UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NEVADA STATE OFFICE

DECISION RECORD

Gerlach Geothermal Exploration Project for Resource Confirmation

DOI-BLM-NV-W030-2022-0001-EA

I. INTRODUCTION:

The United States Department of the Interior, Bureau of Land Management (BLM) Black Rock Field Office (BRFO) received a proposed geothermal resource confirmation drilling project Operations Plan (OP) under the provision of 43 CFR 3261.12 from ORNI 26 LLC, a subsidiary of Ormat Nevada, Inc. (hereinafter collectively referred to as Ormat).

The proposed action is to construct and maintain a geothermal resource confirmation project in the Gerlach Geothermal Unit, NVNV105376888 (Legacy serial number NVN088151X, unitized April 29, 2011), which includes leases NVNV105522415 (Legacy serial number NVN055781, issued 1992), and NVNV105441665 (Legacy serial number NVN075528, issued 2001), and the unincorporated leases NVNV105723448 (legacy serial number NVN098640, issued 2019), NVNV105724214 (legacy serial number NVN098641, issued 2019), and NVNV105517566 (Legacy serial number NVN100029, issued 2020), all held by Ormat. The leased area totals 5,704 acres of BRFO-administered public lands and private lands surrounding the town of Gerlach in Washoe County, Nevada, in all or portions of Sections 3, 4, 9, 10, and 13-21, Township 32 North, Range 23 East, and in all or portions of Sections 25, and 31-36, Township 33 North, Range 23 East, Mount Diablo Baseline and Meridian.

The proposed action includes construction of 19 geothermal resource confirmation wells and well pads, 2.8 miles of improved and new access roads, temporary ancillary support facilities, and applicant committed environmental protection measures. The proposed project area is 2,724 acres and the total surface disturbance within the project area, after interim reclamation, would be 29.4 acres on public lands administered by the BLM. The life of the project is expected to be 5 years.

II. ALTERNATIVES:

The BLM prepared an EA that analyzed Alternative A, the Proposed Action, Alternatives B and C, and the No Action Alternative. A description of each alternative is below, along with a discussion regarding the development of the Proposed Action. Alternatives considered but eliminated from detailed study are also described below.

a. Alternative A: Proposed Action

Alternative A, the proposed action, includes the construction, operation, and maintenance of the project in Washoe County, Nevada (see EA, Figure A-3 in Appendix A). These activities are described in the sections below. Unless otherwise noted, all information describing the elements of Alternative A are from the project operations plan (ORNI 26 LLC 2022). The project area consists of approximately 2,724 acres of public lands administered by the BLM. All proposed surface disturbance would be in the AOI. Proposed surface disturbance in the AOI would be associated with up to 19 resource confirmation wells and well pads, new and upgraded access roads, and expansion of an aggregate pit. Total proposed temporary surface disturbance is 49.3 acres, the number will be reduced to 29.4 acres after interim reclamation. See the EA page 2-9, Table 2-6 for a summary of the proposed disturbances in each alternative analyzed.

b. Alternative B: 3-MILE ACCESS POINT

Under Alternative B: 3-Mile Access Point, access to proposed well pads 71-3, 63-3, 66-3, and 58-3 would utilize the 3-Mile Access Point, an existing dirt road between Washoe County Road 34 (CR-34) and the Black Rock Desert playa. This existing dirt road would not require improvements. From the 3-Mile Access Point, a new access road on the Black Rock Desert playa would extend to the proposed well pads to the south. This is shown in Figure A-4, 3-Mile Access Point (Alternative B), in Appendix A. A portion of this access road, approximately 0.4 miles, would be outside the AOI, and as a result, outside the area surveyed for biological resources during baseline data collection (Ormat 2021).

This alternative would minimize the number of project ingress and egress points along CR-34. Minimizing the number of ingress and egress points would decrease the potential for traffic conflicts between project vehicles and recreationists, in turn reducing the potential for public health and safety issues. It would also minimize vegetation disturbance and the potential for soil erosion along the Black Rock Desert playa shoreline.

The length of new access road construction proposed under Alternative B would differ from that under Alternative A. Up to approximately 1.9 miles of new access roads would be constructed, which is an increase of approximately 1.1 mile from Alternative A. The acres of proposed disturbance associated with the new access roads would also increase. Up to approximately 4.6 acres of disturbance from new access roads are proposed, which is an increase of 2.6 acres from Alternative A.

c. Alternative C: EXISTING WELL 68-3 ACCESS POINT

Under Alternative C: Existing Well 68-3 Access Point, project ingress and egress from CR-34 to proposed well pads 71-3, 63-3, 66-3, and 58-3 would use an existing dirt road between CR-34

and an existing geothermal exploration well pad (well 68-3). This existing dirt road would not require improvements. Existing well 68-3 is east of proposed well pad 58-3. From well pad 58-3, a new access road would extend to the three additional proposed well pads to the north. This is shown in **Figure A-5**, Existing Well 68-3 Access Point (Alternative C), in **Appendix A** of the EA.

As described for Alternative B: 3-Mile Access Point, this alternative would also minimize the number of project ingress and egress points along CR-34. This would decrease the potential for traffic conflicts and health and safety issues, vegetation removal, and soil erosion. Unlike Alternative B: 3-Mile Access Point, no proposed access roads would be outside the AOI.

Under this alternative, up to approximately 1.4 miles of new access roads would be constructed, which is an increase of 0.50.6 miles from Alternative A. The acres of proposed disturbance associated with the new access roads would also increase. Up to approximately 3.4 acres of disturbance from new access roads are proposed, which is an increase of 1.4 acres from Alternative A.

d. Alternative D: No-Action Alternative

Under Alternative D, the no-action alternative, the BLM would not approve Ormat's application to construct, operate, and maintain up to 19 geothermal resource confirmation wells and the associated facilities.

e. Alternatives Considered but Eliminated from Detailed Study

No alternatives other than Alternative A, the proposed action; Alternative B, 3-Mile Access Point; Alternative C, Existing Well 68-3 Access Point, and Alternative D, the no-action alternative, were proposed during internal scoping.

During the 60-day pre-scoping period discussed in Section 1.7, a commenter suggested that Ormat should consider including a solar component, similar to the solar component at the Tungsten Mountain geothermal facility in Churchill County, Nevada (BLM 2021a). The electricity generated from the Tungsten Mountain solar component will be used to offset the geothermal facility's energy use and increase the renewable energy delivered by the project (Ormat 2019). This potential alternative was eliminated from detailed analysis because Ormat is no longer proposing a geothermal development project.

Further, the project is in an area that is not open for solar leasing and development, per the Winnemucca District RMP (2015) and the Black Rock Desert High Rock Canyon Emigrant Trails NCA and Associated Wilderness, and Other Contiguous Lands in Nevada Record of Decision and RMP (BLM 2004), as amended by the BLM's Approved Resource Management Plan Amendments and Record of Decision for Solar Energy Development in Six Southwestern

States [BLM 2012] Solar development in this area would require the BLM to grant a variance to the plans.

