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June 10, 2026

Erin Uloth, Forest Supervisor

Mt. Baker-Snoqualmie National Forest

1000 SE Everett Mall Way, Suite 410

Everett, WA 98208

Re: DEA 2025 Mt. Baker Geothermal Consent to Lease (CTL)

Dear Erin:

Thank you for the opportunity to provide comments on the Draft EA for the 2025 Mt. Baker Geothermal Consent to Lease (CTL) Project.

I worked for the USFS starting in 1977, and on the Mt. Baker Ranger District as a fisheries biologist, starting in 1984, until retirement in 2003. Until 1992, I handled duties as the District wildlife and fisheries biologist.

The Bureau of Land Management (BLM) is requesting the USFS to grant consent to lease 60,097 acres of nominated parcels on NFS lands surrounding Mt. Baker for geothermal exploration and development. The MBS will evaluate surface suitability of the nominated parcels and determine if the lands should be leased, leased with stipulations, or withdrawn from further consideration for subsequent development activities. This project does not make the decision to grant leases or authorize and exploration or development activities and only authorizes the BLM to provide nominated lands for competitive bid.

How can the USFS determine the potential resource degradation without conducting site-specific analysis? The stipulations recommended in this DEA are very general and not tied to specific geothermal sites. Does this mean that after the USFS nominates parcels of NFS lands available for geothermal leasing by the BLM, that there will be no site-specific environmental analysis to determine the proper stipulations, mitigation measures, and effectiveness monitoring?

This DEA, and accompanying resource reports, state that there is no ground disturbance related to the proposed action under analysis by the USFS and that it is only an administrative consistency evaluation to determine whether existing law, policy, or regulations allow leasing NFS land for potential geothermal exploration and development.

Then which agency, USFS or BLM, will do the in the ground environmental analysis for the parcels that are selected by the BLM for bid? It is also unclear as to which agency will enforce the required stipulations for each geothermal project.

By the USFS approving parcels to be leased for the BLM to put out to competitive bid, this is putting the natural resource values of these parcels at risk and the degree of impacts will be determined by the BLM or USFS sometime in the future? By withdrawing the parcels with the most sensitive resources now will provide protection to these parcels from impacts from geothermal development.

General Comments

I support finding and utilizing clean and renewable energy sources, such as geothermal, solar and wind, to help reduce greenhouse gas emissions. However, potential impacts to the other natural resources located around Mt. Baker need to be evaluated, as thoroughly as possible, since many of the parcels are located within ecosystems that are inhabited by very unique sensitive wildlife and plant communities, particularly mountain goats and Bull Trout.

The DEA indicates that geothermal development typically has four phases of development: 1) Geothermal Resource Exploration, 2) Drilling operations, 3) Utilization, and 4) Reclamation and Abandonment. All four phases can have significant impacts to forest ecosystems, depending upon many factors, particularly the location

of the parcel, in relation to sensitive areas (wildlife habitats, unstable soils, etc.) and other special natural resources.

Within the 60,097 acres there are 23 nominated parcels, with their legal land descriptions on pages 26-31, in Appendix B of the DEA. However, these parcels are displayed very generally on a series of maps (Figures 1-6) without showing where they are actually located, making it impossible for the reviewer to try and figure out parcel locations on the maps provided. It would be very helpful to number the parcels on the maps so the public can provide more meaningful comments. However, even if the parcels are numbered there still would be inadequate details for both the reader, USFS, and BLM, to stipulate and assess specific sites and that are within or adjacent to sensitive areas.

On the maps (Figures 1-6 in the DEA) it is not clear what the differences are between "Nomination Areas," "Allowed Occupancy," "No Surface Occupancy" and "Unavailable." There needs to be a section where these terms are clearly defined.

There are 24,516 acres of Inventoried Roadless Area located in the project area. Based on the Inventoried Roadless Area, and Allowed Occupancy maps provided, many of the "Nomination Areas" are located within Inventoried Roadless Areas. This means that the majority of the parcels are located in relatively undisturbed habitats and ecosystems where any new ground disturbance and noise disturbance from geothermal activities would have possible adverse effects to many animal and plant species.

