

IN THE OFFICE OF THE STATE ENGINEER  
OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATION 44413 )  
FILED TO APPROPRIATE THE PUBLIC )  
WATERS OF AN UNDERGROUND SOURCE IN )  
THE LAS VEGAS ARTESIAN BASIN, CLARK )  
COUNTY, NEVADA. )

RULING

#4146

GENERAL

I.

Application 44413 was filed on September 10, 1981 by Joe Ingersol to appropriate 1.5 cfs (cubic feet per second) of water from an underground source for commercial purposes within the NW $\frac{1}{4}$  NW $\frac{1}{4}$  and NE $\frac{1}{4}$  NW $\frac{1}{4}$  Section 21, T.22S., R.61E., M.D.B.&M. The point of diversion is described as an existing well located within the NW $\frac{1}{4}$  NW $\frac{1}{4}$  Section 21. The proposed manner of use is commercial (Health Spa - Hot Baths - swimming pool) and domestic. Application 44413 became ready for the State Engineer's action March 6, 1982.<sup>1</sup>

II.

The State Engineer initially described and designated a portion of the Las Vegas Valley on January 10, 1941 under the provisions of NRS Chapter 534.120, as a basin in need of additional administration.<sup>2</sup>

The State Engineer subsequently extended the designated area of the Las Vegas Valley Groundwater Basin on February 29, 1944,<sup>3</sup>

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<sup>1</sup> Public record in the office of the State Engineer, Application 44413.

<sup>2</sup> State Engineer's Order No. 175, dated January 10, 1941, public record in the office of the State Engineer.

<sup>3</sup> State Engineer's Order No. 182, dated February 29, 1944, public record in the office of the State Engineer.

November 22, 1946,<sup>4</sup> April 18, 1961,<sup>5</sup> May 25, 1964,<sup>6</sup> and December 27, 1983.<sup>7</sup>

FINDINGS OF FACT

I.

The Las Vegas Valley groundwater reservoir is composed of zones having similar hydraulic characteristics. Three rather distinct zones, a shallow zone to a depth of about 450 feet below ground surface, a middle zone from about 500 feet to 700 feet, and a deep zone at greater than 700 feet, are the principal aquifers. These zones form a leaky artesian system that functions as a single hydrologic unit.<sup>8</sup> The shallow aquifer serves as the source of water supply for most of the water rights in the basin.<sup>9</sup>

Examination of the well log for the existing well at the proposed point of diversion of Application 44413 indicates that the source of water for this well is the shallow aquifer rather than an independent geothermal aquifer.<sup>10</sup> The State Engineer finds that under Application 44413, the Applicant is attempting to appropriate water from the aquifer that is the source of water for many

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<sup>4</sup> State Engineer's Order No. 189, dated November 22, 1946, public record in the office of the State Engineer.

<sup>5</sup> State Engineer's Order No. 249, dated April 18, 1961, public record in the office of the State Engineer.

<sup>6</sup> State Engineer's Order No. 275, dated May 25, 1964, public record in the office of the State Engineer.

<sup>7</sup> State Engineer's Order No. 833, dated December 27, 1983, public record in the office of the State Engineer.

<sup>8</sup> Water Resources Bulletin No. 5, prepared by the office of the State Engineer and the United States Geological Survey, 1948.

<sup>9</sup> Well Logs for wells within the Las Vegas Artesian Basin, official records in the office of the State Engineer.

<sup>10</sup> Well Log No. 3086. The 10" casing is perforated from 130 feet to 460 feet below ground surface. The major water bearing formation is between 357 feet to 365 feet deep for this well.

existing water rights. The State Engineer further finds that approval of Application 44413 would conflict with existing water rights.

## II.

The perennial yield of the Las Vegas Artesian Basin is estimated to be 25,000 AFA.<sup>11</sup> In addition, about 16,000 AFA of secondary recharge enters the groundwater from wastewater treatment and disposal and from the irrigation of lawns, golf courses, and parks. The source of much of this water is the Colorado River, imported by the Southern Nevada Water Project.<sup>12</sup>

The quantity of water pumped from the groundwater in 1992 was 67,972 acre feet.<sup>13</sup> This amount of pumping represents an overdraft of about 27,000 AFA. Over the years, the overdraft of the groundwater has caused a lowering of the water table which in turn led to as much as five feet of land subsidence in some areas of Las Vegas.<sup>14</sup> The State Engineer finds that approval of Application 44413, which seeks to appropriate 524.23 AFA of groundwater, threatens to prove detrimental to the public interest by further lowering the groundwater table and increasing the potential for land subsidence.