During the 30-day public scoping period, a commenter asked about alternative project locations, including moving the project east of Gerlach (BLM 2022a). This potential alternative was eliminated from detailed analysis because this location would be inconsistent with the known geothermal resource areas and federal geothermal leases held by Ormat in the AOI.

III. CONFORMANCE:

The Proposed Action is in conformance with the BLM Winnemucca District Resource Management Plan (RMP; BLM 2015a), as amended. Specifically, the Proposed Action is consistent with Objective D-MR 4 (BLM 2015a, p. 2-172), which states, in part, that "Lands within the WD would be open to geothermal and oil and gas leasing and development except where incompatible with important resource values." The Project Area is located within a fluid salable mineral area designated as "Open with Standard Stipulations" and "Open with Standard and Special Stipulations". All geothermal resource confirmation activities would occur within leases NVNV105522415 and NVNV105441665 designated as "Open with Standard Stipulations", and NVNV105724214, and NVNV105517566 designated as "Open with No Surface Occupancy."

The action is also in conformance with the Resource Management Plan and Final Environmental Impact Statement for the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA) and Associated Wilderness and Other Contiguous Lands in Nevada (BRRMP) and Record of Decision, July 2004, and as amended in by the Nevada and Northeastern California GRSG ROD and ARMPA on March 15, 2019. Specifically, the proposed action is consistent with the following objectives:

Leasable Minerals Management: Oil and gas, coal, geothermal, sodium, and other similar minerals are available through mineral leasing. Leases are issued for specific periods of time, and the lessee pays a rental fee and royalties on the minerals produced.

MIN-2: Subject to the terms of existing leases, federal lands within the Lahontan Cutthroat Trout Area and vehicle access routes outside of the NCA are withdrawn from the mineral leasing laws.

MIN-4: The South Playa is open to new geothermal leasing.

IV. DECISION:

Based on the Environmental Assessment (EA; DOI-BLM-NV-W030-2022-0001-EA) and attached Finding of No Significant Impact (FONSI), it is my decision to select Alternative B with modifications in the number of geothermal wells for implementation, subject to mitigation

measures developed and summarized in the EA and contained in an attachment to this document, which will now be referred to as Conditions of Approval (COAs).

Also included as COAs are the applicant-committed environmental protection measures. Alternative B is also subject to the individual geothermal lease stipulations which were developed at the time of issuance of the leases. These are attached to this Decision Record for reference. Collectively, these mitigation measures will be attached to each approved geothermal drilling permit as COAs.

a. Additional conditions for any authorizations implementing the modified Alternative B are as follows:

1. Concurrence from the US Fish and Wildlife Service (USFWS) that the applicant has demonstrated compliance with the Bald and Golden Eagle Protection Act, including coordination with the USFWS on agreed-upon measures to avoid take, or to obtain an eagle take permit should take be unavoidable. Any additional analysis or mitigation required to comply with the Eagle Act will be developed with the USFWS and coordinated with the BLM (WO-IM-2010-056).
2. All rights and permits must be final prior to proceeding with project facility construction. The project will not be allowed to proceed until sufficient water rights/appropriations have been applied for and obtained, and the approval is subject to the operator's acceptance and compliance with any additional constraints that any federal and/or state regulatory agencies may require.
3. The aggregate pit in Township 32 N., Range 23 E., Sec. 16 is a valid and existing right held by Nevada Department of Transportation (NDOT). This right was granted in 1962 and the materials can only be used to construct maintain highway infrastructure. NDOT and the BLM cannot issue use permits for this aggregate source. This aggregate pit cannot be used as a mineral materials source per the interagency agreement between the BLM and the Federal Highway Administration signed in July 1982, BLM Manual Rel. 2-156 (9/10/1982).
4. As required under the provisions of 43 CFR 3261.11 and .13, Geothermal Drilling Permits (GDP; Form 3260-2)) for each well will be submitted as the project initiates and progresses. Each GDP application will include a well-specific drilling program detailing the work plan for construction and how the well will be drilled and tested. These documents will be reviewed by a petroleum engineer and surface management specialist and requires approval by the Authorized Officer. In the event a modification of the approved permit is determined necessary, Ormat will submit a Geothermal Sundry Notice (GSN; Form 3260-3) detailing the proposed modifications for review and approval. The Conditions of Approval (COAs) developed below will be attached to any approved GDP or GSN issued, as applicable.

5. Flow testing, and injectivity or pump testing of geothermal wells must be permitted via GSN Form 3260-3. A document describing the testing program must accompany the GSN, and will contain the reservoir parameters being tested, a methodology for testing, a list of isotope tracers being used and the associated SDSs, a list of springs within one mile of the wells being tested that will be monitored continuously during testing, per the conditions of approval laid out in Section IX (b)(xii). If only one well is being tested, any fluids discharged must be captured in a tank and reinjected. There will be no fluids discharged to the surface during flow, injectivity or pump testing. When testing between two wells, the temporary pipeline path must be reviewed by a BLM archaeologist to ensure avoidance of sensitive cultural resources. The temporary pipelines will be hand-placed on the surface, and sandbags can be used to elevate the pipeline off the surface where necessary. The BLM recommends the operator regularly inspect the temporary pipelines daily during long range testing periods to ensure pipeline integrity and prevent undue surface degradation. Upon completion of the testing program, the results will be reported to the BRFO via Subsequent Report using Form 3260-3. The accompanying report will describe the results in detail and will include the raw data collected. This document will be reviewed by the geothermal interdisciplinary team hydrologists, and there may be revisions and comments that Ormat must address.
6. Thirteen geothermal resource confirmation wells will be authorized.
    6.1. The wells located on lease NVNV105522415 (Legacy serial numbers NVN055781), issued 1992
        6.1.1. Wells 68-9, 75-9, 77-9, 87-9, 82-16, 84-16
    6.2. The wells located on lease NVNV105441665 (Legacy serial number NVN075528), issued 2001
        6.2.1. Wells 15-10, 18B-10, 24-10, 58-3, 63-3, 66-3, 71-3
7. Due to the proximity of the California National Historic Trail Nobles Trail Segment that passes through the project area, leases NVNV105724214, and NVNV105517566 are designated as "Open to Fluid Mineral Leasing with No Surface Occupancy" (NSO) for the protection Trail and Visual resources in compliance with the National Historic Trails Act of 2012 and the WDO RMP (2015). Six proposed wells (86-16, 67-16, 45-16, 37-16, 62-20, and 11-21) are either within the one-mile buffer area of the Nobles Segment or the six-mile buffer to protect visual resource to the trail. To drill these wells would require a stipulation waiver. A waiver would require the BLM to consult with the National Park Service, Nevada State Historic Preservation Office, and other interested public entities under the National Historic Preservation Act (NHPA). Similarly, proposed wells 37-16 and 62-20 are also within National Register of Historic Places (NRHP) -eligible sites with a NSO stipulation; they also would require waivers to be drilled. The required analysis and consultations to procure waivers are not included in Alternative A. As a result, these wells would not be permitted, and direct effects on NHTs would not occur.

