

**THE STATE OF NEVADA****PERMIT TO APPROPRIATE WATER**

**Name of applicant:** ENEL SALT WELLS, LLC  
**Source:** GEOTHERMAL  
**Basin:** CARSON DESERT  
**Manner of Use:** COMMERCIAL  
**Period of Use:** January 1st to December 31st  
**Priority Date:** 04/15/2010

\*\*\*\*\*

**APPROVAL OF STATE ENGINEER**

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of geothermal fluid herein granted is only a temporary allowance and that the final right obtained under this permit will depend upon the amount actually placed to beneficial use. It is also understood that this right must allow for a reasonable decrease in reservoir pressure and heat. The well shall be constructed and maintained to prevent any waste of the geothermal fluid above or below the surface. The producing well discharge shall be closely monitored and recorded. The amounts of fluid injected back to the reservoir shall also be monitored and recorded to determine the total annual diversion and consumption for beneficial use.

The annulus of any well drilled under this permit is to be cemented from the top of the producing or injection interval to surface to prevent waste and to prevent any communication with fresh ground water. Only geothermal waters are to be diverted under this permit and the cooled geothermal fluids are to be returned to the source via the injection well.

This permit does not relieve the operator of the requirements of any other state, local or federal agency.

This permit does not extend the permittee the right of ingress or egress on public or private lands.

An annual report that documents the amounts of fluids produced, injected and/or consumed shall be filed under this permit not later than on January 31 of the year following the reporting year. Any exploration and subsurface information obtained as a result of this project shall be kept confidential pursuant to Chapter 534A.031 of the Nevada Revised Statutes (NRS).

The total withdrawal of geothermal fluid under this permit shall be limited to 4,851 acre-feet per year. This appropriation permit allows for a total consumptive use of the geothermal fluid that shall not exceed 15% of the amount produced annually. The State Engineer reserves the right to make findings regarding the consumptive use of the geothermal fluid under this permit and impose additional conditions thereto.

The point of diversion and place of use are as described on the submitted application to support this permit.

(Continued on Page 2)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, **and not to exceed 6.7 cubic feet per second.**

Work must be prosecuted with reasonable diligence and proof of completion of work shall be filed on or before:

March 22 2013

Water must be placed to beneficial use and proof of the application of water to beneficial use shall be filed on or before:

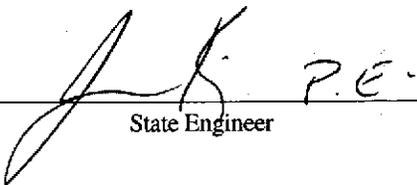
March 22 2016

Map in support of proof of beneficial use shall be filed on or before:

N/A

IN TESTIMONY WHEREOF, I, JASON KING, P.E.,

State Engineer of Nevada, have hereunto set my hand and the seal of my office, this 22nd day of March, A.D. 2011

  
\_\_\_\_\_  
State Engineer

Completion of work filed \_\_\_\_\_

Proof of beneficial use filed \_\_\_\_\_

Cultural map filed \_\_\_\_\_

Certificate No. \_\_\_\_\_ Issued \_\_\_\_\_

Application No. 79786

**APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA**

|   |   |
|---|---|
| THIS SPACE FOR OFFICE USE ONLY            |   |
| Date of Filing in State Engineer's Office | <u>APR 15 2010</u>                                    |
| Returned to applicant for correction      | _____   |
| Corrected Application filed               | _____ Map filed <u>APR 15 2010</u> under <u>79784</u> |

The applicant Enel Salt Wells, LLC  
1755 E. Plumb Lane, #155 of Reno  
Street Address or P.O. Box City or Town

Nevada 89502 hereby make(s) application for permission to appropriate the  
State and ZIP Code

public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association, give names of members.)

Enel Salt Wells, LLC is an Entity formed in the state of Delaware on 6-1-2003.  
The Entity is a single member LLC of which the single member is Enel Geothermal, LLC.

- The source of water is geothermal  
An ~~underground~~ source referred to as PW-3 (87-26)  
Name of the stream, lake, underground, spring or other sources.
- The amount of water applied for is 6.68 CFS (3000 GPM)  
One second foot equals 448.83 gallons per minute.
  - If stored in a reservoir give the number of acre-feet N/A
- The water is to be used for ~~Commercial~~ Industrial (cooling)  
Irrigation, power, mining, commercial, domestic or other use. Must be limited to one major use.
- If use is for:
  - Irrigation, state number of acres to be irrigated N/A
  - Stockwater, state number and kind of animals N/A
  - Other use (describe fully in No. 12) See No.12
  - Power:
    - Horsepower developed 23 MW (Gross) Electric
    - Point of return of water to stream Spent geothermal brine will be reinjected into permitted injection wells

REL  
per  
email

REL  
per  
email

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

Within the SE/4 of the SE/4 of Section 26, T17N, R30E MDB&M at a point which bears N42 degrees 58 minutes 07 seconds W 8,190.85 feet from BLM brass cap at SE corner of Section 36, T17N, R30E MDB&M.

6. Place of use: (Describe by legal subdivision. If on unsurveyed land, it should be so stated)

Enel Salt Wells Geothermal Power Plant  
SW/4 of the NW/4 Section 36, T17N, R30E MDB&M

7. Use will begin about January 1 and end about December 31 of each year.  
Month and Day Month and Day

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with a pump and motor, etc.)