As the DEA states on page 9, "A lease stipulation is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or at certain locations, or by mitigating unavoidable impacts to an extent greater than standard lease terms or conditions."

Geothermal power plants can have impacts on water quality and air quality as well as some effects on life-cycle global warming and closed-loop systems are recommended over open-loop systems which emit hydrogen sulfide, carbon dioxide, ammonia, methane, and boron (Union of Concerned Scientists 2013). Lider (2026) lists 23 recommendations and stipulations in his comment 5/14/2026 letter that make sense. Particularly, his recommendations about requirements to install "closed loop systems," impacts from fracking, a description of the well "blow-out preventer," requiring a significant (\$10 million) performance bond, and having a sunset window in the DEA for the length of exploratory leases.

With the exclusively pro-fossil fuel development, and anti-alternative energy emphasis by the Trump Administration, and the significant staff and budget cuts, what assurance is there that the BLM, USFS and other federal agencies (USFWS, NMFS, etc.) will be able to conduct adequate evaluations, follow up monitoring, etc., for lease sites and follow through on the numerous lease stipulations for the 4 geothermal development phases that are identified in the DEA Appendix C, USDA FS 2015, and the PEIS (USDA FS & USDI BLM 2008), and the Standards and Guidelines in MBS NF LRMP (USDA FS 1990) and the NWFP (USDA FS & USDI BLM 1994).

Mountain Goats

Mountain goats, designated by the USFS as a sensitive species (USDA FS 2002), are a unique wildlife species that is in trouble, with recent population declines around Mt. Baker, and other areas in the North Cascade Range. They inhabit much of the rugged, steep and unroaded areas nominated for geothermal leases. Their habitat also includes projecting pinnacles, ledges, and talus slides, with mature and old-growth stands nearby, and their winter range is at lower elevations than summer range (USDA FS 1995).

The Washington Department of Fish and Wildlife (WDFW) website states that "Fewer than 3,000 mountain goats likely reside in Washington currently, the majority of those in the Cascade Mountains from the Canadian border south to around Mt. Adams. Mountain goat populations have declined overall in Washington relative to estimated historical levels. Goat populations within the state were considered to have exceeded 10,000 animals as recently as 1961 and populations in the North Cascades have been declining since around 2016 and are now generally doing poorly across the region, both east and west of the Cascade Crest compared to historical levels.

Mountain goats have naturally low reproductive rates relative to other ungulates like deer and elk. The low reproductive rate limits their ability to bounce back from population declines, especially if a decline is associated with habitat limitations. WDFW rates mountain goats as having a Moderate-High vulnerability to climate change.

I worked on the Mt. Baker Ranger District between 1984 and 2003, and had wildlife program responsibilities until

1992. Since retirement I have spent considerable time hiking in the Mt. Baker area. I have been able to observe mountain goat habitat use and behavior. I have been talking to local mountain goat experts who are very knowledgeable about mountain goat habitat locations in the Mt. Baker area.

I summarize nine key mountain goat areas within the geothermal allowed occupancy areas, as shown in the maps provided, that need to be considered very sensitive mountain goat habitat areas as part of this lease consent process.

1. On Figure 5. Upper Shannon Creek-Shuksan Lake area
2. On Figure 5. Rainbow Creek- Rainbow Falls - Baker Hot Springs area.
3. On Figure 5. Dillard Creek-Sandy Creek area
4. Figure 6. Loomis Mtn. area
5. Figure 6. Upper Ridley Creek-Rankin Creek area.
6. Figure 3. Grouse Ridge - Grouse Butte - upper Clearwater Creek area
7. Figure 3. Cougar Divide area.
8. Barometer Mtn. - Slate Creek area
9. Sholes Creek - upper Wells Creek - Lasiocarpa area

DEA Specific Comments

Page 2. Project Location, Table 1. Project Location

Table 1 only shows 9 parcels for proposed for lease. This is not consistent with the 23 nominated parcels shown in Appendix B. If the attempt here was to try to lump the 23 parcels into 9 categories, this should be explained to avoid confusion. Again, it is critical to number each parcel so they can then be located on the maps (Figures 1-6) provided to help in reviewing this DEA. However, even if the parcels are clearly numbered there still would be inadequate details for both the reader, USFS, and BLM, to stipulate and assess specific sites and that are within or adjacent to sensitive areas.