8. Establishment of a proven resource is a condition precedent to utilization activities. The commercial production viability of the Gerlach Geothermal Resource must be confirmed prior to the submission of a Utilization Plan to develop the geothermal resource for energy production. Data collected during the resource confirmation activities and optimization methods must be included with a Utilization Plan and discussed in detail when addressing 43 CFR 3272.11(d) and (k) in the application. A report detailing the hydrologic conditions observed while monitoring during resource confirmation project drilling and well testing activities must also be submitted with a proposed Utilization Plan; this document will be used as a supplement to the resource confirmation Hydrologic Evaluation (Stantec 2022a).
9. Construction will not begin until the following actions are completed, and permits are obtained:
    9.1. See Item 2
        9.1.1. If an outside agency deems the permit is unnecessary for the project, an email or letter that gives confirmation Ormat is in compliance with their policies will be accepted
    9.2. A Final Water Monitoring Plan accepted as complete by the BLM. The plan must adhere to the stipulations attached in the Hydrology subsection of the BLM Stipulations, Mitigations and Monitoring (also known as COA).
    9.3. Groundwater monitoring wells drilled, and surface water monitoring equipment installed, data collection period of 30 days in accordance with the Hydrology Monitoring stipulations attached in Section 10.b (xii)
    9.4. Submittal of report summarizing surface water and groundwater monitoring data, raw data must be included in the submission.
    9.5. Geothermal Drilling Permit (43 CFR 3261.10, Form 3260-2)
    9.6. BLM NV State Engineer Approved Site-Specific Well Drilling Programs (43 CFR 3261.13)
    9.7. If needed, USACE CWA Section 404 permit, or confirmation from USACE the permit is unnecessary.
    9.8. Notice to Proceed (Form 2800-15)

The proponent will not initiate any construction or other surface disturbing activities without prior written authorization of the Authorized Officer. Such authorization will be a written Notice to Proceed (Form 2800-15), issued by the Authorized Officer or their delegated representative. The Authorized Officer will issue a Notice to Proceed subject to such terms and conditions as deemed necessary when the design, construction, use, occupancy, and operation proposals are in conformity with the terms and conditions of this instrument.

The BLM will be responsible for monitoring approved operations to ensure compliance with COAs and lease stipulations in accordance with 43 CFR 3260.

V. RATIONALE:

1. Confirmation of the commercial power production viability for the Gerlach Geothermal Resource supports state and federal initiatives to expand development and use of renewable energy resources.
2. Alternative B and its modifications are in conformance with the BLM Winnemucca District Resource Management Plan, as amended, and the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA) and Associated Wilderness and Other Contiguous Lands in Nevada (BRRMP), as amended.
3. Alternative B and its modifications are in conformance with the Mineral Leasing Act of 1920 (30 USC 181), as amended, the Geothermal Steam Act of 1970 (30 USC 23), as amended, the Federal Land Policy and Management Act of 1976 (43 USC 35), the Energy Policy Act of 2005 as amended by the Energy Act of 2020 (42 USC 15852(b)).
4. The Decision to select Alternative B meets the BLM's purpose and need for action.
5. The EA adequately analyzed and disclosed the environmental effects of implementing this Decision.
6. The FONSI for Alternative B supports the Decision.
7. The BLM requested government-to-government consultation with Native American tribes (see Government-to-Government Consultation, below). To date, the BLM has had information sharing meetings with the Reno-Sparks Indian Colony and a government-to-government consultation meeting with the Summit Lake Paiute tribe. Outreach, communication, and coordination has been continuous throughout the NEPA process.
8. Based on the public involvement (see Public Outreach/Involvement, below), this is a well-informed decision.
9. The BLM involved the public (see Public Outreach/Involvement, below), including through pre-scoping, scoping, requests for public comments, and by providing responses to those comments.
10. Ormat is required to develop and implement a surface water and groundwater monitoring and reporting program that will reduce the potential for indirect effects to vested and other water rights in the vicinity, including those available for geothermal development. Those monitoring results will inform the BLM about the need for any corrective action.
11. Geothermal lease stipulations, applicant-committed environmental protected measures, and mitigations outlined in the COAs are sufficient to protect resource values and meet BLM's multiple use, sustained yield mission, while allowing for implementation of Alternative B.
12. Implementation of this Decision will not result in any undue or unnecessary environmental degradation of public lands and is consistent with federal, state, and local laws, regulations, and plans.

a. Government-to-Government Consultation

The federal government works on a government-to-government basis with Native American tribes because they are recognized as separate governments. This relationship was formally recognized on November 6, 2000, with Executive Order 13175 (65 Federal Register 67249). As a matter of practice, the BLM coordinates and requests government-to-government consultation with all tribal governments, associated native communities, native organizations, and tribal individuals whose interests might be directly and substantially affected by activities on public lands. In addition, Section 106 of the NHPA requires federal agencies to consult with Native American tribes for undertakings on tribal lands and for historic properties of significance to the tribes that may be affected by an undertaking (36 CFR 800.2(c)(2)). BLM Manual 1780, Tribal Relations, and BLM Handbook H-1780-1, Improving and Sustaining BLM-Tribal Relations, provide guidance for Native American consultations.

Executive Order 13175 stipulates that, during the NEPA process, federal agencies must consult tribes identified as being directly and substantially affected. The BLM notified several tribes of the proposed action in writing on November 9, 2021, and again on February 7, 2022. The BLM sent letters to the Fallon Paiute-Shoshone Tribe, the Pyramid Lake Paiute Tribe, the Reno-Sparks Indian Colony (RSIC), the Summit Lake Paiute Tribe, and the Susanville Rancheria. The BLM also notified the Fort McDermitt Paiute and Shoshone Tribe about the project, though the BLM did not send an outreach letter to this tribe. On February 18, 2022, the BLM shared the project's existing cultural documentation with the Reno-Sparks Indian Colony, at the request of the tribe.

On April 26, 2022, the BLM held an information-sharing meeting with the Reno-Sparks Indian Colony. At the meeting, the BLM and tribe discussed project NHPA Section 106 consultation that is being carried out under 36 CFR 800.8(c), and the reasoning for conducting the consultation under this process instead of the 2014 State Protocol Agreement between the BLM and Nevada State Historic Preservation Office for implementing the NHPA.29 The BLM and tribe also discussed the project timeline and other geothermal projects currently underway in Nevada. A further information sharing meeting was held with RSIC on July 18, 2022.

The preliminary EA was sent to the above listed tribes with a request for consultation in late August 2022. On September 17, 2022, the BLM held a government-to-government consultation meeting with the Summit Lake Paiute tribe. Their concerns focused on traffic on CR-34, potential impacts to springs in the area, and if there is a geothermal plant, its size and scope.

