a minimum working-pressure rating of at least that of the BOPE.

(i) ~~The temperature of the return mud during the drilling of the surface casing hole 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 after each joint of pipe is drilled down.~~ *See Rule 106(b)* Return mud

B. Using Air as the Drilling Fluid

(1) Wells in geothermal resources areas where it is known that dry steam exists at depth and/or formation pressures are less than hydrostatic.

Requirements: API Class 2M RSRdG (with Banjo Box)

(a) A rotating-head installed at the top of the BOPE stack.

(b) A pipe-ram/blind-ram BOPE, with a minimum working-pressure rating of 2,000 psi installed below the rotating-head so that the well can be shut-in at any time.

(c) A banjo-box steam diversion unit installed below the double-ram BOPE fitted with an approved muffler in good working condition.

2000 (d) A blind-ram BOPE, with a minimum working-pressure rating of 1,000 psi installed below the banjo-box so that the well can be shut-in while removing the rotating-head during bit changes.

(e) A gate valve, with a suitable minimum working-pressure rating installed below the blind-ram so that the well can be shut-in after the well has been completed, prior to removal of the BOPE stack.

(f) All ram-type BOPE shall have a hydraulic actuating system utilizing an accumulator of sufficient capacity and a high-pressure backup system.

(g) Dual control stations for hydraulic backup system: one at the driller's station and the other at least 50 feet away from the wellhead.

(h) Float and standpipe valves.

(i) A kill line installed below the BOPE, leading directly to the mud pumps and fitted with a valve through which cement could be pumped if necessary.

(j) All lines and fittings must be steel and have a minimum working-pressure rating of 1,000 psi. Note: If any portion of a well is drilled using mud, Class 2M BOPE shall be installed on the surface casing so that the well can be shut-in at any time.

RULE 603. AREAS WITH HISTORY OF BLOWOUTS

Notwithstanding any of the provisions of Rule 602 above, when drilling in any geothermal resources area which has a history of lost circulation and/or blowouts the operator shall equip the well with adequate blowout prevention equipment to contain such pressures as may have previously been encountered in the other well(s).

a minimum of 750 ~~psi~~

RULE 604. TESTING OF BLOWOUT PREVENTION EQUIPMENT

Upon installation, ram-type blowout preventers, *bag-type blowout preventers,* valves, and manifolds shall be ~~tested to 100 percent of the rated working pressure and bag-type blowout preventers shall be tested to 1000~~ psi pressure. Ram-type preventers shall be operated at least once every 24 hours and bag-type preventers closed on the drill pipe at least once each week.

*Provision should possibly be made
for exception to the daily and weekly
test for BO preventers when
only dry steam wells. State of
arts not highly advanced.
submers dry out & bake*

I - RULES ON PROCEDURE

RULE 701. NECESSITY FOR HEARING

Except as provided in some general rule herein, before any rule, regulation or order, including revocation, changes, renewal or extension thereof shall be made by the Commission, a public hearing before the Commission or a legally appointed examiner shall be held at such time and place as may be prescribed by the Commission.

RULE 702. EMERGENCY ORDERS

Notwithstanding any other provision of these rules, in case an emergency is found to exist by the Commission, which, in its judgment, requires the making of a rule, regulation or order without a hearing having first been had or concluded, such emergency rule, regulation or order when made by the Commission shall have the same validity as if a hearing with respect to the same had been held before the Commission after due notice. Such emergency rule, regulation or order shall remain in force no longer than 15 days from its effective date, and in any event, it shall expire when the rule, regulation or order made after due notice and hearing with respect to the subject matter of such emergency rule, regulation or order becomes effective.

RULE 703. METHOD OF INITIATING A HEARING

The Commission upon its own motion, the Attorney General on behalf of the State, and any operator or producer, or any other person having a property interest may institute proceedings for a hearing. If the hearing is sought by the Commission it shall be on motion of the Commission and if by any other person it shall be by application. The application shall be in triplicate and shall state (1) the name of the applicant, (2) the name or general description of the common source or sources of supply or the area affected by the order sought, (3) briefly the general nature of the order, rule, or regulation sought, and (4) any other matter required by a particular rule or rules, or order of the Commission. The application shall be signed by the person seeking the hearing or by his attorney.

When conditions are such as to require verbal application to place a matter for hearing on a given docket, the Commission will accept such verbal application in order to meet publishing deadlines. However, if written application, filed in accordance with the procedures outlined above, has not been received by the Commission's Santa Fe office at least ten days before the date of the hearing, the case will be dismissed.

RULE 704. METHOD OF GIVING LEGAL NOTICE FOR HEARING

Notice of each hearing before the Commission and notice of each hearing before an Examiner shall be given by personal service on the person affected or by publication once in a newspaper of general circulation published at Santa Fe, New Mexico, and once in a newspaper of general circulation published in the county or each of the counties, if there be more than one, in which any geothermal resource or other property which may be affected shall be situated.

