COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT
PLANNING DIVISION
P.O. Box 1609, Mammoth Lakes, CA 93546
Phone: (760) 965-3630 Fax: (760) 934-7493
www.townofmammothlakes.ca.gov

APPEAL OF DECISION OF PLANNING AND ECONOMIC DEVELOPMENT COMMISSION

(Municipal Code Section 17.104)

This form must be filed within fifteen (15) days of the stated action in order to be valid.

APPLICATION NUMBER APPEALED: TTM 22-002; UPA 22-001; DR 22-001

DATE OF STATED ACTION: May 11, 2022

APPELLANT'S NAME: Mammoth Community Water District

ADDRESS: P.O. Box 597; 1315 Meridian Boulevard
Mammoth Lakes, CA 93546-0597

APPEAL FEE: See Community and Economic Development Department Fee Schedule

Action taken by the Planning and Economic Development Commission which is being appealed:

_____ Denial

✓ Approval

_____ Approval with Conditions (Attach a copy of conditions and indicate those you wish waived or modified.)

What is being appealed?

See Attachment A appended to this form.

Rationale for Appeal (use additional sheets if necessary):

See Attachment A appended to this form.

I certify that I am the: __Legal Owner ✓ Authorized Legal Agent __Other Interested Party

May 25, 2022
Date

Signature of Appellant

MAMMOTH COMMUNITY WATER DISTRICT

2556

05/25/2022

Vendor No.: 01816 - Town of Mammoth Lakes

DATE	INVOICE #	PO #	DESCRIPTION	AMOUNT
5/25/2022	01119		Appeal of Decision Fee - Planning and Economic Dev	1,942.00

CHECK TOTAL 1,942.00

DO NOT ACCEPT UNLESS THIS CHECK IS PRINTED WITH A COLOR BACKGROUND, CONTAINS A VOID PANTOGRAPH, MICROPRINTING FACE AND BACK, UV FIBERS AND A WATERMARK ON THE REVERSE SIDE

MAMMOTH COMMUNITY WATER DISTRICT
P.O. BOX 597
MAMMOTH LAKES, CA 93546

Wells Fargo
11-4288 / 1210

002556
2556

CHECK DATE	PAY THIS AMOUNT
05/25/2022	$1,942.00

PAY ---One Thousand Nine Hundred Forty Two Dollars and 00/100 Cents---

VOID AFTER 90 DAYS

TO THE ORDER OF
Town of Mammoth Lakes
PO Box 1609
Mammoth Lakes, CA 93546

Two signatures required if over $10,000.00

⑈002556⑈ ⑆121042882⑆ 9893061649⑈

ATTACHMENT A

TO MAMMOTH COMMUNITY WATER DISTRICT'S APPEAL OF PEDC APPLICATION NO. TTM 22-002, ET AL.

What Is Being Appealed?

The Mammoth Community Water District ("MCWD" or "District") appeals the decision of the Town of Mammoth Lakes Planning and Economic Development Commission's ("PEDC" or "Commission") action to approve the addition of two geothermal wells to the Limelight Hotel project ("Project"). These two geothermal wells would provide heating and other power requirements to the Project (the "Geothermal Component"). This approval was based on the use of a CEQA addendum and was part of the PEDC's approval at its May 11, 2022 meeting of the staff recommendation under Agenda Item 4.2 to adopt Resolution 22-12 to make CEQA and Municipal Code findings and approving Tentative Tract Map #TTM 22-002, Use Permit #UPA 22-001, and Major Design Review #DR 22-001 with conditions. MCWD appeals only the approval of the addition of the Geothermal Component to the Project as an illegal action in violation of CEQA. MCWD does not object to or appeal from any other portion of the approvals made by the PEDC at its May 11, 2022 meeting.

Rationale For Appeal:

I. The addendum to the 1999 EIR violates CEQA because neither the Addendum nor the Drilling Report on which it relies includes any analysis of potentially significant environmental effects or any substantial evidence to support a no-effect finding permitting the preparation of the Addendum.

The substantive part of MCWD's appeal is simple -- PEDC staff engaged in undue haste to bring the Geothermal Component to the Commission for approval and in complete disregard of known and identified potentially significant environmental impacts that might result from drilling geothermal wells in the heart of the Town of Mammoth Lakes and directly through the community's main water supply. PEDC staff also misrepresented the character of the Geothermal Component, thus making it appear less impactful than it would be in reality. In fact, any reasonably diligent and lawful analysis would have identified the possibility for the Geothermal Component to cause significant environmental impacts. Most notably, the construction and operation of the Geothermal Component has the potential to reduce and/or contaminate the Town's water supply, perhaps severely enough that there is a significant possibility no remediation could effectively treat the contamination to safe drinking water levels. If such an impact occurred, the Mammoth Lakes community would not have a safe, reliable drinking water supply.