Well is existing geothermal production well for power plant (see Attachment B). Well utilizes submersible pump to produce flow.

9. Estimated cost of works: Well cost is approximately \$1.5 million

10. Estimated time required to construct works: Well is complete. See Attachment "B"

(If the well is complete, describe works.)

11. Estimated time required to complete the application of water to beneficial use: 10 Years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary): (Failure to provide a detailed description may cause a delay in processing.)

Produced geothermal brine will be used to operate a binary geothermal power plant. As much as 10% of brine produced may be consumed by a proposed supplemental cooling system for the process. 90% of the produced brine will be reinjected into the geothermal reservoir under provisions of an approved NDEP-UIC injection permit. The total annual consumptive use will be 484 acre-feet.

13. Miscellaneous remarks:

See Attachment "A" for description of proposed supplemental cooling systems.

brad.platt@enel.com

E-mail Address

(775) 329-0700 Ext. 102

Phone No.

APPLICATION MUST BE SIGNED  
BY THE APPLICANT OR AGENT

Brad Platt

Type or print name clearly

Signature, applicant or agent

Enel Salt Wells, LLC

Company Name

1755 E. Plumb Lane, Suite 155

Street Address or PO Box

Reno, NV 89502

City, State, ZIP Code

ATTACHMENT "A"  
Enel Salt Wells, LLC

12. Provide a detailed description of the proposed project and its water usage.

The purpose of the supplemental cooling system is to increase the rate of heat transfer in the portion of the cycle that condenses the working fluid (in this case isobutane) after having passed through the turbine. By improving the efficiency of the heat extraction the overall efficiency of the process is improved which results in significant increase in power produced. This improvement is especially critical during times of the year when the ambient temperature is above 65°F as the higher ambient temperature increases the difficulty of removing heat from the working fluid and has an adverse affect on power production.

At this time a number of proposals are being investigated but the cost-benefit analysis are not complete. In any event the plans call for the use of geothermal fluid (brine) to be diverted from the injection stream, cooled and used as a supplemental cooling medium to aid in heat removal during the condensing phase of the cycle. All of the proposals involve the loss (consumption) of varying amounts of brine through evaporation.

The two processes which appear to be the most viable are the Munters Evaporative Pads and an auxiliary heat exchanger placed in the flow of vapor exiting the turbine. Although a number of scenarios are being explored the basic Munters system involves the skirting of the area directly under the induced draft air condensers with evaporative pads. A supply of brine is taken from the plant injection piping and cooled. The cooled brine is applied to the pads, saturates them and the excess is collected and piped to a holding pond. Air is drawn through the pads, the Wet Bulb temperature of the air decreases and this cooler air then passes over the tubes of the air cooled condensers. The lowered air temperature increases the heat transfer from what would occur if using air at ambient temperature. Evaporative loss across the pads is estimated at 1000 gallons per minute for the plant wide installation. There would be an additional evaporative loss from the collection pond. The collection pond itself would be level controlled and the excess pond water would be reintroduced into the plant piping for injection into the existing permitted wells.

The leading alternate plan involves the use of a tube and shell heat exchanger placed in the flow of the exhaust gas (vaporized working fluid). Cooled brine would be passed through the heat exchanger's tubes absorbing heat, thereby lessening the demand on the air cooled condensers. The heated brine would then be pumped to an induced

draft cooling tower for cooling in preparation for return to the heat exchanger. Make-up water is taken from the injection piping and the base of the cooling tower would act as the reservoir for the system. Flow through the cooling tower is estimated at 12,500 gallons per minute with an evaporative loss of 500 gallons per minute.

While all proposals are under review when a final selection is made an addendum will be submitted to the Division of Water Resources with full design specifications.

STATE ENGINEERS OFFICE  
2010 APR 15 PM 1:54  
RECEIVED

**ATTACHMENT "B"**  
**Enel Salt Wells, LLC**

**3 Pages Following**

79786

STATE OF NEVADA  
COMMISSION ON MINERAL RESOURCES  
DIVISION OF MINERALS  
400 W. King Street, Suite 106  
Carson City, Nevada 89703  
(775) 684-7040 • Fax (775) 684-7052

ORIGINAL - Company  
DUPLICATE - Department  
TRIPPLICATE - NDMRS

RECEIVED

AUG 18 2005

CONFIDENTIAL

GEOHERMAL WELL COMPLETION REPORT

Division of Minerals  
To be filed not later than 15 days after well is abandoned or put on production

WELL LOCATION

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|  |  |  |  | X |

Section 26

Nevada Geothermal Specialists LLC/AMP Resources SALT WELLS

Company \_\_\_\_\_ Lease \_\_\_\_\_  
 Well No. PW-3 in SE 1/4 of SE 1/4 of Sec. 26  
 T. 17N, R. 30E, M.D.B.&M. Field Salt Wells  
 County Churchill Permit Number 569  
 Drilling Commenced June 1, 2005 Completed June 8, 2005  
 Type of Drilling Equipment Used Rotary  
 Drilling Contractor Lang  
 Address Elko, Nevada

79786

ATTACHMENT "B"  
Enel Salt Wells, LLC

3 Pages Following

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NRS 534A.031  
(Five years)  
Per - TRG

Subsurface Information  
Confidential  
REL  
4-22-10