Page 3. Figure 1. Does not distinguish the 23 (or 9 listed in Table 1) parcels nominated for consent to lease, only large blocks of orange color. See my previous comments on this.

Page 4. Purpose and Need

3rd paragraph states "If the leasing of lands for the development of geothermal energy would cause impacts to public lands or resources prohibited in other direction (law, regulation, or policy), the BLM does not have a right to lease that land. It is the responsibility of the USFS to identify where potential resource degradation may occur and develop stipulations to minimize or eliminate negative impacts."

How can the USFS determine the potential resource degradation without conducting site-specific analysis? The stipulations recommended in this DEA are very general and not tied to specific geothermal sites. Does this mean that after the USFS nominates parcels of NFS lands available for geothermal leasing by the BLM, that there will be no site-specific environmental analysis to determine the proper stipulations, mitigation measures, and effectiveness monitoring?

4th paragraph, 2nd sentence states "The USFS will eliminate (deny) lands from further consideration when leasing would violate current management directions, law, or regulation."

How can the USFS determine which parcels to eliminate without conducting site-specific analysis?

6th paragraph states "For lands that are determined to be suitable for leasing and potential development, the USFS may develop stipulations, which the BLM will incorporate into subsequent environmental analyses and decisions to reduce or eliminate adverse environmental impacts associated with exploration and subsequent development of geothermal resources."

How can the USFS develop stipulations for lease sites without having conducted site-specific analysis to determine which stipulations and mitigation measures would apply?

Page 5. Existing Condition table has no unique table number? Also missing in the table appears to be MA 14 Deer & Elk Winter Range.

Standards and Guidelines related to Minerals and Energy (LRMP p. 4-136)

Page 7. Item 7, states "'No surface occupancy' stipulations will be incorporated in lease recommendations when:

- a. surface occupancy would cause significant resource disturbance which cannot be mitigated by other means;
- b. where resource impacts would be irreversible or irretrievable; or

c. the activity proposed is incompatible with the surface management prescription."

Again, how can the USFS determine "no surface occupancy" and develop stipulations for lease sites without having conducted site-specific analysis to determine which stipulations and mitigation measures would apply? Standards and Guidelines related to Minerals Management (NWFP p. C-34-C-35)

Page 8. MM-4 states "MM-4. For leasable minerals, prohibit surface occupancy within Riparian Reserves for oil, gas, and geothermal exploration and development activities where leases do not already exist."

This direction is pretty clear that there will be no surface occupancy within RRs!

Page 11. Table 2, describes the four typical phases of geothermal development. During each phase there is the potential to impact riparian, aquatic, wildlife and plants habitats that are important for many species.

Page 13. Substantive Issues Identified for Analysis.

3rd paragraph states "This project is unusual in that there is no ground disturbance related to the proposed action under analysis."

So, when, and at what stage, will the ground disturbing actions be analyzed by the USFS or BLM?

Environmental Impacts

2nd paragraph states "There are no reasonably foreseeable short-and long-term effects from the proposed action, either beneficial or adverse."

This statement is confusing. How can there be no reasonably foreseeable short-and long-term effects from the proposed action, when long-term effects would occur from actual future ground disturbance that is not being analyzed?

Also, as I stated earlier, by the USFS approving parcels to be leased for the BLM to put out to competitive bid, this is putting the natural resource values of these parcels at risk and the degree of impacts will be determined, or not, by BLM sometime in the future. Withdrawing the parcels with the most sensitive resources now will provide protection to these parcels from impacts from geothermal development.

Page 16. Pertinent Executive Orders.

It is significant to note that the three newest Trump Administration Executive Orders (14154, 14156, and 14241) are all promoting fossil fuel development over alternative energy resources. There is no mention of geothermal development energy opportunities.