Continued communication and coordination will help to ensure that management actions are consistent with rights retained by tribes and that the concerns of tribal groups are considered.

b. Cooperating Agencies

The BLM invited the US Fish and Wildlife Service (USFWS), the National Park Service (NPS) National Historic Trails Office, the Nevada Department of Wildlife (NDOW), Washoe County, and the Truckee Meadows Regional Planning Agency (TMRPA) to be cooperating agencies in preparing this EA. They were invited because of their jurisdiction by law or special expertise. To date, the USFWS, NPS National Historic Trails Office, and TMRPA accepted the invitation to be cooperating agencies.

The BLM is the lead federal agency for the NEPA process, the Endangered Species Act (ESA) Section 7 consultation process, and the National Historic Preservation Act (NHPA) Section 106 consultation process. NHPA Section 106 consultation is being carried out in accordance with the process described in 36 Code of Federal Regulations (CFR) 800.8(c). See Chapter 4, Consultation and Coordination, for additional information on these consultation processes.

c. Public Outreach and Involvement

On October 1, 2020, the BLM issued a press release initiating a 60-day pre-scoping period with the goal of soliciting early public input on Ormat's proposed plan. At the time, Ormat was proposing a geothermal development project, which included two geothermal power plants and a power line. Ormat had submitted to the BLM a geothermal utilization plan and plan of development for the proposed power line. All comments received were summarized in the pre-scoping summary report (BLM 2021a), which is available on the BLM project website (https://eplanning.blm.gov/eplanning-ui/project/2016744/510). During the 60-day pre-scoping period, Ormat withdrew its utilization plan and plan of development, and submitted to the BLM an operations plan for geothermal resource confirmation.

The BLM received 70 comment submissions during the 30-day public scoping period for Ormat's proposed geothermal resource confirmation operations plan. The public scoping period opened on December 10, 2021, and closed on January 10, 2022. Comments were submitted by the US Environmental Protection Agency (EPA) Region 9, NDOW, Nevada State Clearinghouse, Basin and Range Watch, Blue Ribbon Coalition, Burning Man Project, Friends of Black Rock High Rock, Friends of Nevada Wilderness, Trails West, and private citizens. From these submissions, there were 283 substantive comments. All comments received are summarized in the public scoping report (BLM 2022a), which is available on the BLM project website (https://eplanning.blm.gov/eplanning-ui/project/2016744/510).

The BLM interdisciplinary team and cooperating agencies held two internal scoping workshops (on January 27, 2021, and January 25, 2022) to identify and discuss issues to be carried forward for analysis in Chapter 3, Affected Environment and Environmental Consequences.

The BLM released the draft EA on August 19, 2022. During the 30-day draft EA comment period, the BLM received 32 comment submissions. Comments were submitted by the US EPA, the Nevada State Historic Preservation Office, the Nevada Division of Environmental Protection (NDEP), the Nevada Division of Water Resources (NDWR), the Nevada Department of Conservation and Natural Resources, Ormat, Friends of Black Rock High Rock, Friends of Nevada Wilderness & Center for Biological Diversity, the Burning Man Project, the Iron Butt Association, and private citizens. From these letters, there were over 150 substantive comments, primarily regarding the potential impacts of the proposed geothermal development project on nearby hydrologic and geothermal resources and conditions in Gerlach. Other comments expressed concern over potential impacts on cultural resources, air quality, and wildlife.

Commenters also requested more information on proposed monitoring, mitigation measures, and adaptive management strategies. Appendix F is the comment summary report from the draft EA.

Based on comments received from Ormat, changes were made to the alternatives in Chapter 2 and the figures in Appendix A showing the alternatives. These changes include moving previously proposed well and well pad 83-16 and renaming it as 84-16 to reduce cultural resource conflict, removing proposed well and well pad 72-16 from the project following further engineering review, and adjusting the location of well pad 82-16 (the proposed well location did not change). Changes also include resulting adjustments to the amount of new and existing access road improvements to accommodate changes in well pad layout. Changes also include removing one of the two previously proposed aggregate pits, and adjustments to the proposed disturbance acres of proposed project elements.

d. Changes to the Document

1.8 CHANGES FROM THE DRAFT ENVIRONMENTAL ASSESSMENT The BLM released the draft EA on August 19, 2022. During the 30-day draft EA comment period, the BLM received comment submissions from the US EPA, the Nevada State Historic Preservation Office, the Nevada Division of Environmental Protection (NDEP), the Nevada Division of Water Resources (NDWR), the Nevada Department of Conservation and Natural Resources, Ormat, Friends of Black Rock High Rock, Friends of Nevada Wilderness & Center for Biological Diversity, the Burning Man Project, the Iron Butt Association, and private citizens. From these letters, there were 165 substantive comments, primarily regarding the potential impacts of the proposed action on nearby hydrologic and geothermal resources and conditions in Gerlach. Other comments expressed concern over potential impacts on recreation, cultural resources, visual resources, special designation areas, night sky conditions, air quality, and wildlife. Commenters

also requested more information on proposed monitoring, mitigation measures, and adaptive management strategies. Appendix F is the comment summary report from the draft EA.

Based on comments received from Ormat, changes were made to the alternatives in Chapter 2 and the figures in Appendix A showing the alternatives. These changes include moving previously proposed well and well pad 83-16 and renaming it as 84-16 to reduce cultural resource conflict, removing proposed well and well pad 72-16 from the project following further engineering review, and adjusting the location of well pad 82-16 (the proposed well location did not change). Changes also include resulting adjustments to the amount of new and existing access road improvements to accommodate changes in well pad layout. Changes also include removing one of the two previously proposed aggregate pits, and adjustments to the proposed disturbance acres of proposed project elements.

Changes were made to the water monitoring plan, which is outlined in the revised Table 3-11, BLM-Required Stipulations. In summary, spring discharges and groundwater monitoring wells would be monitored to allow early detection of potential changes, and would indicate level of connectivity between the geothermal reservoir and shallow groundwater aquifer. The hydrological monitoring plan (Broadbent and Associates Inc. 2022; published on the project ePlanning website with the Draft EA), would be supplemented with additional monitoring requirements. If water quality or quantity effects were detected, appropriate measures to mitigate the effects, as determined by Ormat in coordination with the BLM Authorized Officer, would be implemented. These could include:

- Increasing monitoring frequency and parameters and adding additional monitoring locations;
- Changing drilling operations (such as drilling wells further away from affected monitoring points prior to drilling wells closer or add additional well casing depth;
- Ceasing well drilling or testing, or,
- Providing alternative water supply to affected water users.

Changes in **Chapter 3** also address comments received regarding cultural resources (also, **Appendix C**, Cultural Resources, was updated in response to comments). Revisions in **Chapter 4** provide updated agency consultation and coordination status. Other minor editorial changes were also made throughout the document.

Changes made from the draft EA to the final EA are in gray highlighted text. Additions are underlined, while deletions are stuck out.

VI. AUTHORITY:

Authority for this Decision is contained in the Geothermal Steam Act of 1970, the Federal Land Policy Management Act of 1976, 43 CFR 3200, and the Energy Policy Act of 2005 as amended by the Energy Act of 2020 (42 USC 15852(b)).