RULE 705. CONTENTS OF NOTICE OF HEARING

Such notice shall be issued in the name of "The State of New Mexico" and shall be signed by two members of the Commission or by the Secretary of the Commission, and the seal of the Commission shall be impressed thereon.

The notice shall specify whether the case is set for hearing before the Commission or before an Examiner and shall state the number and style of the case and the time and place of hearing and shall briefly state the general nature of the order or orders, rule or rules, regulation or regulations to be promulgated or effected. The notice shall also state the name of the petitioner or applicant, if any, and unless the contemplated order, rule or regulation is intended to apply to and affect the entire state it shall specify or generally describe the common source or sources of supply which may be affected by such order, rule or regulation.

RULE 706. PERSONAL SERVICE OF NOTICE

Personal service of the notice of hearing may be made by any agent of the Commission or by any person over the age of 18 years in the same manner as is provided by law for the service of summons in civil actions in the district courts of this state. Such service shall be complete at the time of such personal service or on the date of publication, as the case may be. Proof of service shall be by the affidavit of the person making personal service or of the publisher of the newspaper in which publication is had. Service of the notice shall be made at least 10 days before the hearing.

RULE 707. PREPARATION OF NOTICES

After a motion or application is filed with the Commission the notice or notices required shall be prepared by the Commission and service and publication thereof shall be taken care of by the Commission without cost to the applicant.

RULE 708. FILING PLEADINGS: COPY DELIVERED TO ADVERSE PARTY OR PARTIES

When any party to a hearing files any pleading, plea or motion of any character (other than application for hearing) which is not by law or by these rules required to be served upon the adverse party or parties, he shall at the same time either deliver or mail to the adverse party or parties who have entered their appearance therein, or their respective attorneys of record, a copy of such pleading, plea or motion. For the purposes of these rules, an appearance of any interested party shall be made either by letter addressed to the Commission, or in person at any proceeding before the Commission or before an Examiner, with notice of such appearance to the parties from whom such pleadings, pleas, or motions are desired.

RULE 709. CONTINUANCE OF HEARING WITHOUT NEW SERVICE

Any hearing before the Commission or an Examiner held after due notice may be continued by the person presiding at such hearing to a specified time and place without the necessity of notice of the same being again served or published. In the event of any continuance, a statement thereof shall be made in the record of the hearing which is continued.

RULE 710. CONDUCT OF HEARINGS

Hearings before the Commission or any Examiner shall be conducted without rigid formality. A transcript of testimony shall be taken and preserved as a part of the permanent record of the Commission. Any person testifying in response to a subpoena issued by the Commission and any person seeking to testify in support of an application or motion or in opposition thereto shall be required to do so under oath. However, relevant unsworn comments and observations by any interested party will be designated as such and included in the record. Comments and observations by representatives of operators' committees, the United States Geological Survey, the United States Bureau of Mines, the New Mexico Bureau of Mines and other competent persons are welcomed.

State Engineer

Any Examiner legally appointed by the Commission may conduct such hearings as may be referred to such Examiner by the Commission or the Secretary thereof.

RULE 711. POWER OF COMMISSION TO REQUIRE ATTENDANCE OF WITNESSES
AND PRODUCTION OF EVIDENCE

The Commission or any member thereof has statutory power to subpoena witnesses and to require the production of books, papers and records in any proceeding before the Commission. A subpoena will be issued by the Commission for attendance at a hearing upon the written request of any person interested in the subject matter of the hearing. In case of the failure of a person to comply with the subpoena issued by the Commission, an attachment of the person may be issued by the district court of any district in the state, and such court has powers to punish for contempt. Any person found guilty of swearing falsely at any hearing may be punished for contempt.

RULE 712. RULES OF EVIDENCE

Full opportunity shall be afforded all interested parties at a hearing to present evidence and to cross-examine witnesses. In general, the rules of evidence applicable in a trial before a court without a jury shall be applicable, provided that such rules may be relaxed, where, by so doing, the ends of justice will be better served. No order shall be made which is not supported by competent legal evidence.

RULE 713. EXAMINERS' QUALIFICATIONS AND APPOINTMENT

The Commission shall by ex parte order, designate and appoint not more than four individuals to be examiners. Each Examiner so appointed shall be a member of the staff of the Commission, but no Examiner need be a full time employee of the Commission. The Commission may, by ex parte order, designate and appoint a successor to any person whose status as an Examiner is terminated for any reason. Each individual designated and appointed as an Examiner must have at least six years practical experience as a geologist, petroleum engineer or licensed lawyer, or at least two years of such experience and a college degree in geology, engineering, or law; provided however, that nothing herein contained shall prevent any member of the Commission from being designated as, or serving as, an Examiner.