Appendix B. Parcel Legal Land Descriptions

Pages 26-31. As noted previously these 23 parcels are not distinguishable on the maps provided. It is very important to number each of these parcels on the maps so meaningful review by the public can occur. However, even if the parcels are clearly numbered there still would be inadequate details for both the reader, USFS, and BLM, to stipulate and assess specific sites and that are within or adjacent to sensitive areas.

Appendix C. Stipulations

Pages 32-40. Other than the S8 Soils and Riparian Reserve maps provided, few if any of these stipulations are shown on maps. It would be more helpful to somehow display these on maps, where possible, to have a better idea of how significant these stipulations are to protect other natural resources and ecosystems from impacts from proposed geothermal development.

Page 41. Sensitive Species Stipulation.

States "For agency designated sensitive species (e.g. Mountain Goat), a lease stipulation (NSO, CSU, or TL) would be imposed for those portions of high value/key/crucial species habitat where other existing measures are inadequate to meet management objectives."

As stated previously, under the Trump Administration conditions, I have a significant concern about the ability of the BLM, USFS and other agencies to make sure that these measures and other lease stipulations will be implemented.

Minerals and Geologic Hazards Report (James 2026)

Page 1. 3rd paragraph, states that "The RFD scenario cannot predict the magnitude or extent of these impacts. Only after the leases are offered, and a lease submits a plan for exploration and development, can accurate predictions be determined for the magnitude and extent of environmental effects."

However, as I stated earlier, by the USFS approving parcels to be leased for the BLM to put out to competitive bid, this is putting the natural resource values of these parcels at risk and the degree of impacts will be

determined by BLM or USFS sometime in the future. Withdrawing the parcels with the most sensitive resources now will provide protection to these parcels from impacts from geothermal development.

Page 3. Affected Environment

3rd paragraph states "the North Cascade Range is steeper and wetter than most other ranges in the conterminous US."

This makes it clearer about how challenging and difficult geothermal development will be for these lease areas.

Page 4. 2nd paragraph states "Unconsolidated materials are highly susceptible to both physical and chemical weathering which can increase the risk of instability. These unconsolidated materials make up approximately 24 percent of the lease area and include alluvium, glacial drift and till, talus, and landslide deposits."

This is further evidence of how challenging and difficult geothermal development will be for these lease areas.

Volcanic Hazards

2nd paragraph states "All of the nominated lands are located in what the US Geological Survey (USGS) has designated as the 'pyroclastic flowage hazard zone'. This zone could be affected by pyroclastic flows, pyroclastic surges, lava flows, and ballistic debris from future eruptions."

Again, further evidence of how challenging and difficult geothermal development will be for these lease areas.

Leasable Minerals

Page 7. 1st full paragraph, states "NFS land has 14 identified hot or mineral springs identified as having direct utilization potential (Bloomquist 1985). Areas identified as having indirect, electrical generation potential include the Sulphur Creek Hot Springs and Mt. Baker (Hot Spring?) where the current pending lease application sites are located (US Forest Service 1990)." Both of these areas, that Hot Rock Energy Research Organization (2025) called, Schreiber's Meadow Spring and Baker Hot Springs, have also been identified as having important geothermal fluids where thermal upwelling occurs and having strong geothermal resource potential. Both of these sites are located in areas that provide important winter/spring/summer habitat for mountain goats, deer and elk.

Geologic Setting and Hazards

3rd paragraph states "Potential effects from drilling and utilization activities might occur in areas where certain geologic instabilities are present. Surface disturbance related to drilling of production/injection wells in these areas could lead to activation or acceleration of mass wasting features, which could in turn lead to increased erosion and sedimentation. Further, placement of facilities in areas of geologic instability may also pose risk to a facility's safety and/or cause maintenance issues."

Page 8. 2nd paragraph states "Geothermal development in the leasing area may include Enhanced Geothermal Systems (EGS). EGS involves creating a reservoir by injecting water, under pressure, to induce shear slip on existing fractures ('hydroshearing'). This increases permeability of the geothermal reservoir and may induce microseismic events."