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<sup>11</sup> United States Geological Survey Water Supply Paper No. 1780, Glenn T. Malmberg, 1965.

<sup>12</sup> Water Resources Bulletin No. 44, Office of the State Engineer and the United States Geological Survey, 1976.

<sup>13</sup> Data collected by the Division of Water Resources, State of Nevada, Las Vegas Branch. Pumpage inventories are maintained by meter readings and data provided by local water companies. Water levels of selected wells within the Las Vegas Valley Basin are measured periodically. The State Engineer's office and U.S. Geological Survey have cooperatively maintained groundwater level monitoring networks in the Las Vegas Valley since 1945. This record is substantial and conclusive evidence of deteriorating groundwater conditions.

<sup>14</sup> Nevada Bureau of Mines and Geology Bulletin No. 95, John W. Bell, 1981.

III.

A 30 inch water main, providing water service by the Las Vegas Valley Water District, runs along Las Vegas Boulevard on the west side of the proposed place of use.<sup>15</sup> The State Engineer finds that the Applicant is attempting to appropriate water in an area that is served by the Las Vegas Valley Water District.

CONCLUSIONS

I.

The State Engineer has jurisdiction of the parties and the subject matter of this action and determination.<sup>16</sup>

II.

The State Engineer is prohibited by law from granting a permit under an application to appropriate the public waters where:

- A. There is no unappropriated water at the proposed source, or
- B. The proposed use conflicts with existing rights, or
- C. The proposed use threatens to prove detrimental to the public interest.<sup>17</sup>

III.

The State Engineer may deny applications to appropriate groundwater for any purpose in areas where service can be provided by an entity such as a water district or a municipality presently engaged in furnishing water to the inhabitants thereof.<sup>18</sup>

IV.

For the past several years, the amount of groundwater withdrawal has exceeded the perennial yield within the Las Vegas Artesian Basin. This has caused water level declines, storage

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<sup>15</sup> Las Vegas Valley Water District Service Area Map.

<sup>16</sup> NRS Chapter 533.025 and NRS 533.030, subsection 1.

<sup>17</sup> NRS Chapter 533.370 subsection 3.

<sup>18</sup> NRS 534.120, subsection 3.

depletion, land subsidence, quality deterioration, and significant changes in the recharge-discharge relationship within the Las Vegas Artesian Basin. The approval of Application 44413 threatens to prove detrimental to the public interest in that these problems would become worse. Additionally, the approval of Application 44413 would conflict with existing water rights.

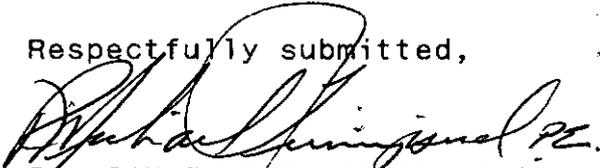
V.

Water service can be provided to the Applicant by the Las Vegas Valley Water District. Therefore, Application 44413 should be denied.

**RULING**

Application 44413 is hereby denied on the grounds that water service can be provided by the Las Vegas Valley District and that the granting of a permit would conflict with existing rights and would threaten to prove detrimental to the public interest.

Respectfully submitted,



R. MICHAEL TURNIPSEED, P.E.  
State Engineer

RMT/CAB/pm

Dated this 18th day of  
October, 1994.

## REFERENCES

State of Nevada, Department of Highways, Report on Land subsidence in Las Vegas Valley.

Ground-Water Storage Depletion in Pahrump Valley, Nevada-California, 1962-75, J.R. Harrill, Open File Report 81-635, United States Geological Survey, 1982, prepared in cooperation with Nevada Division of Water Resources.

Basic Ground-Water Hydrology, Ralph C. Health, U.S. Geological Survey Water Supply Paper 2220, 1983.

Methods of Determining Permeability, Transmissibility and Drawdown, U.S. Geological Survey Water Supply Paper 1536-1, R.H. Brown, J.G. Ferris C.E. Jacob, D.B. Knowles, R.R. Meyer, H.E. Skibitzke and C.F. Theis, 1963.

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