ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE
January 24, 2022
1:03 p.m.

MEMBERS PRESENT

Representative Josiah Patkotak, Chair
Representative Grier Hopkins, Vice Chair
Representative Zack Fields (via teleconference)
Representative Calvin Schrage
Representative Sara Hannan
Representative George Rauscher
Representative Mike Cronk
Representative Ronald Gillham
Representative Tom McKay

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

HOUSE BILL NO. 135
"An Act relating to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date."

- HEARD & HELD

PREVIOUS COMMITTEE ACTION

BILL: HB 135
SHORT TITLE: GEOTHERMAL RESOURCES
SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

03/10/21	(H)	READ THE FIRST TIME - REFERRALS
03/10/21	(H)	RES, FIN
04/22/21	(H)	RES WAIVED PUBLIC HEARING NOTICE, RULE 23(A) UC
04/23/21	(H)	RES AT 10:30 AM BARNES 124
04/23/21	(H)	Heard & Held
04/23/21	(H)	MINUTE(RES)
04/23/21	(H)	RES AT 1:00 PM BARNES 124
04/23/21	(H)	-- MEETING CANCELED --
04/26/21	(H)	RES AT 1:00 PM BARNES 124

04/26/21	(H)	Heard & Held
04/26/21	(H)	MINUTE(RES)
04/30/21	(H)	RES AT 1:00 PM BARNES 124
04/30/21	(H)	Heard & Held
04/30/21	(H)	MINUTE(RES)
01/21/22	(H)	RES AT 1:00 PM BARNES 124
01/21/22	(H)	Heard & Held
01/21/22	(H)	MINUTE(RES)
01/24/22	(H)	RES AT 1:00 PM BARNES 124

WITNESS REGISTER

SEAN CLIFTON, Policy and Program Specialist
Central Office
Division of Oil and Gas (DO&G)
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: During the hearing on HB 135, testified and answered questions on behalf of the administration.

TOM BARRETT, Section Leader
Division of Mining, Land and Water
Department of Natural Resources (DNR)
Anchorage, Alaska
POSITION STATEMENT: During the hearing on HB 135, testified and answered questions on behalf of the administration.

DAVID LEPAIN, Chief Geologist
Division of Geological & Geophysical Surveys (DGGS)
Department of Natural Resources (DNR)
Fairbanks, Alaska
POSITION STATEMENT: During the hearing on HB 135, answered questions on behalf of the administration.

LAURA ACHEE, Legislative Liaison
Department of Environmental Conservation (DEC)
Juneau, Alaska
POSITION STATEMENT: During the hearing on HB 135, answered a question.

ACTION NARRATIVE

1:03:47 PM

CHAIR JOSIAH PATKOTAK called the House Resources Standing Committee meeting to order at 1:03 p.m. Representatives McKay,

Fields (via teleconference), Cronk, Hopkins, Rauscher, Hannan, Gillham, Schrage, and Patkotak were present at the call to order.

HB 135-GEOTHERMAL RESOURCES

1:04:13 PM

CHAIR PATKOTAK announced that the only order of business would be HOUSE BILL NO. 135, "An Act relating to geothermal resources; relating to the definition of 'geothermal resources'; and providing for an effective date."

CHAIR PATKOTAK reminded committee members that today's hearing on HB 135 is a continuation of the PowerPoint presentation provided by the Department of Natural Resources (DNR) at the bill's previous hearing on 1/21/22. He noted that clarification would also be provided on previous questions about how HB 135 might affect water rights.

1:05:46 PM

SEAN CLIFTON, Policy and Program Specialist, Central Office, Division of Oil and Gas (DO&G), Department of Natural Resources (DNR), turned to the department's PowerPoint presentation, "HB 135 GEOTHERMAL RESOURCES," that was provided to the committee on 1/21/22. He displayed slide 9, "SECTION 2: PREFERENTIAL RIGHTS," and explained that HB 135 seeks to clean up the statutes pertaining to the Division of Oil and Gas (DO&G) rather than to disposing of the State of Alaska's geothermal energy resources, with the purpose of issuing exploration licenses and leases and ultimately units of those leases, facilitating getting clean and renewable energy into Alaskans' homes. He pointed out that the mention water of water rights on this slide was just meant to be analogous comparison, as HB 135 would have no impact on the statutes that are relevant to water rights. He noted that Mr. Tom Barrett is online to help clarify how water rights would be potentially relevant to a geothermal development situation as well as water rights generally.