Sadly, this appeal was entirely avoidable if the PEDC had granted MCWD's request and stayed any action to approve the Geothermal Component pending consultation with MCWD, CalGEM, and other stakeholders. The necessity for filing this appeal, which wastes public resources and imposes significant new legal risks on the Town, is particularly

egregious because MCWD's concerns about the impacts of geothermal projects is long-standing and well-known to Town/PEDC staff and everyone else in the community. Yet, despite PEDC staff's knowledge, they only made a casual effort to engage MCWD or other stakeholders early in the process of working with the developer on a generic geothermal project and appear to have withheld the details of the applicant's actual proposal to add the Geothermal Component to the Project to the last possible moment. This lack of basic diligence required by law occurred even though applicant's proposed change to the Project was being contemplated as least as early as June 8, 2021, when the Geothermal Resource Group issued its *Limelight Hotel Geothermal Drilling Study* (the "Drilling Report"). Note that the Drilling Study identified the possibility of impacts from the Geothermal Component and MCWD's likely concerns with the proposal more than one year ago. (See Drilling Report, subsection 6.1.2, page 44; subsection 6.4.1, pages 45-46; and attached March 5, 2021 letter to Dan Patton and Greg Villegas of WATG, pages 1-2.)

In spite of these identified concerns, and a 220-page staff report which appears to be PEDC staff's effort to paper over the defects in its process to evaluate the new Geothermal Component and include stakeholder input, PEDC staff concluded without any real investigation, communication or analysis, and without any substantial technical or other evidence, that, "the proposed addition of the [Geothermal Component] to the Limelight Hotel development would not result in any new significant environmental effects or a substantial increase in the severity of previously identified significant effects." (See Staff Report for PEDC consideration of Project approvals, Key Issue #4, page 574 of 593 of May 11, 2022 PEDC meeting agenda packet (the "May 11 Packet").) Yet nowhere in the 220-page staff report and attachments for this item is there any meaningful analysis of potential effects or anything supporting PEDC staff's conclusion that none exist. The CEQA addendum prepared to support the approval of the Geothermal Component makes conclusions that no impacts would occur, but fails to cite any technical data or studies to support that conclusion. (See, e.g., May 11 Packet, Limelight Hotel – Addendum to the North Village Specific Plan Environmental Impact Report, May 2022 (the "Addendum"), Section 3.8, Groundwater Supplies, page 641; addendum, Section 3.10, Public Services/Utilities, page 645; Addendum, Section 3.14, Hazards/Hazardous Materials, page 647.)

To compound its failure to comply with CEQA, PEDC staff's so-called "analysis" is based on at least two false premises. The first false premise is that the Geothermal Component would be a "closed loop system", meaning that a heat transfer fluid is circulated through a closed loop of pressure-tight piping underground or submerged in water, and a heat exchanger transfers heat between the refrigerant in a heat pump and the heat transfer fluid in the closed loop.. (See, e.g., May 11 Packet, Staff Report for PEDC consideration of Project approvals, Table 3, page 567; Addendum, Section 3.8, Groundwater Supplies, page 641.) But the fact is that the Geothermal Component is not intended to be a closed loop system at all, as a simple reading of the Drilling Report would reveal. (See Drilling Report, Executive Summary, fourth paragraph, page 5; subsection 3.1, page 31.)

The second false premise is that the Addendum properly and completely describes the Geothermal Component, so that there is an "accurate, stable and finite project description," which California courts recognize as "the sine qua non" of an informative and legally sufficient CEQA review document.[1] The lack of a proper description of the Geothermal Component is a sufficient basis alone to invalidate the Addendum and reverse the PEDC's approval of the Geothermal Component.

The insufficiency of the Addendum as a basis for the PEDC to approve such a significant change in the Project is apparent because the Addendum describes the Geothermal Component as consisting only of an open-loop geothermal well system. But the Addendum fails to discuss how those wells would be harnessed to actually generate power and heat. In fact, the well could not do anything by themselves. In order to operate them as a power system, the applicant also will be required to construct and operate mechanical systems in order to heat, cool or generate electricity utilizing the geothermal energy produced by the wells. There is no mention or discussion of such a plant, nor of its location or the potential hazards inherent in such an operation. Those hazards include heat transfer fluids used in the power system and risks inherent in their transportation, handling, and storage. Such fluids can be toxic and require special handling and containment facilities.

