

ENVIRONMENTAL REGULATIONS FOR
GEOTHERMAL DEVELOPMENT IN HAWAII

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As might be expected, there are numerous laws, regulations, rules, permits and approvals needed for geothermal development. Almost all of these relate in one way or another to the environment. These laws and rules can be classified in several different ways. For the purposes of this discussion, I have divided them into three general categories: regulations controlling land uses, both State and County; State regulations specific to geothermal exploration and development administered by the State Department of Land and Natural Resources (DLNR); and State regulations whose purpose is to control environmental pollution, implementing both Federal and State legislation, and administered by the State Department of Health (DOH). There are also a number of County permits and approvals, such as grading, building, electrical, and plumbing permits, which are basically ministerial in nature. A list of required permits and approvals and the legal authority for each is attached.

LAND USE REGULATIONS

In the first category, land use controls, the most important laws and regulations relating to geothermal development are those that apply to (1) the designation of geothermal resource subzones by DLNR; (2) the issuance of conservation district use permits by DLNR (for lands in conservation districts); and (3) the issuance of geothermal resource permits (by the County for lands in urban, rural or agricultural districts).

Geothermal Resource Subzones (DLNR)

The designation of geothermal resource subzones has already been addressed by another speaker and is included here only for the purpose of completeness. Although the designation process is exempt from the environmental impact statement law, Chapter 343, Hawaii Revised Statutes, potential environmental impacts must be considered in determining the subzones. This assessment is, in effect, the first environmental hurdle that must be cleared. Also, the creation of geothermal resource subzones eliminates a number of areas of potential environmental concern, for example, by providing buffer zones between areas of potential geothermal development and sensitive environmental sites.

Conservation District Use Permit (DLNR)

A conservation district use permit is required for activities on lands in the conservation district. Upon receipt of a conservation district use application (CDUA) the DLNR makes an environmental assessment. If the proposed action is determined to have potentially significant environmental impacts, an environmental impact statement (EIS) is then required. The Board of Land and Natural Resources (BLNR) also schedules a public hearing on the request, and upon appropriate request, may hold a contested case hearing. Unavoidable major negative environmental impacts may result in denial of the permit. If approval is given, the recommended measures for mitigating negative environmental impacts are usually incorporated into the final permit as conditions.

Geothermal Resource Permit (County)

The geothermal resource permit is a new permit established by Act 151 of the 1984 Hawaii State Legislature. It will replace the special use permit granted by the County for geothermal activities on agricultural land, in conjunction with the Land Use Commission. The new law provides that this new permit is to be issued by the "appropriate County authority" which is the County Planning Commission unless some other agency or body is designated by ordinance of the County Council.

Section 2. of Act 151 sets forth the procedures for issuance of a County geothermal resource permit. A public hearing is required, and a contested case hearing may be required upon appropriate request. Paragraph (e) of this section sets forth the criteria for the granting of the permit as follows:

...The appropriate County authority shall grant a geothermal resource permit if it finds that applicant has demonstrated by a preponderance of evidence that:

- (1) The desired uses would not have unreasonable adverse health, environmental, or socio-economic effects on residents or surrounding property; and
- (2) The desired uses would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection; and
- (3) That there are reasonable measures available to mitigate the unreasonable adverse effects or burdens referred to above.

Unless there is a mutual agreement to extend, a decision shall be made on the application by the appropriate County authority within six months of the date a complete application was filed; provided that if a contested case hearing is held, the final permit decision shall be made within nine months of the date a complete application was filed.

The County of Hawaii is in the process of adopting a regulation, Rule 12, to implement the new law. (The County of Maui is still in the study stage.) This is a major permit for geothermal development because it will lay down the basic ground rules for development, addressing health and socio-economic as well as environmental effects. It is anticipated that this will be the first permit that the developer will receive and will address all the major issues of environmental concern -- surface and groundwater pollution, air quality, damage to fish and wildlife, soil erosion, including noise. (Note: There are no State noise regulations outside of Oahu.) In the County of Hawaii, the noise guidelines incorporated into the existing geothermal special use permits are expected to be followed in issuing the geothermal resource permit.

