NEVADA DIVISION OF
ENVIRONMENTAL
PROTECTION

A division of the
Nevada Department of Conservation & Natural Resources

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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(Pursuant to NAC 445A.874)

Permittee Name:	**ORNI 43 LLC**
Permittee Adress:	**6884 Sierra Center Parkway, Reno, NV 89511**
Permit Number:	**UNEV2017201**
Project Name:	**Tungsten Mountain Geothermal Power Project**
Facility Location:	**Northwest corner of Edwards Creek Valley, 80 miles east of Fallon, Churchill County**
Injection Wells:	**Five (5)**
Permit Action:	**Renewal and Major Modification**

A. <u>Injection Wells</u>:

INJECTION WELL INFORMATION AND PARAMETERS					
Injection well	**Location**	**Status**	**Date Approved**	**Max. Wellhead Pressure (psig)**	**Max. Flow Rate (gpm)**
45A-22	Lat: 39.67173 N Long: -117.69317 W	Active	9/21/2017	605	--
56-22	Lat: 39.66971 N Long: -117.69302 W	Active	9/21/2017	317	--
56A-22	Lat: 39.66963 N Long: -117.69315 W	Active	9/21/2017	318	--
24-22	Lat: 39.67382 N Long: -117.69752 W	Active	2/26/18	444	--
24A-22	Lat: 39.673690 Long: -117.697695	Proposed	TBD	408	6200

B. Timeline

2026 Renewal + Major Modification: Ormat Nevada, Inc., through its subsidiary ORNI 43 LLC, proposes to renew and modify their existing Permit, UNEV2017201, at the Tungsten Mountain Geothermal Power Facility. Ormat is proposing to add a newly constructed injected well, 24A-22 to the permit, making a total of five (5) permitted injection wells. Proposed limits are listed in the table above. In addition, minor changes have been made to formatting and to update boilerplate/standard permit language

2017 Original Issuance: Ormat Nevada, Inc., through its subsidiary ORNI 43 LLC, proposes to construct, operate, and maintain the Tungsten Mountain Geothermal Power Project in Churchill County, Nevada. The project is located on public lands administered by the Bureau of Land Management (BLM). The geothermal project includes the construction and operation of the following: a 24 megawatt (MW) (net) binary, air-cooled geothermal power plant; geothermal production and injection well pads and wells; geothermal production and injection pipelines; and ancillary facilities. Ormat anticipates that construction of the facility will be completed by September 2017, and startup of the plant will begin shortly thereafter. If the geothermal resource is found to be sufficient, the facility may be expanded in the future to include a second phase that would be similar in capacity to the first phase.

The power plant will be based on the Rankin cycle, in which an organic motive fluid absorbs heat from the geothermal water (brine), causing the motive to vaporize. Brine will be pumped from the wells, through the heat exchanger and then back into the subsurface reservoir on the opposite side of the field. Brine will not be exposed to the atmosphere or directly to the generating equipment.

C. Injection Characteristics: Five injection wells (24(44)-22, 24A-22, 45A-22, 56-22, and 56A-22) will be used for injection at the Tungsten Mountain project. 22(44)-22 is listed as a backup in the UIC application. Individual injection wells are expected to receive a range of approximately 14,000-18,000 gallons per minute (gpm) of 148°F post-production geothermal fluid. Current production wells include: 75A-22, 75B-22ST1, 84A-22ST1, 84B-22. The facility will be air-cooled (no cooling tower water blow down will be produced or require injection). The production and injection wells have shown to be similar in geothermal temperature and chemistry. Analysis of the production zone indicates that the injectate will have the following average constituent values: TDS – 580-640 mg/L, boron – 1.1 mg/L, fluoride – 11-16 mg/L, arsenic – 50-100 mg/L, and chloride - 44 mg/L. The injectate will contain minor quantities of both lubricating fluids from production well pumps, and scale inhibitors used to prevent deposits from restricting the output of the binary heat transfer in the heat exchangers. The small amounts of lubricating fluids and scale inhibitors are standard practices for this type of facility, has been approved by the division, and will remain in the geothermal water system.

D. Receiving Water Characteristics: The production wells are in a direct hydraulic connection with the injection wells located 1,500-2,500 feet away. The geothermal reservoir consists of a small area of high permeability. Analysis of the receiving zone indicates the following average constituent values: TDS – 550-900 mg/L, boron – 1.0 mg/L, fluoride – 8-19 mg/L, arsenic – 0.018-0.25 mg/L, and chloride – 36-44 mg/L (slight variation in chemistry based on depth of well). Shallow well (WW-1, 200 ft below ground surface, collapsed below 160 ft, water level approx.. 105-115 ft bgs) in the project area indicate cold water (67 degF) and "no apparent artesian pressure". WW-1 is approximately 2,000 feet southwest of injection wells and cross-gradient.

E. Schedule of Compliance: The Permittee shall implement and comply with the provisions of the Schedule of Compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make in approving the Schedule of Compliance.

F. **Rationale for Permit Requirements**: The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime.

G. **Procedures for Public Comment:** Anyone wishing to comment on the proposed permit modification can do so in writing for a period of 30 days following the posting date of public notice. All written comments received during the comment period will be retained and considered in the final determination. A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator of EPA or any interested agency, person or group of persons.

Opportunity for a public workshop shall be provided with 30-day advance notice pursuant to NAC 445A.890. Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

H. **Proposed Determination**: The Division has made the tentative determination to renew the permit for a period of five (5) years with the addition of Injection well 24A-22 to the permit.

Prepared by: Bret Allen
Date: 11/2/2026