VII. APPEAL:

A person who wishes to appeal to the Interior Board of Land Appeals must do so under 43 CFR 4.411 and must file in the office of the officer who made the decision (not the board), in writing to: Mark E. Hall, Black Rock Field Manager, Winnemucca District, 5100 East Winnemucca Boulevard, Winnemucca, Nevada 89445. A person served with the Decision being appealed must transmit the notice of appeal in time to be filed in the office where it is required to be filed within thirty (30) days after the date of service.

The notice of appeal must give the serial number or other identification of the case and may include a statement of reasons for the appeal, a statement of standing if required by 43 CFR 4.412(b), and any arguments the appellant wishes to make. Form 1842-1, available at https://www.blm.gov/sites/default/files/policies/IB2021-002_att1.pdf provides additional information regarding filing an appeal.

No extension of time will be granted for filing a notice of appeal. If a notice of appeal is filed after the grace period provided in 43 CFR 4.401(a), the notice of appeal will not be considered and the case will be closed by the officer from whose decision the appeal is taken. If the appeal is filed during the grace period provided in 43 CFR 4.401(a), and the delay in filing is not waived, as provided in that section, the notice of appeal will not be considered and the appeal will be dismissed by the Board.

The appellant shall serve a copy of the notice of appeal and any statements of reason, written arguments, or briefs under 43 CFR 4.413 on each adverse party named in the Decision from which the appeal is taken and on the Office of the Solicitor, Pacific Southwest Regional Solicitor, U.S. Department of the Interior, 2800 Cottage Way, Room E-2753, Sacramento, California 95825-1890. Service must be accompanied by personally serving a copy to the party or by sending the document by registered or certified mail, return receipt requested, to the address of record in the bureau, no later than 15 days after filing the document.

VIII. SIGNATURE OF AUTHORIZED OFFICIAL: **S// Mark E. Hall**

Mark E. Hall
Field Manager
Black Rock Field Office

DATE SIGNED: October 21, 2022

Attachments:

Conditions of Approval
FONSI
Lease Stipulations

IX. Conditions of Approval (COA):

a. *Applicant-Committed Environmental Protection Measures:*

All construction, operation, and maintenance in the Area of Interest (AOI) will be conducted in compliance with all relevant federal, state, and local regulations and permits. They will also be conducted in accordance with the requirements and conditions specified in the NEPA decision record and BLM ROW grant for the gen-tie. In addition to these requirements, Ormat has committed to implementing environmental protection measures to further avoid or minimize potential adverse environmental impacts. These measures are summarized below.

i Prevent or Control Fire

Ormat must equip all construction and operating equipment with applicable exhaust spark arresters. Fire extinguishers must be available on-site. Water that is used for construction and dust control will be available for firefighting. Personnel may be allowed to smoke only in designated areas. Ormat has prepared a fire contingency plan (Appendix B of the Final EA (FEA)) should a fire start in the AOI.

ii Prevent Soil Erosion and Noxious Weeds

Ormat must follow BLM stormwater Best Management Practices (BMPs), as applicable, on public lands, as described below.

Ormat will minimize cut and fill activities when selecting the power plant site and pipeline routes. Off-site stormwater will be intercepted in ditches and channeled to energy dissipaters as necessary to minimize erosion around the power plant. To minimize erosion from stormwater runoff, access roads will be maintained, consistent with road development BMPs.

Before construction, Ormat must submit an invasive plant management plan to the BLM to monitor and control noxious weeds. The BLM will approve the plan. To prevent the spread of invasive, nonnative species, the plan will require all contractors to power wash their vehicles and equipment, including the body and undercarriage, before bringing them onto BLM-administered lands. Ormat must ensure all gravel and fill material used will be certified as weed free.

iii Protect Surface Water and Groundwater

Geothermal fluids must not be discharged to the ground under normal operating conditions. Controls such as frequent inspections, ultrasonic pipeline testing, flow and pressure monitoring, and well pump and pipeline valve shutdown features will minimize the potential for accidental discharges of geothermal fluids. Ormat must follow their spill prevention, control, and countermeasure plan will also be developed (Appendix B of the FEA).

iv Protect Wildlife

Ormat must conduct pre-construction biological surveys to supplement those conducted for the biological baseline report (see Section 3.1.2 of BLM 2020a). If pre-construction surveys indicate the presence of the same species of concern as documented in the biological baseline report, then the same measures to avoid, minimize, or mitigate impacts are applicable.

If pre-construction surveys indicate the presence of a species of concern not already documented in the report, then additional NEPA documentation will occur. Measures to avoid, minimize, or mitigate impacts will be developed during that NEPA process.

Ormat will reclaim temporarily disturbed areas as soon as is feasible. Ormat will conduct revegetation and periodic maintenance to prevent erosion and protect habitat using suitable, BLM-approved revegetation methods. Ormat will stockpile topsoil and apply it to enhance revegetation success.

To prevent undue degradation and the removal of habitat, cover, and food, Ormat must use existing roads will be used whenever possible; cross-country travel is restricted to designated construction areas.

Power plant sites, permanent well pads, and pits will be fenced by Ormat to prevent wildlife entry and reserve pits must be operated in accordance with the NDOW's Design Features and Tools to Reduce Wildlife Mortalities Associated with Geothermal Sumps. Wellhead cellars shall be covered by industrial grates to prevent wildlife entry and entrapment.

Ormat will minimize construction noise by avoiding or minimizing actions that may typically generate greater noise levels or generate distinctive impact noise.

v Protect Cultural Properties and Visual Resources

Ormat must ensure all National Register of Historic Places (NRHP)-eligible and unevaluated resources will be avoided. Ormat must instruct all employees, contractors, and suppliers that all cultural resources are protected, and that if previously undiscovered resources are encountered, they will be left in place and reported to the responsible Ormat representative.

The paint used on the power plant, pipelines, wellheads, pump motors, and motor control buildings must be consistent with BLM visual guidelines to blend with the area and minimize their visibility.

vi Minimize Air and Noise Pollution

Ormat will comply with air quality requirements prescribed by the Nevada Department of Environmental Protection (NDEP), Bureau of Air Pollution Control (BAPC). Fugitive dust control measures include compacting construction-disturbed areas, placing gravel on access roads, and watering construction areas. Ormat must use state-of-the-art equipment and design to ensure minimal pentane emissions during plant construction. Ormat does not anticipate emissions during normal plant operation.

Ormat must use mufflers on all drilling rig engines to reduce noise generation and use operational practices to avoid or minimize high noise level generation or distinctive noise impacts.

vii Minimize Hazards to Public Health

Ormat will conduct construction and operation in a manner to avoid creating any hazards to public health and safety. The project is remotely located and will not likely be hazardous to public health and safety. A power plant operations and maintenance manual must be developed in parallel with site construction. This manual must be available on-site once the plant commences operations.