DLNR GEOTHERMAL PERMITS

The attached table lists the seven permits or approvals required by DLNR for geothermal exploration and development, ranging from mining leases and exploration permits through well drilling to well abandonment. Of these, the most important for development is probably the plan of operations.

Geothermal Plan of Operations (DLNR)

Subchapter 7 of the Administrative Rules, Title 13, Chapter 183, requires that the holder of a geothermal mining lease have an approved Plan of Operation before operations of any kind can commence. Paragraph (a) of Section 13-183-55 Plan of operations required sets forth in detail the contents of a plan of operation. Several of the requirements relate to environmental concerns, as follows:

- (7) Methods for disposing of well effluent and other waste;
- (8) A narrative statement describing the proposed measures to be taken for protection of the environment, including, but not limited to the prevention or control of:
 - (A) Fires,
 - (B) Soil erosion,
 - (C) Pollution of the surface and groundwater,
 - (D) Damage to fish and wildlife or other natural resources,
 - (E) Air and noise pollution, and
 - (F) Hazards to public health and safety during lease activities.

Paragraph (b) describes the required maps. Paragraph (c) describes the approval process:

The board shall either approve, subject to the requirements of Chapter 343, Hawaii Revised Statutes, and to any terms or conditions it may specify at its discretion, or disapprove the plan of operation within sixty calendar days after the date of receipt of the plan. If the board disapproves the plan of operations, it shall notify the applicant and the decision may be appealed as provided in Section 13-183-55.

Upon receipt of an application for approval of a plan of operation for development of geothermal power, the DLNR will conduct an environmental assessment and determine whether an environmental impact statement is required. It is expected that a proposed power plant will result in an environmental impact statement.

An important consideration is the coordination of the County geothermal resource permit and DLNR's approval of a plan of operation. Both permits/approvals require substantially the same information, but only DLNR's is tied to the EIS process, by virtue of the fact that the rights to the mineral resource, geothermal steam, are reserved to the State. (Note: If an application for approval of a plan of operation were to be made for geothermal development on private lands where the State did not have such a right, as some are, no EIS could be required.) However, the information in the EIS would be very useful to the County in making its decision on its permit. Close cooperation between DLNR and the County is needed to ensure that the timing of the processes are such that the EIS information can be utilized by the County in its decision-making process.

ENVIRONMENTAL POLLUTION CONTROL REGULATIONS

The Department of Health has the major responsibility for pollution control in the State of Hawaii, covering air and water quality, protection of drinking water supplies, and solid waste management. The two most important regulations for geothermal development are those that relate to air pollution and to injection of waste waters into the ground.

Air Quality (DOH)

The Department of Health has prepared draft amendments to Title 11, Chapter 60, Administrative Rules, Air Pollution Control, to address geothermal wells and power plants specifically. One portion of the proposed amendments provides for limits on well and power plant emissions for particulate matter and hydrogen sulfide. Chapter 59, Ambient Air Quality Standards will also be amended to add standards for concentrations of hydrogen sulfide in the ambient air. These proposed amendments are expected to go to public hearing sometime in January, 1985.

Underground Injection (DOH)

Regulations governing the injection of fluids into underground aquifers, Title 11, Chapter 23, DOH Administrative Rules, Underground Injection Control, were adopted in January, 1984, by the Department of Health pursuant to the Federal Safe Drinking Water Act and State law. The only mention of geothermal injection wells in the regulation is in the definition of hazardous wastes which exempts geothermal discharges. This is consistent with the Federal definitions of hazardous wastes.

At this point in time, proposals for injection of geothermal fluids would be considered by DOH on a case-by-case basis. However, amendments to the rule to address geothermal fluids specifically are under consideration by the Department.

Other Environmental Permits

Other waste products that need attention, in addition to injection fluids and air emissions, are the solid wastes that would be created by a geothermal power plant. The primary solid waste material is elemental sulfur. It could be sold in agricultural or industrial markets or disposed of in a landfill. Given the processes under consideration by power plant developers, it is very unlikely that this material would be classified as a hazardous waste. If it were, it would fall under regulations that would require it to be shipped to the Mainland for disposal.