1:07:45 PM

TOM BARRETT, Section Leader, Division of Mining, Land and Water, Department of Natural Resources (DNR), explained that water rights are a legal right to surface or ground water that is granted pursuant to the [1966] Alaska Water Use Act. A water right allows a specific amount of water from a specific water

source to be diverted, impounded, or withdrawn for a specific use. When a water right is granted, it becomes pertinent to the land where the water is being used for as long as the water is being used. If the land is sold the water right transfers with the land to the new owner. For example, a farmer with a creek running through his or her property, would need a water right to authorize the use of a significant amount of water. A significant amount of water is defined as about 5,000 gallons per day for consumptive use or 30,000 gallons for non-consumptive use.

MR. BARRETT specified that a water right provides a legal standing to serve those rights against conflicting water uses that do not have water rights. He said Alaska follows the prior appropriation system, meaning a person with water rights has priority to use the water over persons who later file for a water right from the same source. In Alaska, about 18,000 water rights have been issued. To issue a water right, [DNR] takes an application and small fee from an applicant, processes it for completeness, the specific location, and method of diverting the water. An impact analysis is done to be sure it isn't going to affect other appropriates, although [DNR] doesn't guarantee people's water. If it isn't going to affect other appropriates, [DNR] issues a permit for 2-10 years depending on the amount of water requested. In this permit phase, called proving the applicant's water rights, the applicant uses their water and reports their water use to [the department]. At the end of the permit phase [DNR] issues a certificate for the water amount actually used by the applicant.

1:11:11 PM

REPRESENTATIVE HANNAN referenced the bill's "bright line" distinction between commercial users and non-commercial users. In describing water rights, she asked whether there is a distinction between commercial users and non-commercial users. She further asked whether homeowners would need a water right to put in well.

MR. BARRETT replied that the water right is purely based on volume, the volume is what triggers it. So, he continued, a homeowner with a well would not need to get a water right.

REPRESENTATIVE HANNAN posed a scenario in which an individual has a well and a geothermal commercial property gets developed and needs water for that commercial use. She asked how the rights of the individual property owner with the well would be

preserved to ensure access to the water that is being used without an established water right.

MR. BARRETT responded that that is the benefit for a water right even when not required. That water right gives an individual the prior priority base. If a homeowner doesn't have a water right and a neighbor has a large commercial operation that uses lots of water and causes an impact, the homeowner would have to work with the neighbor regarding the impact. However, when issuing a water right, [DNR] does look for surrounding water users, but the best protection is to get a water right.

REPRESENTATIVE HANNAN asked whether there are any individual noncommercial users in Alaska who currently have wells and have established their water rights for those wells.

MR. BARRETT answered yes, there are a lot of household/domestic water right owners.

1:15:09 PM

REPRESENTATIVE RAUSCHER recalled that during his 45 years in Alaska it has been a big deal for everyone to establish their water rights. He inquired as to whether that process has now ended and drilling a [water] well is all that is needed to establish specific water rights. He further inquired as to how HB 135 would affect or put extra encumbrances on those rights.

MR. BARRETT replied that a well is basically just access to the water. Someone wanting a water right must submit an application to the department that describes how the applicant will get that water, such as diverting a stream or putting in a well.

REPRESENTATIVE RAUSCHER asked whether HB 135 would in any way affect private landowners who have water rights for their property.

MR. BARRETT responded that HB 135 would not change that.

1:17:26 PM

REPRESENTATIVE MCCABE posited that the freshwater wells drilled for drinking water and domestic consumption are usually 50-300 feet deep at the most, while in geothermal energy [systems] the water is briny and located significantly deeper. He inquired as to whether it is correct that these are two geologically different horizons.

MR. BARRETT answered that geothermal [energy systems] can be one thousand to several thousand feet deep [slide 16, "USEABLE GEOTHERMAL ENERGY"], whereas warm springs and hot springs tend to be much shallower. Freshwater aquifers also tend to be shallow and at depths of less than a thousand feet.