Ormat has prepared a spill or discharge contingency plan that addresses potential sources of accidental spills or discharges. It also includes a plan for cleanup and abatement (Appendix B of the FEA).

b. BLM Stipulations, Mitigations and Monitoring

In addition to the above Environmental Protection Measures (EPMs), analyses in the FEA support the following measures:

i Air Quality

To control fugitive dust, vehicle speeds will be limited to 25 miles per hour on gravel roads and 15 miles per hour on dirt roads.

ii Special Designations and Visual Resources

Lights used during night drilling will be limited to those required to safely conduct operations and will be shielded or directed to focus light on the immediate work area. Lights on drill rig derricks will pulse at the minimum intensity and minimum number of flashes per minute allowable by the Federal Aviation Administration or other applicable regulations.

iii Cultural Resources

Ormat must locate work areas away from unevaluated and NRHP eligible sites and must be approved by the BLM Authorized Officer via an NTP prior to work beginning in these areas. Not

only will all NRHP eligible and unevaluated cultural resources be avoided, all ground-disturbing project activities must be at least 30 meters (98 feet) from any NRHP-eligible or unevaluated cultural resource/site. If the BLM determines there are impacts to NRHP-eligible or unevaluated cultural resources, Ormat will be required to install fencing to prevent disturbance.

iv Range

To minimize the potential that livestock may ingest geothermal fluids, Ormat must coordinate with the BLM to obtain approval prior to discharging geothermal fluids to the ground surface during short- and long-term well testing activities.

v Visual Resources

Ormat must use paint on the power plant, pipelines, wellheads, pump motors, and motor control buildings that is consistent with BLM visual guidelines to blend with the area and minimize their visibility.

vi Vegetation

For the portion of access road not previously surveyed:

The BLM analyzes specific environmental protection measures as part of the proposed project NEPA documentation process. To ensure that potential impacts on vegetation and special status plants from the proposed project are avoided, minimized, or mitigated, as applicable, pre-construction surveys be conducted in the area before the surface is disturbed. If pre-construction surveys indicate suitable habitat or presence of special status plant species as documented elsewhere in the Biological Resources Baseline Report (Ormat 2021) and EA, then the same recommended measures to avoid, minimize, or mitigate impacts would be applied.

If pre-construction surveys indicate suitable habitat or presence of a special status plant species not already documented elsewhere in the Biological Resources Baseline Report (Ormat 2021) and EA, then additional NEPA documentation would occur. Measures to avoid, minimize, or mitigate impacts would be developed during that additional NEPA process.

Following construction activities, disturbed areas would be seeded by the applicant as directed by the BLM using a BLM-approved native seed mixture and application rate. Any variance in the mix would be coordinated first with the BLM.

a. Gerlach Geothermal Resource Confirmation Project Reclamation Seed Mix

Low Elevation Desert Seed Mix (below 4,500 ft)

Species	PLS LBS./Acre	Bulk LBS./Acre	PLS/sq. ft.	Variety
Black greasewood	3	10	18	VNS
Shadscale	3	5	4	VNS
Bottlebrush squirreltail	1	1.5	4	VNS
Inland saltgrass	3	3	25	VNS
Totals	10	19.5	51	VNS

VNS = Variety Not Specified

PLS =Pure Live Seeds

Following construction activities, disturbed areas no longer required for operations would be reclaimed to promote the reestablishment of native plant and wildlife habitat.

Prior to any surface-disturbing activities, a special status plant survey is required for the area. Timing of the survey would be dependent on the habitat type and the detectability of the target species. If a special status plant is located, a protective buffer would be delineated in consultation with the BLM Authorized Officer.

vii General Wildlife

To minimize the potential that wildlife may ingest geothermal fluids, Ormat must coordinate with the BLM to obtain approval prior to discharging geothermal fluids to the ground surface during short- and long-term well testing activities. Discharges may be limited seasonally during sensitive time periods for wildlife species.

If a sensitive animal species is identified in or near the work area during construction, the work near the species must be halted, and a qualified BLM biologist familiar with the biology and species likely to be encountered in the project area must be consulted to determine an appropriate buffer and other protective measures. The appropriate resource agencies must be notified of the discovery within 24 hours. If avoidance is not feasible, Ormat must consult with the jurisdictional resource agency prior to continuing work in the immediate area of the species. Any federal- or state-listed species discovered on public land will be reported to the BLM, USFWS, and NDOW.

Ormat must implement applicable measures described in the NDOW's Design Features and Tools to Reduce Wildlife Mortalities Associated with Geothermal Sumps. Applicable measures will be determined in coordination with the BLM and NDOW.

Ormat will ensure that employees, contractors, and site visitors avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons. In addition, pets must be controlled or excluded to avoid harassment and disturbance of wildlife.

Ponds, tanks, and impoundments (including but not limited to drill pits) containing liquids can present hazards to wildlife. Any liquids contaminated by substances that may be harmful due to toxicity, or fouling of the fur or feathers (detergents, oils), must exclude wildlife access by using fencing, netting, or covering at all times when not in active use. Liquids at excessive temperatures should likewise be excluded. If exclusion is not feasible, such as a large pond, a hazing program based on radar or visual detection, in conjunction with formal monitoring, must be implemented. Clean water impoundments can also present a trapping hazard if they are steep-sided or lined with smooth material. All pits, ponds, and tanks should have escape ramps functional at any reasonably anticipated water level, down to almost empty. Escape ramps can take various forms depending on the configuration of the impoundment. Earthen pits may be constructed with one side sloped 3:1 or greater; lined ponds can use textured material; straight-sided tanks can be fitted with expanded metal escape ladders (Geothermal PEIS; BLM and Forest Service 2008).

To ensure that potential impacts on species of concern from the proposed project are avoided, minimized, or mitigated, as applicable, Ormat must conduct pre-construction surveys in the additional portion of the project area that has not been surveyed for sensitive plants and wildlife before surface disturbance is permitted. If pre-construction surveys indicate suitable habitat or presence of the same species of concern as documented elsewhere in the biological baseline report and EA, then the same recommended measures to avoid, minimize, or mitigate impacts will be applied. All disturbance in these areas must be approved by the BLM through an NTP.

For the portion of the project area that has not been surveyed for sensitive plants and wildlife, if pre-construction surveys indicate suitable habitat or presence of a species of concern not already documented elsewhere in the biological baseline report and FEA, then additional NEPA analyses will occur. Measures to avoid, minimize, or mitigate impacts will be developed during that additional NEPA process.

b. In Alternative B, a portion of the 3-Mile Access Road located outside the AOI was not previously surveyed :

The BLM analyzes specific environmental protection measures as part of the proposed project NEPA documentation process. To ensure that potential impacts on wildlife species and habitat from the proposed project are avoided, minimized, or mitigated, as applicable, pre-construction surveys be conducted in the area before the surface is disturbed. If pre-construction surveys indicate suitable habitat or presence of special status wildlife species as documented elsewhere in the Biological Resources Baseline Report (Ormat 2021) and EA, then the same recommended measures to avoid, minimize, or mitigate impacts would be applied.

