Permit No. 69207

THE STATE OF NEVADA

PERMIT TO APPROPRIATE WATER

Name of Permittee:	**STEAMBOAT DEVELOPMENT CORPORATION**
Source:	**GEOTHERMAL**
Basin:	**TRUCKEE MEADOWS**
Manner of Use:	**POWER**
Period of Use:	**MAY 1ST THROUGH SEPTEMBER 30TH**
Priority Date:	**10/02/2002**

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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.

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 400 acre-feet seasonally. This appropriation permit allows for a total consumptive use of the geothermal fluid that shall not exceed 400 acre-feet seasonally. 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.

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

The total combined consumptive duty of geothermal fluid under Permits 69206, 69207, 69208, 69209, 69210, 69211, 69212 and 69213 shall not exceed 400 acre-feet annually.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

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 2.69 cubic feet per second or 400 acre-feet seasonally.**

Work must be prosecuted with reasonable diligence and proof of completion of work shall be filed on or before: **April 25 2013**

Water must be placed to beneficial use and proof of the application of water to beneficial use shall be filed on or before: **April 25 2015**

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 25th day of **April,** A.D. **2012**

P.E.

State Engineer

Completion of work filed _____

Proof of beneficial use filed _____

Cultural map filed _____

Certificate No. _____ Issued _____

NO. 69207

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

Date of filing in State Engineer's Office OCT 02 2002

Returned to applicant for correction

Corrected application filed

Map filed OCT 02 2002 under 69206

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The applicant **Steamboat Development Corporation**, hereby make application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated.

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1. The source of the proposed appropriation is **Geothermal**

2. The amount of water applied for is **11.0*** second-feet ***See Supplement to Application**

(a) If stored in reservoir give number of acre-feet

3. The water to be used for **Evaporative cooling (power generation) of condensers at Steamboat Geothermal Power Plant.**

4. If use is for:

(a) Irrigation, state number of acres to be irrigated

(b) Stockwater, state number and kinds of animals to be watered

(c) Other use (describe fully under No. 12. "Remarks") **Geothermal power**

(d) Power:

(1) Horsepower developed

(2) Point of return of water to stream

5. The water is to be diverted from its source at the following point **SE¼ SW¼ Sec. 28, Twp. 18N., Rge. 20E., MDBM., from which the SW corner of said Section 28 bears S 58° 37' 11" W, a distance of 2112.35 ft.**

6. Place of Use **Sec. 28: Portions of NE¼ SW¼, S½ NW¼ SW¼, NE¼ NW¼ SW¼, SE¼ SW¼ Portion of W½ W½ SE¼ lying west of U.S. Highway 395. Sec. 29 Portions of S½ SE¼ NE¼, Portions of E½ SE¼. Place of use is illustrated on map prepared by TEC dated September 9, 2002, which is incorporated and submitted with this application. All in T.18N, R20E., M.D.B.&M.**

7. Use will begin about **May 1** and end about **September 30** of each year.

8. Description of proposed works **See Supplement to Application**

9. Estimated cost of works **$300,000.00**

10. Estimated time required to construct works **Approximately 60 days for the first of 4 units. The fourth unit would be completed no later than 2004.**

11. Estimated time required to complete the application of water to beneficial use **two years (2004)**

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12. Remarks: **See Supplement to Application**

By **Steamboat Development Corporation**
s/Daren Daters
1010 Power Plant Drive
Reno, NV 89521

Compared **cac**/cmf

Protested 1/3/03 by Washoe County; W/D 6-22-07

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Supplement to Application

Steamboat Development Corporation

Application for Permit to Appropriate the Public Water of the State of Nevada

Item 2. Amount of water applied for:
The amount of water required for evaporative cooling and incidental use is **11** second feet or **5,000** gallons per minute (gpm) during the period May 1 through September 30 of each year. This required amount equates to **3,330** acre feet of water per year based on the calculation of **5/12 (months of year) X 724 (acre ft. Per second feet)**. Although the required amount is shown on the application submitted for each of the eight wells, the total duty applied for does not exceed **3,330** acre feet. The nature of the geothermal fluid production requires flexibility of the pumping from designated wells at any one time.

Item 8. Description of Proposed Works
The required amount of water would be diverted from the injection pipeline for cooling and storage in a holding pond. The cooled water would then be applied to the evaporative cooling pads to enhance the cooling effectiveness of the condensers. As the water spreads over the extensive surface of the pads, it evaporates and mixes with the air, absorbing the heat from the air, thereby lowering the temperature of the air as the relative humidity is increased. Water that does not evaporate trickles down and is channeled back to the cooling pond.

Item 12. Remarks
The Steamboat II/III facility is an air-cooled geothermal binary power plant. The limiting factor of power production during high ambient temperatures at this plant is condenser air-cooling. The turbines are not as efficient in the summer time due to the fact that under higher temperatures, the process of condensing isobutane vapor back to a liquid is less efficient. This results in a higher back pressure on the turbine. During the winter months the ambient air temperatures are much cooler, allowing the air condensers to be more efficient in condensing the isobutane vapor, and thus effectively increases power production. Unfortunately, during the summer months when the electrical demand of utilities is significantly higher, the warmer temperatures negatively impact power production at the air-cooled facility.

By utilizing a small amount of the geothermal resource that is already available, the power plant can maximize the beneficial use of the reinjected geothermal fluid as a cooling source to increase power production during the summer months. The proposed evaporative cooling system is planned to operate only when ambient temperatures reached 65 degrees Fahrenheit during the months of May through September. The maximum requirement for consumptive use in the evaporative cooling process would be approximately five (5) percent of the total volume of geothermal fluid pumped.

This type of water-cooling has proven to be successful for the Mammoth Pacific power plant in California. The Steamboat II/III facility is of similar design and construction as the Mammoth plant.

The proposed use would be negligible in terms of total volume pumped, and would not be a factor in either maintaining required production volumes or geothermal fluid temperature for plant operations. Reinjection of geothermal fluids far in excess of the 11 second feet applied for (approximately 800 million gallons monthly), has been part of plant operations since 1992 with no effect on reservoir pressure, and minimal change in fluid temperature. Instrumentation recording of geothermal fluid production of the eight (8) wells from which consumptive use is proposed for diversion, would include data on consumptive use for evaporative cooling. Recorded data would be submitted as required.