Yet, the only project description and supporting evidence PEDC staff relies on is a concept provided by the Project applicant in the form of the Drilling Report, which was written for the express purpose of evaluating the geologic and economic feasibility of a geothermal project. The report does not contain any meaningful identification or analysis of potentially significant impacts that might be caused by the Geothermal Component, including pressure effects and water quality effects that could result from drilling and operation of the two offset, open-loop wells. The Drilling Report also fails to fully describe the Geothermal Component's true scope or risks inherent in this new Project element, or propose any mitigation measures or alternatives to address the potential impacts. (See Drilling Report, generally and Introduction, pages 6-7.)

There is much more that renders PEDC's staff's use of the Addendum illegal under CEQA.

MCWD's chief concern, and an issue which barely rated a mention in the 220-page staff report, is that the two wells to be drilled as part of the Geothermal Component would be located between 1,000 and 1,700 feet of one of the District's major production wells, Well 17. This well produces up to 25% of MCWD's drinking water in dry years when minimum amounts of surface water are available, including in the 2022 water year. Thus, Well 17 is critical for maintaining adequate water supplies to serve the Mammoth Lakes community in a drought year, such as we are currently in. In addition, Well 17 is already the warmest well in the District's groundwater supply system, with a chemical composition indicative of mixing with geothermal waters as documented by the United States Geological Survey's (USGS) 2019 analysis of monitoring data collected as part of the CD-IV Groundwater Mitigation and Monitoring Program (USGS, 2019). This geothermal water has higher

[1] *City of San Jose v. Great Oaks Water Co.* (1987) 192 Cal.App.3d 1005, 1017.

concentrations of heavy metals and dissolved constituents including arsenic which is already elevated at Well 17 compared with other MCWD wells. If the concentration of arsenic, and other contaminates including chloride and boron, increases as a result of drilling and operating the Geothermal Component, it could make water from Well 17 untreatable. All PEDC staff had to do was pick up the phone and call MCWD staff to obtain this information and identify the potential for such a significant environmental impact.

Additional defects in the Addendum process and the basis for a much more robust CEQA analysis in the form of a supplemental or subsequent EIR include the following.

The Drilling Report mentions that the applicant will need to provide proof of non-interaction with water supply, yet there is no discussion regarding how this will be accomplished. Or of the level of risk of interaction or any mitigation measures or alternatives that might avoid such potential harm to the Mammoth Lakes community's water supply.

The Project documents also paint an overly simplistic representation of a "shallow reservoir" and the "deeper reservoir" and assumes, without evidence, that they are completely distinct and separated by an aquitard or other barrier that the well driller can simply punch through and case without any ill effects. These are all unsubstantiated assumptions that are neither analyzed in any meaningful way or supported by any references to technical data or documents or included in the record. As noted in the Drilling Report, "…the entire property sits above the Long Valley Caldera ring fracture zone, which is a known conduit for geothermal fluids just to the north." The report's authors point this out because they hope to drill into rock with lots of faulting and high permeability. The same faulting could be a conduit to transport untreatable geothermal fluids into the "shallow reservoir" comprising the community's drinking water supply. The Drilling Report also notes that both the "shallow reservoir" and the "deeper reservoir" have elevated Chloride to Boron ratios indicating geothermal influence in both. There is even speculation in the report on how the geothermal fluids might be mixing in the system. Yet, PEDC staff ignored all of these potentially serious adverse impacts and instead dismissed them with no more than a conclusion that is essentially "there is nothing to see here, so let's move on."

Given the evident, potentially serious adverse environmental impacts of the proposed new Geothermal Component and its novel use in Mammoth Lakes, not only did PEDC staff have a duty to properly identify and fully analyze those impacts, but staff had an obligation in the circumstances to evaluate potentially feasible mitigation measures and project alternatives. For example, the Drilling Report advises that a true "closed-loop" heat pump system could be an effective alternative. Another option might be an off-site geothermal power system located in a much lower-risk location that could serve the existing and future

North Village Specific Plan Area development.[2] Also, given the risks of the Geothermal Component and the Project applicant's unequivocal statements at the May 11, 2022 PEDC meeting that use of geothermal energy in the Project is significantly more expensive, a "no project" alternative should have been evaluated because it would pose less risk to the drinking water and less risk to the applicant. This failure is sufficient grounds for the Town Counsel to reverse the PEDC's approval of the Geothermal Component and to direct that PEDC staff prepare a supplemental or subsequent EIR which includes an appropriate alternatives analysis.