This sounds a lot like the fracking methods used in oil and gas development and is an added concern about impacts to the aquatic species (amphibians, fish, etc.) that live in surrounding streams and wetlands.

Page 10. Table 2. Typical Disturbance for Exploration of Geothermal Resource Development (PEIS 2008)

The estimates provided for disturbance per plant of 2-7 acres for exploration, 1-6 acres for road/access construction, and 1 acre for temperature gradient wells, are significant.

Pages 10-11. Table 3. Typical Disturbance for Drilling and Utilization of Geothermal Resource Development (PEIS 2008)

The cumulative total estimated disturbance of 53-367 acres is a very significant amount of disturbance.

Specialist Report for Fisheries Resource (Gilman 2026)

Pages 10-11. Fish Habitat Conditions

Watershed Findings

USFS (2000) indicates that most of the environmental baseline conditions for the 19 habitat indicators for Chinook and Bull Trout in the South Fork Nooksack River, Middle Fork Nooksack River, and Baker River, are functioning at risk. So, ground and water disturbances from geothermal development, if not properly located and managed, could add to these problems.

Page 11. Riparian Reserves

States that "Of the approximately 60,101 acres of lands for potential leasing, about 32,00 acres (~52%) are in Riparian Reserves."

This is a significant amount of area that would have no impacts from geothermal development, so what is left available to lease?

Page 12. Table 2. Fish species of interest and special designations.

Indicates that there is designated critical habitat for ESA Listed Threatened Chinook, Bull Trout and Steelhead in the North Fork Nooksack River, South Fork Nooksack River, Middle Fork Nooksack River, and Baker River within the geothermal development analysis area. The allowed geothermal occupancy areas are all located within the headwaters of these important rivers, and their tributaries, and could directly, or indirectly, adversely impact critical habitat for these threatened fish species.

Pages 13-14. Environmental Effects

2nd paragraph states "Potential future effects could occur, but would be assessed in a future analysis when an application is submitted. With the stipulation of no surface occupancy in Riparian Reserves, there would be no potential direct effects from the consent to lease, including from road/access construction, drilling, construction of facilities and infrastructure, pipeline/transmission lines, or from reclamation activities. Indirect effects to fish habitats and fish (occurring away from the project area, or later in time) would be the primary environmental effects that could occur to fish habitat and fish from a potential future site-specific proposed project."

"Exploration and development activities such as road or access construction, construction of facilities and infrastructure, and installation of pipelines and transmission lines, could affect fish habitat and fish from surface runoff contributing to sedimentation, vibrations from use of explosive charges during seismic exploration, changes to the quantity or timing of flows after extensive removal of vegetation, and degradation of water quality from chemical or other contaminants associated with the equipment or facilities."

"Even reclamation of a site has the potential to cause sedimentation or other indirect effects to streams. While such effects would be minimized with this 'no surface occupancy stipulation,' they could potentially occur depending on the actual scope, scale and location of the future application for exploration or development that involves ground-disturbing activities. However, the magnitude and extent of effects of a plan for exploration or development cannot be adequately analyzed until actually proposed."

"Excessive sediments in streams can damage fish gills, decrease the food base and growth of rearing fish, and degrade spawning and rearing habitats by embedding spawning gravels and filling pools that reduce the survival of fish eggs and juveniles. In-water vibrations have the potential to kill rearing and spawning fish, and also during the sensitive early stages of egg and fry development while in gravels."

It is assumed that the environmental effects described above relate to all geothermal development stages.

These do a good job explaining how geothermal development can impact fish and their habitats, but as I stated previously, the magnitude and extent of adverse impacts cannot be assessed in this DEA.

Since roads have the most impacts to the environment, the potential impacts of new roads in the first three geothermal development phases, need to be addressed and cumulative effects considered.

It has been stated previously in the DEA that there would be "no surface occupancy" in Riparian Reserves (RR).

The effectiveness of the RR "no surface occupancy" is completely dependent upon how well these RR are marked on the ground and adhered to in relation potential geothermal activities and facilities.

Wildlife Report (Scharhag 2026)

Page 1. Methodology

Analysis Tasks included:

3rd bullet states "Review of information on mountain goat winter range to identify potential areas to minimize amount of impact to goat habitat."