If pre-construction surveys indicate suitable habitat or presence of a special status wildlife species not already documented elsewhere in the Biological Resources Baseline Report (Ormat 2021) and EA, then additional NEPA documentation would occur. Measures to avoid, minimize, or mitigate impacts would be developed during that additional NEPA process.

viii Sage grouse

This project must be in compliance with the State of Nevada's sage grouse laws and regulations, which may include coordination with the Sagebrush Ecosystem Technical Team on the application of a compensatory mitigation program, such as the Nevada Conservation Credit System.

Greater sage-grouse required design features (RDFs; BLM 2015b, Appendix C) will be implemented for habitat management areas within 2 miles of the AOI, which includes approximately 1,767 acres of OHMAs and 85 acres of GHMAs. There are 158 acres of OHMAs within the AOI, on BLM-administered lands (2015 greater sage-grouse habitat GIS data (updated 2021); see Issue 3 Wildlife Mitigation). Within OHMAs, the following RDFs will be applied:

RDF Gen 1 – Locate new roads outside of greater sage-grouse habitat to the extent practical.

RDF Gen 2 – Avoid constructing roads within riparian areas and ephemeral drainages. Construct low water crossings at right angles to ephemeral drainages and stream crossings (note that such construction may require permitting under Sections 401 and 404 of the Clean Water Act).

RDF Gen 3 – Limit construction of new roads where roads are already in existence and could be used or upgraded to meet the needs of the project or operation. Design roads to an appropriate standard, no higher than necessary, to accommodate intended purpose and level of use.

RDF Gen 4 – Coordinate Road construction and use with ROW holders to minimize disturbance to the extent possible.

RDF Gen 5 – During project construction and operation, establish and post speed limits in greater sage-grouse habitat to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

RDF Gen 7 – Require dust abatement practices when authorizing use on roads.

RDF Gen 9 – Upon project completion, reclaim roads developed for project access on public lands unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

RDF Gen 11 – Equip temporary and permanent aboveground facilities with structures or devices that discourage nesting and perching of raptors, corvids, and other predators.

RDF Gen 12 – Control the spread and effects of nonnative, invasive plant species (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance; Evangelista et al. 2011). All projects will be required to have a noxious weed management plan in place prior to construction and operations.

RDF Gen 13 – Implement project site-cleaning practices to preclude the accumulation of debris, solid waste, putrescible wastes, and other potential anthropogenic subsidies for predators of greater sage-grouse.

RDF Gen 15 – When interim reclamation is required, irrigate site to establish seedlings more quickly if the site requires it.

RDF Gen 16 – Utilize mulching techniques to expedite reclamation and to protect soils if the site requires it.

RDF Gen 17 – Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

RDF Gen 18 – When authorizing ground-disturbing activities, require the use of vegetation and soil reclamation standards suitable for the site type prior to construction.

RDF Gen 19 – Instruct all construction employees to avoid harassment and disturbance of wildlife, especially during the greater sage-grouse breeding (e.g., courtship and nesting) season. In addition, pets shall not be permitted on site during construction (BLM 2005).

RDF Gen 20 – To reduce predator perching in greater sage-grouse habitat, limit the construction of vertical facilities and fences to the minimum number and amount needed and install anti-perch devices where applicable.

RDF Gen 22 – Load and unload all equipment on existing roads to minimize disturbance to vegetation and soil.

RDF LR-LUA 1 – Where new ROWs associated with valid existing rights are required, collocate new ROWs within existing ROWs or where it best minimizes impacts in greater sage-grouse habitat. Use existing roads or realignments of existing roads to access valid existing rights that are not yet developed.

RDF Lease FM 1 – Collocate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010) in order to minimize or avoid disturbance.

RDF Lease FM 4 – Ensure habitat restoration meets greater sage-grouse habitat objectives for reclamation and restoration practices/sites (Pyke 2011).

RDF Lease FM 5 – Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoil management, and revegetating cut-and-fill slopes.

RDF Lease FM 6 – Restore disturbed areas at final reclamation to the pre-disturbance landforms and ensure it meets the greater sage-grouse habitat objectives.

RDF Lease FM 11 – Cluster disturbances associated with operations and facilities as closely as possible, unless site-specific conditions indicate that disturbances to greater sage-grouse habitat will be reduced if operations and facilities locations will best fit a unique special arrangement.

RDF Lease-FM 12 – Apply a phased approach with concurrent reclamation.

RDF Lease-FM 15 – Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.

ix Migratory Birds

To avoid potential impacts on breeding migratory birds, Ormat must have a nest survey conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during the avian breeding season (March 1st through August 31st). Surveys must be conducted no more than 10 days and no less than 3 days prior to initiation of surface disturbance. Surveys will follow established BLM standards and protocols and will be approved by the BLM biologist prior to being implemented. If active nests are located, the BLM biologist will be notified immediately and appropriate protection measures, which may include avoidance or restriction of activities, will be established by the BLM. If no active nests are present in the area survey, implementation of the surface disturbance may commence within 10 days of survey completion.

x Raptors and Eagles

Bald or golden eagles, or both, may now or hereafter use the project area. The BLM would not issue a notice to proceed for any project that is likely to result in take of bald eagles or golden eagles until the applicant completes its obligation and demonstrates compliance with the Bald and Golden Eagle Protection Act (Eagle Act). This includes coordination with the USFWS on agreed-upon measures to avoid take, or obtaining an eagle take permit, should take be unavoidable. The BLM hereby notifies the applicant that compliance with the Eagle Act is a dynamic and adaptable process that may require the applicant to conduct further analyses and mitigation following assessment of operational impacts. Any additional analysis or mitigation required to comply with the Eagle Act would be developed with the USFWS and coordinated with the BLM (WO-IM-2010-156; https://www.blm.gov/policy/im-2010-156).

xi Burrowing Owls

During western burrowing owl (BUOW) nesting season (March 1 through August 31), a clearance survey following the BLM Winnemucca District Office's clearance survey protocol must be conducted by a qualified biologist prior to surface disturbance in the areas identified as potential BUOW habitat within the project area and survey results and report submitted to the BLM. For active burrows, an avoidance buffer, no less than 75 meters (250 feet), must be established and the buffer area avoided to prevent destruction or disturbance to nests/burrows until they are no longer active.

The site characteristics used to determine the size of the buffer are:

1. topographic screening;
2. distance from disturbance to nest/burrow;
3. the size and quality of foraging habitat surrounding the nest/burrow;
4. sensitivity of the species to nest disturbances; and
5. the protection status of the species.

Additional monitoring will be conducted by a third-party contractor to ensure the nesting BUOW have fledged the nest prior to disturbance. If no active nests are present within the area surveyed, implementation of the proposed disturbance will commence within 10 days of survey completion.

To avoid impacts on burrowing owls, there must be no construction near known burrow complexes. The minimum distance must be 75 meters form the edge of the complex. As above, construction near burrows must be done outside the breeding season, unless it justifiably needs to occur during this period; and in this case, breeding season pre-construction surveys, following the BLM method, must be conducted, and active burrows must be avoided by using an appropriate buffer during the breeding season.