Likewise, in light of the readily available information that the new Geothermal Component had the potential to cause significant environmental effects, PEDC staff should have considered what mitigation measures might be required to reduce those potential impacts to less than significant. Feasible measures include pre-Project modeling, construction of monitoring wells both to collect pre-Project baseline water quality and pressure data and to monitor on-going operations to help in early detection of possible migration of geothermal fluids from the deep reservoir into the cold shallow reservoir that provides the community water supply, stress tests as part of well commissioning, and an adaptive monitoring and remediation plan if early impacts are detected. Many of these mitigation measures have been incorporated in the mitigation and monitoring plan for Ormat's Casa Diablo-IV project.

MCWD hereby provides **Appendix 1** to this appeal, which is a technical memorandum prepared by the District's consulting hydrogeologists, West Yost Associates. This technical memorandum analyzes the Addendum and Drilling Report and explains those documents' deficiencies and identifies the potentially significant environmental impacts of the Geothermal Component that would have been readily identifiable and subject to further analysis in any competent and diligent CEQA review of this significant Project change.

II. The PEDC violated CEQA by failing to comply with its duties as the lead agency when it failed to perform any meaningful analysis of the potentially significant effects of the Geothermal Component.

The procedural part of MCWD's appeal also is simple – The PDEC violated CEQA by evading its role as lead agency for the project and instead delegating its independent and primary duty to have analyzed the potentially significant effects of the Geothermal Component to a responsible agency, in this case the Division of Geologic Energy Management Division of the California Department of Conservation ("CalGEM"). This violation is an independent and sufficient ground for the Town Council to reverse the PEDC's approval of the Geothermal Component.

[2] The existing Village development is already plumbed to be operated using geothermal energy. Also note that MCWD has the latent power in statute to own and operate a geothermal energy system to serve the Town.

It is well established that CEQA embodies California's "strong and enduring public policy to protect the environment" by requiring state and local agencies to execute their duty to give "major consideration" to preventing environmental damage.[3] The purpose of CEQA is to: (1) inform agency decision-makers and the public about potential, significant environmental effects of proposed projects; (2) identify ways that environmental damage can be avoided or significantly reduced; (3) prevent potentially significant damage from projects by changing them through use of feasible alternatives or mitigation measures; and (4) disclose to the public the reasons why an agency approved a project involving significant environmental impacts.[4] As the California Supreme Court has ruled:

> CEQA review is undertaken by the lead agency, defined as "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect on the environment." *The lead agency's function in the environmental review process is so important that it cannot be delegated to another body*.[5]

As noted in Section 15020 of Title 14 of the California Code of Regulations (hereafter, the "CEQA Guidelines"):

> A public agency must meet its own responsibilities under CEQA and shall not rely on comments from other public agencies or private citizens as a substitute for work CEQA requires the lead agency to accomplish. For example, a lead agency is responsible for the adequacy of its environmental documents. The lead agency shall not knowingly release a deficient document hoping that public comments will correct defects in the document.

As also stated, and often repeated, by the California Supreme Court and appellate courts, the EIR is the "heart of CEQA" and is required to inform the public and its responsible officials of the environmental consequences of a decision before it is made. To fulfill this duty, a public agency must not only use an EIR to identify the environmental impacts and mitigation measures to be considered in a CEQA review, but also project alternatives including a no project option. The alternatives and mitigation analysis forms "the core of an EIR."[6]

This appeal involves an addendum to an existing EIR, which has been modified several times previously. As PEDC staff admits both in the Addendum itself and several times during the agenda item at the May 11, 2022 PEDC meeting to consider the addition of the

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[3] *Friends of the Eel River v. North Coast Railroad Authority* (2017) 3 Cal.5th 677, 712, citing Public Resources Code section 21067.
[4] *Tomlinson v. County of Alameda* ((2012) 54 Cal.4th 281, 285-286.
[5] Public Resources Code section 21002.1, subd. (d) ["The lead agency shall be responsible for considering the effects, both individual and collective, of all activities involved in a project."]; *Friends of the Eel River, supra,* 3 Cal.5th at pages 712-713 (italics added; original emphasis and internal citations omitted).
[6] *Id.,* at page 713.

Geothermal Component, the Geothermal Component is an entirely new addition to the Project that was not previously considered or analyzed in the 1999 SEIR or any previous modification to it. The new and previously unanalyzed addition of the Geothermal Component fundamentally changes an important aspect of the Project – substituting a relatively rare, unconventional energy source for heating and powering a hotel operation instead of using conventional propane and electrical power sources already available from existing providers immediately within the Project vicinity.