RULE 714. REFERRAL OF CASES TO EXAMINERS

Either the Commission or the Secretary thereof may refer any matter or proceeding to any legally designated and appointed Examiner for hearing in accordance with these rules. The Examiner appointed to hear any specific case shall be designated by name.

RULE 715. EXAMINER'S POWER AND AUTHORITY

The Commission may, by ex parte order, limit the powers and duties of the Examiner in any particular case to such issues or to the performance of such acts as the Commission deems expedient; however, subject only to such limitations as may be ordered by the Commission, the Examiner to whom any matter or proceeding is referred under these rules shall have full authority to hold hearings on such matter or proceeding in accordance with and pursuant to these rules. The Examiner shall have the power to regulate all proceedings before him and to perform all acts and take all measures necessary or proper for the efficient and orderly conduct of such hearing, including the swearing of witnesses, receiving of testimony and exhibits offered in evidence, subject to such objections as may be imposed, and shall cause a complete record of the proceedings to be made and transcribed and shall certify same to the Commission as hereinafter provided.

RULE 716. HEARINGS WHICH MUST BE HELD BEFORE COMMISSION

Notwithstanding any other provisions of these rules, the hearing on any matter shall be held before the Commission (1) if it is a hearing de novo, or (2) if the Commission in its discretion desires to hear the matter.

RULE 717. EXAMINER'S MANNER OF CONDUCTING HEARING

An Examiner conducting a hearing under these rules shall conduct himself as a disinterested umpire.

RULE 718. REPORT AND RECOMMENDATIONS, RE EXAMINER'S HEARINGS

Upon the conclusion of any hearing before an Examiner, the Examiner shall promptly consider the proceedings in such hearing, and based upon the record of such hearing the Examiner shall prepare his written report and recommendations for the disposition of the matter of proceeding by the Commission. Such report and recommendations shall either be accompanied by a proposed order

or shall be in the form of a proposed order, and shall be submitted to the Commission with the certified record of the hearing.

RULE 719. DISPOSITION OF CASES HEARD BY EXAMINERS

After receipt of the report and recommendations of the Examiner, the Commission shall either enter its order disposing of the matter or proceeding, or refer such matter or proceeding to the Examiner for further hearing.

RULE 720. DE NOVO HEARING BEFORE COMMISSION

When any order has been entered by the Commission pursuant to any hearing held by an Examiner, any party adversely affected by such order shall have the right to have such matter or proceeding heard de novo before the Commission, provided that within 30 days from the date such order is rendered such party files with the Commission a written application for such hearing before the Commission. If such application is filed, the matter or proceeding shall be set for hearing before the Commission at the next regular hearing date following the expiration of fifteen days from the date such application is filed with the Commission. Any person affected by the order or decision rendered by the Commission after hearing before the Commission may apply for rehearing pursuant to and in accordance with the provisions of Rule 722, and said Rule 722 together with the law applicable to rehearings and appeals in matters and proceedings before the Commission shall thereafter apply to such matter or proceeding.

RULE 721. NOTICE OF COMMISSION'S ORDERS

Within ten days after any order, including any order granting or refusing rehearing, or order following rehearing, has been rendered by the Commission, a copy of such order shall be mailed by the Commission to each person or his attorney of record who has entered his appearance of record in the matter of proceeding pursuant to which such order is rendered.

RULE 722. REHEARINGS

Within 20 days after entry of any order or decision of the Commission any person affected thereby may file with the Commission an application for rehearing in respect of any matter determined by such order or decision, setting forth the respect in which such order or decision is believed to be erroneous. The

Commission shall grant or refuse any such application in whole or in part within 10 days after the same is filed and failure to act thereon within such period shall be deemed a refusal thereof and a final disposition of such application. In the event the rehearing is granted, the Commission may enter such new order or decision after rehearing as may be required under the circumstances.

RULE 723. CHANGES IN FORMS AND REPORTS

Any change in the forms and reports or rules relating to such forms and reports shall be made only by order of the Commission issued after due notice and hearing.

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator			Lessee			Well No.		
Unit Letter	Section	Township	Range	County				
Actual Footage Location of Well:								
feet from the			line and			feet from the		
line			line					
Ground Level Elev.	Producing Formation			Pool			Dedicated Acreage:	
								Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

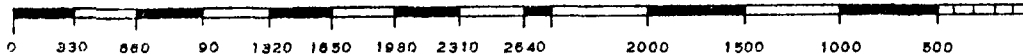
Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer
and/or Land Surveyor

Certificate No.