An adaptive approach to BUOW and habitat is required for the northern portion of the AOI not previously surveyed for BUOW during baseline data collection:

Phase 1: Prior to any surface-disturbing activities, a BUOW baseline survey is required for the entire portion of the AOI not previously surveyed. The BUOW survey will follow the BLM Winnemucca District Office's BUOW baseline survey protocol, which requires BUOW surveys for three survey windows in the same breeding season. BUOW survey point locations will need to be coordinated through BLM prior to surveys being conducted by a qualified biologist.

Phase 2: Any BUOW and associated complexes identified during the Phase 1 surveys must be protected following the same measures previously identified for the entire project area. Monitoring will be required to determine if the BUOW return to the associated burrows after project construction and temporary disturbance.

Phase 3: Additional protection measures may be implemented in the event multiple BUOW burrows identified in the portion of the AOI not previously surveyed will be permanently removed due to project activities and/or monitoring results indicate that BUOW have not returned to previously occupied habitat. Additional protection measures may include coordinating with the BLM and NDOW to create Artificial Burrow Systems (ABS) to replace lost burrows. Techniques and methods for creating the ABS will be done in coordination with the BLM and the NDOW based on existing literature. Pre-clearance surveys will be completed prior to the installation of ABS. Monitoring for the effectiveness of the created ABS will include identification of BUOW within the project area during the time of year they are present (spring/summer) and capturing and tagging BUOW by installing telemetry devices to track their movements to determine if they are using the ABS for nesting. Monitoring will be coordinated with the BLM and NDOW prior to any field identification of BUOW. If Phase 3 is implemented, monitoring will be required for 5 years. The monitoring will be done by a qualified third-party contractor.

xii Hydrology Monitoring

Surface water and groundwater must be monitored to allow early detection of potential changes to the resource. Within six months of the signing this Decision Record and before drilling any new wells, Ormat must prepare a final hydrologic monitoring plan in coordination with the BLM. The following stipulations must be incorporated into this plan:

a. Water Monitoring Plan

Ormat will develop a water resource monitoring plan in accordance with BLM and Nevada State regulations. This plan will be submitted to the BLM and applicable agencies (NDWR, NDEP, NDOM, etc.) for approval and implementation prior to drilling any geothermal resource confirmation wells. BLM will have final say for all wells on public land. At a minimum, the plan will include the following:

b. Springs

The same surface water sampling locations and monitoring parameters collected for the baseline data Hydrologic Evaluation (Stantec, 2022a) will continue to be monitored. Private spring locations will be sampled after obtaining permission to enter the sites. Ormat will meet with the landowners to obtain site access for sampling, or written denial. The approved BLM monitoring plan will serve as written documentation to the purpose and need for sampling. The monitoring frequency will be as follows:

Continuous monitoring: Springs will include a continuous (logging interval: 60 minutes) water data logger that includes the following measurements: flow, temperature, pH, conductivity, total dissolved solids, dissolved oxygen, salinity, and oxygen reduction potential (ORP). This should

be operated using telemetry for ease of collecting data and comparing to potential real time impacts due to drilling and/or testing of geothermal resource confirmation wells.

Monthly monitoring: Parameters included in baseline data collection (NDEP Profile III) with the exception of radionuclides

Quarterly monitoring: Radionuclides (NDEP Profile R) and isotopic analysis including gross beta, deuterium, carbon 13/14, oxygen 16/18, and lead isotopes

c. Wells

Up to four monitor wells will be installed downgradient of the geothermal resource confirmation wells. The locations and monitoring depths of the monitoring wells will be determined based on potential impacts to the upper aquifers and geothermal resource from drilling and testing of the geothermal resource confirmation wells. Monitor wells may also be installed on the authorized drill pads. At least two monitor wells will be installed and at least one groundwater sample from each well will be collected prior to drilling geothermal resource confirmation wells.

In addition, any potable water supply wells in the AOI will be sampled quarterly. The Gerlach potable water supply will also be monitored.

Quarterly monitoring: depth to groundwater (DTW), parameters included in baseline data collection (NDEP Profile III) with the exception of radionuclides, and radionuclides (NDEP Profile R), isotopic analysis including gross beta, deuterium, carbon 13/14, oxygen 16/18, and lead isotopes

After approval of the monitoring plan, begin collection of monitoring data. Upon collection of **one month**'s data (both springs and wells), the data will be submitted to the BLM and applicable agencies for review. After BLM review of this data, resource confirmation drilling can commence.

During pump testing or flow testing, the continuous spring monitoring data collected by telemetry will be reviewed and evaluated every six hours. The telemetry data should also include an alert or alarm to identify any sudden or unusual changes in the monitoring data.

Daily review and evaluation of data from springs with continuous monitoring will be required when a resource confirmation well is drilled within one mile of a spring.

Monthly, Ormat will analyze and identify if the data collected shows any trends (i.e., flow changes, temperature changes, water quality changes). This will be reported to the BLM each month and must include well drilling logs and all lithologic logs for the monitoring wells. All raw data must be presented to the BLM, if requested.

Ormat will all also propose thresholds for potential changes for which mitigations will be required. The following mitigation measures should be included at a minimum with proposed thresholds:

1. Increase monitoring frequency and parameters.
2. Add additional monitoring locations.
3. Change drilling operations (i.e., drill wells further away from the affected monitoring points prior to drilling wells closer, add additional casing to separate the aquifers,
4. Cease installation of geothermal resource confirmation well.
5. Cease pump testing of geothermal resource confirmation well.
6. Provide alternative water supply to affected water users.
7. Identify which thresholds will require notification within 24-hours to the BLM and applicable agencies

Monitoring will be for the life of the project. The BLM recommends continued evaluation and development of the monitoring plan (adaptive management) based on change points (thresholds). Every monthly report will analyze and identify if the previous data collected shows any trends or change points (i.e., flow changes, temperature changes, water quality changes). Review thresholds and recommend any amendments, as necessary.

d. Water monitoring on private land

If the private landowners do not allow monitoring of their springs or wells, Ormat will drill the geothermal resource confirmation wells that are estimated to have the least potential impact to these resources first. This will allow collection of as much water resource information as possible prior to drilling the resource confirmation wells closest to the private springs or wells, potentially preventing or reducing impacts.

e. Buffer from Springs

In conformance with the Winnemucca and the Black Rock RMPs, Ormat will not install any disturbance within 500 feet of a spring or associated wetlands.

Ormat must follow USACE requirements, including the acquisition of a Clean Water Act Section 404 permit, if deemed applicable by the USACE.

f. Wild Horses and Burros

To minimize the potential that livestock and wild horses would ingest geothermal fluids, Ormat will coordinate with the BLM to obtain approval prior to discharging geothermal fluids to the ground surface during short- and long-term well testing activities. Discharges may be limited seasonally during sensitive time periods for wild horses and burros.