CEQA permitted the PEDC to consider using a CEQA addendum for the Project change to include the Geothermal Component. But the PEDC staff's decision to use an addendum required complying with Public Resources Code section 21166 and CEQA Guidelines section 15162 by finding, on the basis of substantial evidence in light of the record, that the Geothermal Component would not involve any new significant environmental effects not known or reviewed in previous project CEQA documents and that would necessitate the preparation of a supplemental or subsequent EIR. As noted in CEQA Guidelines section 15164, an addendum may only be used if project changes are minor and technical in nature. If a determination to use an addendum is not supported by substantial evidence in the record, it is subject to challenge and a court may invalidate the addendum.[7]

As noted in Part I of this appeal, the PEDC's decision was made without any substantial evidentiary support in the record. Town staff simply concluded, without any analysis, supporting evidence or consultation with responsible agencies and experts, that the Geothermal Component would not have any significant environmental impacts. Worse, and as noted in this Part II, PEDC staff simply absolved itself of addressing the issue in any meaningful way and instead punted the issue without any basis in fact to CalGEM.

In an analogous case involving the City of San Jose's proposed change in water supply sources for a land use project approval, a California Court of Appeal concluded that the city violated CEQA by "simply ignor[ing] the potentially adverse environmental impacts wrought by a change in the water supply system from one based on . . . preexisting wells to one based on . . . proposed new wells in an area known to have underground contamination of the water supply."[8] The court was particularly concerned that the lack of any substantive analysis of potential impacts of the project change deprived the public and agency decision-makers of any meaningful participation and information, noting that, "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal and weigh other alternatives in the balance.[9]

In addition, PEDC staff violated CEQA by failing to perform their duty to engage in early and full collaboration with MCWD, CalGEM, and other responsible agencies to assist in staff's identification and analysis of the potentially significant effects of the Geothermal

[7] *Save our Heritage Organisation v. City of San Diego* (2018) 28 Cal.App.5th 656, 667.
[8] *City of San Jose v. Great Oaks Water Co., supra,* 192 Cal.App.3d at pages 1016-1017.
[9] *Id.,* at page 1017.

Component. Because the Geothermal Component is an entirely new Project component and raises the potential for significant environmental effects that would not have been raised when the Project was planned to use conventional power sources delivered by established providers, PEDC staff should have engaged with MCWD and other responsible agencies as soon as possible after the Project applicant proposed replacing conventional power sources with the Geothermal component. This is particularly true of those with special expertise such as MCWD and CalGEM. (Public Resources Code section 21153, see also, Section 21003.1; CEQA Guidelines section 15086.)

As recognized by PEDC staff both in the staff report and in verbal comments during the May 11, 2022 PEDC meeting, both MCWD and CalGEM have special interests and expertise regarding the potential environmental effects of drilling and operating geothermal wells. In spite of this admitted knowledge, MCWD staff only learned of the specific details of the proposed Geothermal Project when it received agenda notice of it on May 6 and, even then, had to ask PEDC staff to provide the Drilling Report. Staff did not provide the report until May 10, one day before the PEDC meeting at which this significant change was approved. Staff's obvious failure to consult with expert and responsible agencies also was clear at the hearing – they could not describe the CalGEM permitting process or provide the commission any assurance of the scope of CalGEM's authority to further review or condition the Geothermal Component. As shown on **Appendix 2** to this appeal, the scope of CalGEM's authority and review of the Geothermal Component will be extremely limited and is unlikely to include any substantive CEQA review of the component's potentially significant environmental effects.

MCWD's Request for Council Action in Response to this Appeal:

Based on the PEDC's violations of CEQA in approving the Geothermal Component, MCWD requests that the Town Council reverse the approval of the Geothermal Component and remand the issue to the PEDC with direction to: (1) conduct an appropriate review of the potential environmental impacts of the Geothermal Component, which is a completely new component of the Project not analyzed in the 1999 SEIR or any subsequent environmental document prepared for it. That direction also should instruct PEDC staff to consult with MCWD, CalGEM, and other interested regulatory/responsible agencies including Mono County, the Great Basin Unified Air Pollution Control District, the SWRCB's Division of Drinking Water, and Lahontan Regional Water Quality Control Board, in order to obtain information about potentially significant environmental effects of the new Geothermal Component of the Project; and (2) prepare a supplement to the SEIR or subsequent EIR as necessary to analyze any significant impacts of the Geothermal Component and alternatives to the Geothermal Component identified during the study and consultation with responsible and expert agencies.

