



STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor

Leo M. Drozdoff, P.E., Director

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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(Pursuant to NAC 445A.874)

Permittee Name: Beowawe Geothermal Power Company
Permit Number: UNEV50033

A. Description of Discharge

Location: There are currently two injection wells. Injection well 85-18 is located in Section 18, T.31N., R.48E., and injection well Batz 1 located in Section 17, T.31N., R.48E.; Whirlwind Valley, Eureka and Lander Counties, Nevada. Two proposed wells may be considered in the future within the project area.

Legal Description: Sections 13 & 24 T31N R47E; 7, 8, 17, 18, and 19, T31N, R48E

Well 85-18

Depth of well: 5927'

Injection zone: Perforations in 9 5/8" csg - 1655' - 2188' & minor amounts open hole below 2937'

Average injection pressure: 55 psig @ 3100 gpm

Well Batz-1

Depth of well: 6000'

Injection zone: Perforations in 9 5/8" csg - 1443' - 1698'

Average injection pressure: 80 psig @ 800 gpm

Characteristics: The injectate is approximately 3,900 gpm of spent geothermal fluid from the Beowawe Geothermal Plant. The injectate water consists of the following range of concentrations: TDS - 950 to 1100 mg/l, fluoride - 13 to 18 mg/l, silica - 330 to 420 mg/l, chloride - 55 to 75 mg/l, pH - 9.0 to 10. (Note: the permittee is being required to sample for Profile 1 constituents within 120 days of the date of permit issuance to evaluate the metals concentrations)

Average injection temperature: 150-160 degF

Average flow rate: 3,900 gpm

B. Synopsis

2013 Update: 85-18 continues to be the primary injection well, with the Batz-1 well being reinstated back in 2009 for testing and 2011 for full time injection to help manage geothermal fluid within the reservoir better and increase production.

In 2010, a new binary bottoming unit (refrigerant R134A) and second cooling tower were added to

		1994	688	84	10.2	70.2	149.8	
		1998	362	20	11.4	48.7	109	
		2012	583	61	12.9	78.3	168	
U-1	40'	?1979?	1660	91	19	70	430	May 1985 report
		1994	1331	99	24	82.7	455.2	
		1998	1088	80.2	23.6	80	413	
		2012	938	73	24.2	84	331	
U-10	80' ?	?1979?	985	49	11	125	220	May 1985 report
		1994	dry	dry	dry	dry	dry	
		1998	dry	dry	dry	dry	dry	
D-22	200'	1979	545	41	2	94	82	date listed in report
		1994	872	112	8.8	74	270.4	
		1998	791	101	7.03	75.1	322	

D. Procedures for Public Comment

The Notice of the Department's intent to issue a renewed and modified permit authorizing the facility to discharge to the ground water of the State of Nevada subject to the conditions contained within the permit, is being sent to the *Elko Daily Free Press* on July 30, 2013, for publication. The notice is being mailed to interested persons on our mailing list (see Attachment A). Anyone wishing to comment on the proposed permit modification can do so in writing for a period of 30 days following the date of the public notice.

Any public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator or any interested agency, person or group of persons.

Any public hearing determination 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 has made the tentative determination to renew the permit.

F. Proposed Limitations and Special Conditions

See Part I.B of the permit.

G. Rationale for Permit Requirements

Due to dropout of silica, the fluoride is expected to co-precipitate. The effect on the receiving water would be a net increase of the mean TDS and a net decrease in fluoride and trace metals. Monitoring down-gradient of the injection well over the last five years has not shown degradation of the hydrologic regime.

Verification that the quality of fluid discharged to the injection well remains constant.
Confirmation that fluids disposal does not adversely effect the existing hydrologic regime.

Prepared by: Russ Land
Date: October 1999, Updated July 2013