Looking at the rest of the report I don't see how this task was completed. Other than mentioning roads that already have existing seasonal road closures for mountain goat winter/spring range, I don't see anything new identifying potential areas to minimize impacts to goat habitat.

Pages 3-4. 1990 Forest Plan

Shows specific MBS NF Forest Plan guidance for mountain goats as follows:

"Wildlife Habitat Management p. 4-124(5): Programmed activities in calving, fawning and kidding (Mountain goats) areas should be discouraged. They shall be timed to minimize disturbance to the animals. This may require restricting access and operations during certain times of the year."

"Wildlife Habitat Management p. 4-125(11): Activities that adversely affect mountain goats on their spring and summer range shall be identified and mitigated."

Management Area 15 - Mountain Goat Habitat p. 4-235(G)

a. Mineral exploration and extraction, including common variety minerals, shall include requirements and mitigation measures needed to protect habitat and winter range objectives.

b. Activities that adversely affect goats on winter range shall be identified and mitigated.

Management Area 15 - Mountain Goat Habitat p. 4-235(L)(2):

a. Road construction and reconstruction shall be timed to avoid conflict with mountain goat winter habitat use. Activities shall be restricted between December 1-June 15.

The mountain goat management area (MA 15) was actually created before 1990. Based upon the minimal, best information for mountain goats at that time it was utilized into the 1990 MBS NF Forest Plan. However, looking at the land allocation map for the Baker River Watershed Analysis Area (USDA FS 2002) there are only a few areas delineated as MA 15 Mountain Goat Habitat. There is more recent mountain goat observation information that is not reflected in this old MA 15 mapping done in 1990. Consequently, utilizing 1990 MA land allocation maps to identify mountain goat habitat for this geothermal consent to lease effort, misses many critical mountain goat habitat areas, and may allow development in these previously unidentified areas.

Also, considering the recent population declines and dire condition of North Cascades mountain goat populations, we can ill afford to take the chance of impacting these fragile populations.

Page 11. Region 6 Forest Service Sensitive Species

The species list was last updated November 2021 and includes:

"Mountain Goat (*Oreamnos americanus*)."

Page 12.

"Mountain Goat - Mountain goats are known to use parts of the areas proposed for lease. Goats are found in areas with cliffs which provide security and escape cover from predators.

Page 14. Mt. Baker-Snoqualmie N.F. Management Indicator Species (MIS)

Table 2. Management Indicator Species on the Mt. Baker-Snoqualmie N.F.

Lists as Species Number 5 "Mountain goat" "Preferred Habitats" "Rocky slopes >40 degrees adjacent to forage and cover" "Reason for Selection as MIS" "Big-game Winter Range" "Habitat Present in Analysis Area" "Yes"

Page 19. Applicable Stipulations for Allowable Occupancy

2nd bullet table under "Protection of important habitat and migration corridors" lists roads, closure dates regarding mountain goats as follows:

"Dillard Ridge #1303" "Full Year (Mountain goat winter/spring range and elk summer range)" "Road is decommissioned"

"Wells Creek #33" "11/01-7/01 (Mountain goat winter/spring range)" "Seasonal closure enforced"

"Middle Fork Nooksack #38" "12/01-06/15 (Mountain goat and big game winter/spring range)" "Gate is broken unable to enforce seasonal closure at this time but will resume"

"Smith Basin # 3940" "12/1-/6/15 (Mtn. Goat winter range)" "Road closed bridge deficiencies"

"Any road listed as closed, not decommissioned, could be put back in the transportation system in the future."

Pages 20-21. Consent to Lease

Reasonably Foreseeable Development Scenario

1st paragraph states "Future geothermal development, as described in the RFD scenario (exploration, drilling, utilization, and reclamation), could potentially affect wildlife resources. Wildlife would be affected by the alteration, removal, reduction, or fragmentation of habitat and may be displaced during project activities. Construction activities will impact an area beyond the footprint of surface disturbance at drilling pads, facilities, roadways, transmission corridors and pipelines. Depending on species and individual animal tolerances to disturbance, effects from construction noise and human presence could cause individuals to avoid what is otherwise suitable habitat."