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APPENDIX 1

TECHNICAL MEMORANDUM

DATE: May 25, 2022

Project No.: 947-80-20-02
SENT VIA: EMAIL

TO: Mammoth Community Water District

FROM: Kenneth Loy, PG #7008

REVIEWED BY: Mark Wildermuth, PE, RCE #32331

SUBJECT: Preliminary Review of Limelight Hotel, Addendum to the North Village Specific Plan Environmental Impact Report, and Limelight Hotel Geothermal Drilling Study



West Yost conducted a preliminary review of the referenced documents and identified several concerns, which are documented in this technical memorandum.

BACKGROUND

Limelight Mammoth, LLC (Applicant) has requested approval to develop a 185,754 square foot, 166-unit condominium hotel (Limelight Hotel project) within the Town of Mammoth Lakes' (Town) North Village Specific Plan (NVSP) area. The Town made the determination that the Limelight Hotel project, as currently proposed, is consistent with prior NVSP environmental analyses required by the California Environmental Quality Act (CEQA), except for a proposed geothermal well system, which would be located at the Limelight Hotel project, and would be used to offset propane gas and electricity use by supplying heat, electricity, hot water, de-icing, and other beneficial uses for Limelight Hotel facilities.

The Applicant commissioned a study titled *Limelight Hotel Geothermal Drilling Study* (Geothermal Drilling Study) (Geothermal Resource Group, Inc. [GRG], 2021). As documented in the Geothermal Drilling Study, GRG evaluated the geologic setting and concluded that "geothermal wells drilled on the property have a strong likelihood of achieving the project goals of 85-250 gallons per minute (gpm) of water between 140-175°F". The Geothermal Drilling Study did not include site-specific drilling, testing or water quality sampling, and did not provide analysis of the potential impacts to the Town's groundwater resources from the proposed geothermal well system.

Mammoth Community Water District (MCWD) provides potable water supply to the Town, and groundwater is a significant source, comprising 100 percent of the Town's supply during summer and fall months and more of the year during drought conditions. The proposed Limelight Hotel project is located in MCWD's service area and within the area from which MCWD pumps groundwater for drinking water supply. Notably, MCWD-17, a major production well that supplies up to 25 percent of the total groundwater supply, is located between 1,000 and 1,700 feet from the proposed Limelight Hotel project's proposed geothermal well system.

The Town prepared the *Limelight Hotel, Addendum to the North Village Specific Plan Environmental Impact Report* (EIR Addendum) to address the CEQA requirements for the proposed geothermal well system (Town of Mammoth Lakes, 2022). EIR Addendum Section 2.1, Addendum's Purpose and Need, concludes that no "Substantial changes are proposed in the project, which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects." Section 3.8, Hydrology and Drainage states that the proposed geothermal well system "would involve a closed loop system" and goes on to conclude that, "the upper aquifer is the aquifer referenced in the Groundwater Management Plan for the Mammoth Basin Watershed (dated July 2005), and the proposed Modified Project does not utilize or impact such groundwater supplies. Therefore, the Modified Project would not conflict with such groundwater management plan and any potential impacts pertaining to groundwater supplies would be less than significant." The EIR Addendum also concluded that the addition of the proposed geothermal well system would not require new mitigation measures.

PRIMARY CONCERN

Although the EIR Addendum states that potential impacts to groundwater supplies would be less than significant, neither the EIR Addendum nor the Geothermal Drilling Study provide any evaluation or technical analysis of the potential impacts to the beneficial uses of groundwater resources resulting from the proposed geothermal well system or to support the conclusion that no significant impacts would occur. The proposed geothermal well system would be located in an important groundwater resource area beneficially used for municipal and domestic drinking water supplies and in close proximity to an important MCWD municipal supply well. The proposed project could cause depletion to, or contamination of, the Town's drinking water supplies.

The primary scientific concern is the potential for the operation of the proposed geothermal well system to degrade groundwater quality. The EIR Addendum and the Geothermal Drilling Study assert, but do not demonstrate with any technical analysis or evidence, that the proposed geothermal reservoir is isolated from the groundwater resource area and the drinking water supply wells within it. The Geothermal Drilling Study notes that both the "shallow reservoir" and the "deeper reservoir" have elevated chloride to boron ratios indicating geothermal influence in both. The Geothermal Drilling Study also points out that the Limelight Hotel project "sits above the Long Valley Caldera ring fracture zone, which is a known conduit for geothermal fluids just to the north." These faults and fractures may also be conduits for the lateral or vertical movement of mineral-laden geothermal waters or brines into the groundwater resource area used for drinking water supply. The similarity of chloride to boron ratios in water samples from the "deeper reservoir" and the "shallow reservoir" is evidence that these conduits exist and provide pathways for the movement and intermixing of water and geothermal fluids. Connectivity between the "shallow reservoir" and "deeper reservoir" is well documented in the United States Geologic Survey's Open-File Report 2019-1063 entitled "Hydraulic, Geochemical, and Thermal Monitoring of an Aquifer System in the Vicinity of Mammoth Lakes, Mono County, California, 2015-17.

