

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

**FACT SHEET**

(Pursuant to NAC 445A.874)

Permittee Name: **Ormat Nevada Inc.** (ORNI 36 | USG)  
Geothermal Project/Facility: San Emidio - North Valley Geothermal Project  
UIC Permits: **UNEV87041, UNEV87041T2023-1, UNEV87041T2023-2, UNEV87041T2024-1**

**A. DESCRIPTION OF DISCHARGE**

**Location:** Although three (3) active injection wells are currently active and listed on the permit, UNEV87041 can accommodate injection activity in up to six (6) injection wells within the area bounding the authorized injection wells (the permitted area). The permitted area falls within Sections 16 and 21, T.29N., R.23E., San Emidio Desert, Washoe County, Nevada. Discharges to surface basins—from production wells and cooling tower blowdown—at the wellsite and other locations near the power plants have been covered under this permit, although the permittee has been instructed to apply for a separate permit to cover such non-UIC groundwater discharges.

**Characteristics:** Discharges to the injection wells listed on permit UNEV87041 consist of geothermal fluids derived from the San Emidio Desert geothermal reservoir on the east side of the valley, cooling tower blowdown, motor oil, and any chemical amendments used for treatment of scale, corrosion, microbial growth, or otherwise – all of which require approval by the Division prior to use, as well as compliance with specific monitoring and reporting requirements enumerated in the Chemical Use Request / Authorization (UIC form U240) and permit UNEV87041.

**B. PERMITTING HISTORY**

**2/22/2024:** Issuance of UIC temporary permit UNEV87041T2024-1 for testing of wells 52-4 & 55A-4

**12/11/2023:** Administrative continuance granted for extension of UNEV87041T2023-1 until renewal of UIC permit UNEV87041

**12/8/2023:** Application for renewal of UIC permit UNEV87041 received

**5/28/2023:** Injection Well 51-16 removed from permit  
Annual Average Flow Rate Max lowered (6,000 gpm → 5,000 gpm)  
BLM-concurred North Valley Surface Water and Ground Water Monitoring Plan added to permit

**5/13/2023:** Expiration of Temporary (30-day) permit UNEV87041T2023-2

**4/19/2023:** Expiration of Temporary (30-day) permit UNEV87041T2023-1

**4/13/2023:** Temporary (30-day) UIC permit UNEV87041T2023-2 issued for 2 Injection Wells in service of San Emidio – North Valley (combined) geothermal project to meet minimum MW required for Commercial Operation Delivery on 4/21/2023:  
84-20 (3,000 gpm 602 psig)  
52-21 (1,250 gpm, 27 psig)

**3/20/2023:** 30-day UIC permit UNEV87041T2023-1 issued for 2 Injection wells in service of San Emidio – North Valley (combined) geothermal project

55-4 (3,000 gpm, 18 psig)  
67-4 (350 gpm, 30 psig)

**3/15/2023:** Commercial Operation Date for North Valley Power Plant (20 MW Nameplate)

**3/7/2023:** Injection Well 51-16 (2,000 gpm, 33 psig) added to permit

**11/29/2022:** Written 5-day report of spill submitted to NDEP

**11/17/2022:** Surface spill – leak from Observation Well 78-20 onto surface due to corroded fitting

**11/19/2018:** Permit Expiration Date

**7/18/2018:** Renewal Application Received

**5/23/2018:** Renewal Application Due

**5/3/2018:** Transfer of Ownership – USG Nevada Inc. → Ormat Nevada Inc.

**5/27/2015: Modification**

Well	Max Rate (gpm)	Max Press (psig)
53-21	3,000	30
42-21	2,500	56
43-21	3,000	22

Annual Average Flow Rate Maximum Limit: **6,000 gpm**

**11/19/2013: Renewal**

Well	Max Rate (gpm)	Max Press (psig)
53-21	1,600	30
42-21	1,400	56
43-21	1,800	22

Annual Average Flow Rate Maximum Limit: **5,000 gpm**

**2009 Status and Renewal**

September, 2009 – three injection wells in service. Initiated renewal of permit and field inspection

May 2009 – Notice of Violation - MITs

September, 2008 – Request to postpone renewal of permit – future development

April 29, 2008 – UNEV87041 transferred from Empire Geothermal Power, LLC to USG Nevada, LLC

**Month** 2003 – dehydration plant was taken offline

**2000 Status**

Empire Energy, LLC (Empire Group, LLC is the parent company) currently owns and operates the Empire

Geothermal Power Plant in Section 21, Township 29 North, Range 23 East, MDBM, Washoe County, Nevada. Empire Group is also the parent company of Empire Foods, LLC, the owner and operator of the garlic and onion dehydration plant in Section 16, T29N R23E, approximately one (1) mile north of the power plant.