"Animal movement and habitat use patterns may be affected due to habitat fragmentation and disturbance from geothermal activities. Activities during sensitive time periods, including the breeding season and during winter, may also negatively impact wildlife. Geothermal development would have the greatest impact on wildlife if it were to affect high quality habitats such as riparian areas, wetlands, or wintering and breeding areas."

This narrative does a pretty good job of describing potential impacts to wildlife and their habitats from geothermal development. The big question is, with the present USFS funding and staffing issues and project prioritization among competing project needs, who will be doing the on-site evaluation, habitat surveys, and monitoring follow up for these geothermal projects once they are approved for competitive bid by the BLM to make sure they are meeting all of the required stipulations? Under current staffing and funding there is significant uncertainty and concern as to whether this work can be accomplished. It appears that on-site evaluations will be conducted at the last minute, if at all.

Hydrology Resource Report (Kelley 2026)

Pages 24-25. 2nd paragraph states "Riparian Reserves cover nearly 50% of the coverage of any given parcel with a 53% coverage on all parcels total just over 32,000 acres."

As I indicated in the "Specialist Report for Fisheries" the effectiveness of the Riparian Reserve (RR) "no surface occupancy" is completely dependent upon how well these RR are marked on the ground and adhered to in relation potential geothermal activities and facilities.

Table 5. Riparian Reserves located within the Project Area by HUC 12.

Table 5 totals show an average of 2,462 RR Acres within parcels, 4,623 HUC 12 Acres within parcels, and 46.7% of parcels within RRs.

Page 26. Figure 3. Riparian Reserves and Geothermal Parcels (within Roadless Areas indicated).

Based on his colored map it shows very little area left for geothermal use. If that is the case then why put these parcels forward to the BLM for lease?

Pages 32-33. Reasonably Foreseeable Development Scenario

4th paragraph states "With a consent to lease with a 'no surface occupancy in Riparian Reserves' stipulation, future analysis would revolve around primarily around direct and indirect effects to near-and in-stream habitats from sedimentation, in-water vibrations, changes to quantity or timing of flows or other water quality contaminant discharges."

"RFD scenarios for geothermal energy there is an, anticipated increase in water consumption, risk of thermal pollution, and potential contamination of surface water resources. Future development, projected to grow significantly by 2050, focuses on utilizing closed-loop systems to minimize environmental impacts, but operational risks to nearby streams remain a key focus of environmental assessments (USDE 2026, UCS 2013)."

"Exploration, drilling, utilization, reclamation and abandonment can have the following key impacts on streams and water resources (UCS 2013):

- *Contamination from Geothermal fluids

- *Thermal Pollution

- *Subsidence and Groundwater Flow Disruption

- *Water Consumption"

As I indicated previously in the "Specialist Report for Fisheries" and "Wildlife Report," the effectiveness of the Riparian Reserve (RR) "no surface occupancy" is completely dependent upon how well these RRs are marked on the ground and adhered to in relation to potential geothermal activities and facilities. Increased water consumption and pollution to aquatic organisms can occur even if projects are located outside RRs. This could affect groundwater, return flow, and surface flows.

In addition, since it looks like there will be no on-site evaluations conducted prior to nominating these parcels to BLM for lease, so how are the RR boundaries going to be determined and by whom?

Soils Report (Palardy 2026)

Pages 5-6. Tables 1. Unstable and Very Unstable Soils

Although an S8 Soils map (no figure number shown) was provided in the project file, it would be helpful to have a map display the six individual USFS soil units, in relation to the lease parcel nomination areas.

The big question is who (BLM, USFS, contractors, etc.) is going to make sure that these unstable soils areas are delineated on the ground in relationship to the proposed geothermal project sites and make sure that these unstable areas are not impacted? Without adequate staffing and funding and competing project needs, who will be doing on-site evaluation, habitat survey, and monitoring follow up for these geothermal projects once they are approved for competitive bid by BLM to make sure they are meeting all of the required stipulations?

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