The proposed project will place new stresses on the Mammoth Basin's complex hydrologic system. Operation of the proposed geothermal well system will change the spatial distribution of pressure in the geothermal reservoir. Pressure will decrease near the proposed extraction well and increase near the proposed injection well. These changes in pressure will result in flow gradients towards the proposed extraction well and away from the proposed injection well. Movement of geothermal fluids will occur along conduits subject to flow gradients. As stated above, the geologic and water quality data demonstrate the existence of a connection between the deeper geothermal reservoir and the shallow groundwater aquifer. Therefore, changes in reservoir pressure caused by the proposed geothermal well

system have the potential to introduce increased flows of geothermal waters into the potable groundwater supply. This intermixing could cause potentially significant water quality degradation in the groundwater supply, which in turn could cause exceedances of drinking water regulatory standards in public supply wells. In addition, because of the nature of this kind of impact, any significant inducement of contaminated fluids into the water supply aquifer could persist for decades. If the contamination is extreme enough, the quality of the community water supply could be rendered too contaminated to effectively treat to even minimum drinking water standards.

MCWD wells that have geothermal influence (including MCWD-17) have higher concentrations of arsenic, boron, and chloride than other colder-temperature MCWD wells. Data shows that wells with geothermal influence generally have arsenic concentrations about five to forty times greater than colder-temperature MCWD wells.

As of 2018, the average arsenic concentration in MCWD-17 was about 10 times the California and federal Maximum Contaminant Level (MCL) of 0.010 milligrams per liter (mg/L). To meet drinking water standards, MCWD already must blend high-arsenic waters from MCWD-17 with groundwater from MCWD wells with low-arsenic concentrations and then treat this blended supply to produce water that meets arsenic concentrations below the MCL. The arsenic concentration in the geothermal fluid in the Casa Diablo geothermal well field (the same geothermal reservoir the Applicant proposes to use) is very high (1.0 to 1.5 mg/L, which is 10 to 15 times the arsenic concentration in MCWD-17), and this arsenic is a source of the high arsenic concentrations in MCWD-17. Future increases in arsenic concentrations in MCWD-17 waters due to increases in geothermal fluid intruding into the shallow groundwater aquifer could increase MCWD's treatment costs and, at some point, could require MCWD to shut down MCWD-17 until MCWD could upgrade the groundwater treatment capacity to handle the increased arsenic concentration, which would be very expensive.

MCWD operates under Permit No. 05-13-14P-014 from the California State Water Resources Control Board – Division of Drinking Water (DDW). Condition 3 of the permit states, "The District shall protect its sources from any encroachment by sanitary hazards. In particular, any new possible contaminating activity (PCA) shall be noted in the Source Assessment". The proposed geothermal well system is a PCA and construction of the project would likely require an update to the Source Assessment for MCWD-17 and could lead to additional monitoring and treatment requirements from DDW.

If there is a long-term imbalance between the proposed geothermal production and injection, the resulting reductions in pressures in the geothermal reservoir may cause groundwater to seep downwards into the geothermal reservoir. This could cause a drop in the water table in the shallow reservoir and may cause the geothermal fluids in the deeper reservoir to boil and release steam and other gases that could seep upwards through fractures and contaminate the shallow groundwater aquifer used by MCWD. These potential impacts are not hypothetical and have been observed in the nearby Casa Diablo geothermal well field.

The EIR Addendum refers to the proposed geothermal well system as a "closed-loop geothermal well system". This is misleading. A "closed loop system" is one in which a heat transfer fluid is circulated through a closed-loop of pressure-tight piping underground or submerged in water, and a heat exchanger transfers heat between the refrigerant in a heat pump and the heat transfer fluid in the closed loop. Although volumetrically equal amounts of geothermal fluids are proposed to be extracted and injected with no net change in the volume of geothermal fluids in the reservoir, it cannot be said that all of the same fluids will be recycled through the system. The proposed extraction well will capture fluids in a three-dimensional volume surrounding the well intake. Some of these fluids will originate from the injection well; others will be captured from storage in the surrounding rock comprising the reservoir. Similarly,

fluids injected through the proposed injection well will be distributed in the three-dimensional volume around the injection well. Some of these fluids will be captured by the extraction well, while others will move away from the well into the surrounding rock. This means that operation of the proposed geothermal well system will result in a partial recycling of geothermal fluids along with a continual flow of fluids towards the proposed extraction well and away from the proposed injection well along conduits not connected to each well's respective pair but potentially connected to the potable groundwater of the groundwater resource area. Again, this could result in water quality degradation in the groundwater supply and exceedances of drinking water regulatory standards in public supply wells.