REPRESENTATIVE MCCABE posited that, in theory, folks living in a geothermal area can be producing domestic freshwater for their homes and businesses, and because the two are separated by a long column of rock they could co-exist without difficulty and the two cannot be conflated.

1:20:15 PM

DAVID LEPAIN, Chief Geologist, Division of Geological and Geophysical Surveys (DGGS), Department of Natural Resources (DNR), confirmed that Mr. Barrett's answer is correct. As was stated by Mr. Masterman [on 1/21/22] it is a difference in scale. Part of the water wells are going to be up in the shallow stratigraphy anywhere from a few tens of feet down to a few hundred feet deep; for example, some wells in the hill areas of Fairbanks are upwards of 500 feet deep. But still, they are much shallower than what is being talked about for commercial geothermal energy. Geothermal wells are going to be on the order of many thousands of feet deep, so there will be a lot of geology/rock separating those two systems and there is unlikely to be communication between them.

CHAIR PATKOTAK drew attention to slide 16, "USEABLE GEOTHERMAL ENERGY," in the presentation which highlights the difference in depths between the two types of water resource.

1:21:34 PM

REPRESENTATIVE SCHRAGE recalled that some of the concern expressed by committee members was regarding whether [geothermal wells] at depths of 200-300 feet could impact freshwater wells. He requested clarification that what is being talked about is commercial geothermal power at thousands of feet, not potentially 200 feet. He surmised that geothermal reservoirs are deep as well as broad, and probably not an infinite source of power or power generation. He asked whether one user of geothermal power could dilute that source of energy for another user in the region.

MR. LEPAIN replied that there is unlikely to be communication between the shallow part of the water systems and the water being tapped into by a geothermal project. Even if a geothermal project is tapping into relatively shallow water, it is probably going to be on the flanks of a volcano or some sort of geothermal site, and those waters tend to be high in dissolved solids and tend to be non-potable sources of water. It is correct that most often geothermal projects are going to be tapping non-potable water sources that are many thousands of feet deep. Referring to [slide 16], he further stated that the geothermal wells depicted on the slide at the shallow end of 200 feet are highly unlikely.

1:24:14 PM

MR. CLIFTON responded to the other part of Representative Schrage's question, which he interpreted as being what would happen if there were a conflict between two users of the same geothermal reservoir. He said it would be handled much the same way as done with other types of energy reservoirs, such as oil and gas. One function of the Alaska Oil and Gas Conservation Commission (AOGCC) is to monitor resource pools and ensure that waste is prevented, and those things can be de-conflicted through existing statutes. But, he added, it is almost never a problem because the operators who seek to develop those resources also don't want to waste the resources, they want to maximize them, and they usually manage that on their own through unitization of the resource. Also, it is unlikely there would be a conflict between a private user of what would be a commercial resource simply because the scale of a commercial-related resource is much bigger and more powerful, such as higher temperatures and pressures. It's unlikely that that's the sort of thing which private home or cabin users are tapping into. If that situation did come up, however, the AOGCC would be able to de-conflict it through existing statute and policies.

1:26:18 PM

REPRESENTATIVE HANNAN drew attention to the description of hydrothermal on slide 16. She asked whether the steam and hot water in hydrothermal geothermal energy production is deep, briny water that is already down near the geothermal source, and surface water is not used for that.

MR. LEPAIN answered correct, for hydrothermal systems the water being pumped is from a depth of thousands of feet; it is not going to be surface water and it is very unlikely to be in

communication with surface water. There is a very significant separation in terms of depth for commercial versus private home use.

1:27:34 PM

REPRESENTATIVE HOPKINS inquired whether AOGCC has statutory authority to deal with hydrothermal and geothermal resources given that oil and gas are not geothermal.

MR. CLIFTON confirmed that AOGCC has statutory authority to adjudicate that and to arbitrate conflicts.

1:28:27 PM

The committee took a brief at-ease.

1:28:50 PM

REPRESENTATIVE SCHRAGE brought attention to slide 16 and asked whether a geothermal power plant would be pumping water from the reservoir and then reinjecting the same water back into that reservoir. He further asked whether this would run afoul with the Department of Environmental Conservation (DEC) because water is being discharged back into a reservoir.