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N.M.B.M.		
U.S.G.S.		
Operator		
Land Office		

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

SUNDRY NOTICES AND REPORTS
ON
GEOTHERMAL RESOURCES WELLS

Form G-103

5a. Indicate Type of Lease

State ☐

Fee ☐

5. State Lease No.

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM G-101) FOR SUCH PROPOSALS.)

1. OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER- <input type="checkbox"/>	7. Unit Agreement Name
2. Name of Operator	8. Farm or Lease Name
3. Address of Operator	9. Well No.
4. Location of Well UNIT LETTER _____, _____ FEET FROM THE _____ LINE AND _____ FEET FROM THE _____ LINE, SECTION _____ TOWNSHIP _____ RANGE _____ NMPM.	10. Field and Pool, or Wildcat
15. Elevation (Show whether DF, RT, GR, etc.)	12. County

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐
PULL OR ALTER CASING ☐
OTHER ☐

PLUG AND ABANDON ☐
CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐
COMMENCE DRILLING OPNS. ☐
CASING TEST AND CEMENT JOB ☐
OTHER ☐

ALTERING CASING ☐
PLUG AND ABANDONMENT ☐

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 400 203.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED _____ TITLE _____ DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501CERTIFICATE OF COMPLIANCE
AND AUTHORIZATION TO PRODUCE
GEOTHERMAL RESOURCES

OWNER OR OPERATOR

Name _____

Address _____

REASON FOR FILING

New well ☐ Recompletion ☐Change in Ownership ☐ Designation of Purchaser ☐Other (Please Explain) ☐ _____

DESCRIPTION OF WELL

Lease _____ Well _____ Name of _____
Name _____ No. _____ Reservoir _____Kind of Lease _____ Lease _____
(Fee, Fed. or State) _____ No. _____

LOCATION

Unit _____

Letter _____: _____ feet from the _____ line and

_____ feet from the _____ line of

Section _____ Township _____ Range _____

County _____

TYPE OF PRODUCT

Dry _____ Steam and _____ Low Temp _____
Steam _____ Water _____ Thermal Water _____

DESIGNATION OF PURCHASER OF PRODUCT

Name of _____
Purchaser _____Address of _____
Purchaser _____Product Will _____
Be Used For _____

CERTIFICATE OF COMPLIANCE

I hereby certify that all rules and regulations concerning geothermal resources wells in the State of New Mexico, as promulgated by the Oil Conservation Commission of New Mexico, have been complied with, with respect to the subject well, and that the information given above is true and complete to the best of my knowledge and belief.

Signed _____ Position _____ Date _____

Approved _____ Position _____ Date _____

Operator _____
Address _____
Reservoir _____
Lease Name _____ Well No. _____ Unit Letter _____
Location: _____ feet from the _____ line and _____
_____ feet from the _____ line Section _____
Township _____ Range _____ County _____

DEPTH TO		Thickness	Drilled or Cored	Recovery	DESCRIPTION
Top of Formation	Bottom of Formation				

This form must be accompanied by copies of electric logs, ^{deviation and} directional surveys, physical or chemical logs, water analyses, tests, including potential tests, and temperature surveys (See Rule 205).

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed _____ Position _____ Date _____

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

GEOHERMAL RESOURCES WELL SUMMARY REPORT

Operator _____ Address _____
Lease Name _____ Well No. _____
Unit Letter _____ Sec. _____ Twp. _____ Rge _____
Reservoir _____ County _____

Commenced drilling _____ GEOLOGICAL MARKERS _____ DEPTH _____
Completed drilling _____
Total depth _____ Plugged depth _____
Junk _____
Commenced producing _____ (Date) _____ Geologic age at total depth: _____

Date	Static test Shut-in well head		Production Test Data								
			Total Mass Flow Data					Separator Data			
	Temp. °F	Pres. Psig	Lbs/Hr	Temp. °F	Pres. Psig	Enthalpy	Orifice	Water cuft/Hr	Steam Lbs/Hr	Pres. Psig	Temp. °F
			✓	✓	✓						

CASING RECORD (Present Hole)

Size of Casing (A. P. I.)	Depth of Shoe	Top of Casing	Weight of Casing	New or Second Hand	Seamless or Lapweld	Grade of Casing	Size of Hole Drilled	Number of Sacks of Cement	Depth of Cementing if through perforation

PERFORATED CASING

(Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

Was analysis of effluent made? _____ Electrical log depths _____ Temperature log depths _____

CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed _____ Position _____ Date _____

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

GEOTHERMAL RESOURCES WELL HISTORY

Operator _____ Address _____
Lease Name _____ Well No. _____
Unit Letter _____ Sec. _____ Twp. _____ Rge _____
Reservoir _____ County _____

It is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important operations during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates thereof. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, shooting and initial production data and zone temperature.

Date _____

CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed _____ Position _____ Date _____