OTHER CONCERNS

1. CEQA requires projects to prepare and evaluate project alternatives where feasible. The Geothermal Drilling Study states that a true closed-loop heat pump system could be an effective alternative if geothermal fluid temperature and/or permeability do not meet expectations.
2. The description of the proposed geothermal well system does not describe in any detail the mechanical systems that will be used to heat, cool or generate electricity. The project description does not describe if or what type of heat transfer fluids are proposed.
3. The Geothermal Drilling Study states that the applicant will need to provide proof of non-interaction with the water supply; however, there is no discussion regarding how this will be accomplished.

CONCLUSION

The EIR Addendum and the Geothermal Drilling Study do not evaluate potential impacts to the beneficial uses of groundwater resources resulting from the Limelight Hotel project's proposed geothermal well system. Potential water quality impacts to the groundwater resource area and drinking water wells within it could be potentially significant, persistent over many years and very difficult to remediate after they are manifested.

RECOMMENDATIONS

1. The CEQA analysis should be revised to evaluate the potential effects of the proposed geothermal well system on the groundwater resource area, the beneficial uses of this resource, and the municipal and domestic well infrastructure. The analysis should include the construction, testing and monitoring of test wells to support the impact analysis and the development of a monitoring program.
2. The CEQA analysis should be revised to consider project alternatives, including true closed-loop systems.
3. Monitoring and mitigation measures appropriate to the revised analysis should be developed.
4. Technical studies should be conducted to support a more complete and definitive evaluation of the potential impacts of the proposed geothermal well system on the groundwater resource area, the beneficial uses of this resource, and the municipal and domestic well infrastructure.

REFERENCES

Geothermal Resource Group, Inc. 2021. *Limelight Hotel Geothermal Drilling Study. June 8*.

Town of Mammoth Lakes. 2022. *Limelight Hotel, Addendum to the North Village Specific Plan Environmental Impact Report*. May 3.

United States Geologic Survey. 2019. *Open-File Report 2019-1063 entitled "Hydraulic, Geochemical, and Thermal Monitoring of an Aquifer System in the Vicinity of Mammoth Lakes, Mono County, California, 2015-17*.

APPENDIX 2

Garrett Higerd

From: Salera, Jerry@DOC <Jerry.Salera@conservation.ca.gov>
Sent: Monday, May 23, 2022 5:37 PM
To: Garrett Higerd
Cc: Mark Busby; Wardlow, Charlene@DOC
Subject: RE: Limelight Hotel Geothermal Project

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Garrett,

I'm sorry I have not been able to respond right away to your email. I did see you called as well and left me 2 voice messages.

With respect to the EIR Addendum and the request for us to support MCWD's appeal, I think we cannot take a position. We have not received any Notices of Intentions (NOIs) and any accompanying documentation for us to review and evaluate.

In answer to your questions:

- Who is the decision-making body at CalGEM that will make the decision on the permit and file the CEQA Notice of Determination?
  I review the application together with my Associate Engineer and the Geothermal Program Manager approves the permit on behalf of the State Oil and Gas Supervisor, the top person in CalGEM.

- When in the process will we be able to review and comment?
  In the typical process for reviewing and approving drilling permits, we don't engage the public for comments. We just want to make sure that the proposal conforms/meets our regulations. However, for the operation of the injection well, we will accept public comments for a certain period during the injection permitting process. As mentioned before, the injection permitting process also involves EPA Region 9 (based in San Francisco).

- How many other geothermal projects are there in the state in such proximity to a community's drinking water supply? Can you provide examples?
  Offhand, I can mention injection projects we have permitted in Susanville (Lassen Co.), Calistoga (Napa Co.) and Alturas (Modoc Co.) where there are USDWs in proximity to the project area. Similarly, in Desert Hot Springs in Riverside Co. we have not permitted any injection but only production wells.

Sincerely,

Jerry Salera
Senior Oil and Gas Engineer (Supervisor)
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