MR. LEPAIN confirmed that hot water is pumped from significant depths, then run through a steam turbine to generate electricity, then the water goes to a cooling tower and after it is cooled the water is reinjected into the subsurface at a comparable depth. He deferred to the other experts online to answer whether DEC would be involved.

MR. CLIFTON answered that the reinjection wells would be permitted and regulated through AOGCC. This is something AOGCC already does with other types of production and injection wells, and this is a standard and usual practice. He added that AOGCC pays close attention to the protection of other water resources, such as drinking water sources. He confirmed that the potential for surface contamination or discharge would be DEC's domain.

1:31:30 PM

LAURA ACHEE, Legislative Liaison, Department of Environmental Conservation (DEC), qualified that as the legislative liaison she is not familiar with the details specific of permits for discharge as to water. Regarding questions asked during the

bill's 1/21/22 hearing, she said permits from DEC would be required for discharging water and it would have to meet state and federal water quality standards.

1:32:11 PM

REPRESENTATIVE SCHRAGE surmised that if the water is reinjected into the reservoir, DEC does not have oversight; rather, that would be permitted through AOGCC. But, he further surmised, if the water is being discharged on the surface, DEC would be involved and would monitor those discharges.

MS. ACHEE replied that she will get back to the committee with an answer in this regard.

MR. CLIFTON added that for operating a facility like this there is extensive review of the engineering and so forth, and DEC would have to permit a contingency plan just like for any other facility related to oil and gas or to generation. It is very important to all of the state agencies connected with that permitting process to protect the surface, the drinking water resources, prevent to the greatest extent possible any sort of environmental contamination, and to have contingincies in place should anything like that occur. This wouldn't be any different from any of the power generation facilities or oil and gas related facilities that have already been permitted and operating in Alaska for decades.

1:34:14 PM

REPRESENTATIVE RAUSCHER inquired about the number of agencies that would be involved when putting in [a geothermal energy project].

MR. CLIFTON responded that he doesn't offhand know all of the agencies that would be involved. He said DNR does a fair bit of the surface use permitting as well as some pipeline permitting, which is also a surface area. In addition, DEC might be involved through the spill contingency plan; as well, permits would be needed for any planned discharge from the facility. The Alaska Department of Fish and Game (ADF&G) could be involved should there be any potential for disturbance of wildlife or interference with streams. Federal agencies might also be involved, so it can get quite broad depending on what the potential impacts are. He offered to provide a list of all the potential agencies that might be involved in permitting a surface facility for power generation from geothermal resources.

CHAIR PATKOTAK confirmed the committee would like to receive such a list prior to the bill's next hearing on 1/26/22.

1:36:34 PM

REPRESENTATIVE HOPKINS drew attention to slide 31, "DRILLING REGULATIONS," and observed the statement that AOGCC jurisdiction over geothermal is triggered by temperature or commerciality. He futher observed the statement that the new definition in HB 135 ignores the temperature requirement. He asked whether AOGCC would still have jurisdiction under the proposed change for how AOGCC's jurisdiction is triggered.

MR. CLIFTON pointed out that the last bullet under AOGCC states: "Exception: if well may encounter geothermal resources, fluid, or water of enough heat/pressure to threaten life/health." In this case, he continued, AOGCC would require permits, and that would be regardless of whether it is a commercial development or a private landowner.

1:38:07 PM

REPRESENTATIVE HOPKINS posed a scenario in which there is 90 degree heat in a shallow well that is pumped up to the ground and that's not enough heat or pressure to threaten life or health, and then there is a resource discrepancy between two operations as they try to become commercial, AOGCC is not part of that at that point?

MR. CLIFTON answered that a commercial development is going to be permitted through AOGCC.

CHAIR PATKOTAK surmised that a commercial development is going to be permitted through AOGCC despite temperatures.

MR. CLIFTON replied yes.

CHAIR PATKOTAK further surmised that if AOGCC's involvement isn't already triggered with the rest of the process, it's involvement would be triggered if the temperature [is greater than] 120 degrees celcius or simply commerciality.

MR. CLIFTON responded correct.

REPRESENTATIVE HOPKINS offered his understanding that even though HB 135 would not deal with temperature anymore, it would still be a trigger for the jurisdiction of AOGCC.

MR. CLIFTON answered yes.

[HB 135 was held over.]

1:39:58 PM

ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 1:40 p.m.