Prior to 1997, the power plant, the dehydration plant, the geothermal resource on the private lands in Sections 16 and 21, and the geothermal leases on the public lands in Section 21 were previously owned or controlled by unrelated entities. AMOR II Corporation previously owned the power plant, and San Emidio Resources owned and operated the geothermal well field on private lands by the dehydration plant. At this time, all are owned or controlled by Empire Group, LLC. UIC permit UNEV87041 was previously held in the name of Amor II Corporation, and the expired injection permit UNEV94211 was held in the name of San Emidio Resources. Recently the permittee requested the above name change (Empire Energy, LLC) for financing reasons. Bonding requirements were met prior to the name change. In this renewal application, Empire Group, LLC has requested to combine the two permits into permit UNEV87041 to operate the wellfield as one entity in the name of Empire Energy, LLC.

Geothermal production for both facilities is primarily from wells near the dehydration plant on private lands in Section 16 (as of 6/2000 - 75-16, 75B-16, 76-16 and 65C-16 (shut-in)), with some production from the power plant field (currently 52-21). Approximately 500 gallons per minute (gpm) of geothermal fluid (from PW 75B-16) is utilized in the dehydration plant as a heat source for the dryers. The fluid is then mixed with additional geothermal fluids for a total flow of approximately 900 gpm to the wetlands west of dehydration plant and 200 gpm to injection well 51-16. 3500-4000 gpm is produced from the other wells and piped to the power plant to the south. Geothermal fluid is piped through a heat exchanger at the power plant and injected into injection wells (listed below) within a shallower, cooler geothermal zone near the power plant of similar water quality.

In addition to the five (5) injection wells near the power plant, an additional injection well (51-16) is maintained near the dehydration plant for use when the power plant is not operating, or when the flow from the dehydration plant is not needed at the power plant.

Cooling water blowdown from the power plant is currently discharged to the surface on private land north of the power plant or will be used for irrigation. Water used for cooling at the power plant and potable water for the dehydration plant is supplied from a potable water well located approximately 4.5 miles northwest of the facilities, just south of Empire Farms, in Section 36, T30N R22E. The only wells known to exist in the area of review are associated with geothermal development.

Geologic reports of the area indicate geothermal fluids naturally migrate westward to the playa from the east side of the valley (Water Resources Reconnaissance Series Report #44, April 1968) and commingle with ground water recharge to the playa principally from the west side of the valley. Geothermal fluids migrate up the fault system of the east side of the valley, and naturally discharge into the valley fill material at varying depths. No fresh water aquifers have been identified in the project area and the shallow ground water is similar in quality to the geothermal fluids.

**Injection wells as of September 2009 – 43-21, 53-21, 42-21**

**Injection wells as of May 2000**

The following table outlines the injection wells in use and proposed for use.

Well	Max Rate (gpm)	Max Press (psig)
51-16		
42-21		
43-21		

45-21		
35-21		
53-21		

\*LATITUDE AND LONGITUDE DERIVED FROM SAN EMIDIO DESERT NORTH & SOUTH USGS 7 1/2 MINUTE QUAD SHEETS.

**C. Receiving-Water Characteristics**

The produced geothermal fluid is injected back into the same or similar reservoir (see Part A above). Ground water at all depths surrounding the project is of geothermal nature or influence and poor quality, evident by hot springs, mud pots and fumaroles surrounding the facility. Shallow holes have been dug near power plant and dehydration facility and the ground water is of similar quality to the geothermal fluids. Shallow aquifer water quality is generally poor consisting of total dissolved solids (4,600 mg/l), fluoride (5.10 mg/l), boron (6.0 mg/l) and chloride (2,410 mg/l).

**D. 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 the 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.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

**E. Proposed Determination**

The Division is soliciting comments on the permit modified on May 28, 2023 during the public comment period and/or subsequent public hearing.

**F. Proposed Effluent Limitations and Special Conditions**

See Part I.A of the permit.

**G. Rationale for Permit Requirements**

Verification that the quality of fluid discharged to the injection well(s) remains constant and confirmation that fluids disposal does not adversely affect the existing hydrologic regime.

Prepared by Russ Land in May 2000; last updated by Andrew Kowler on 3/1/2024.