

FIRST AMENDED

OCTOBER 19, 2006

**OFFICE OF THE STATE ENGINEER
STATE OF NEVADA**

PERMIT NO. R-016

PERMIT

**TO ESTABLISH AND OPERATE A PROJECT
TO RECHARGE, STORE AND RECOVER
UNDERGROUND WATER**

PERMITTEE: Truckee Meadows Water Authority
PO BOX 30013
Reno, NV 89520

SOURCE OF WATER: Truckee River (Permit 58882)

ANNUAL QUANTITY: 7,000 Acre-Feet

**LOCATION OF PROPOSED
PROJECT/RECHARGE WELLS:**

SEE ATTACHMENT "A":

LOCATION OF RECOVERY WELLS:

The recovery wells are the same as the 22 recharge wells listed above.

AREA OF ACTIVE MANAGEMENT:

The Truckee Meadows Groundwater Basin, Hydrographic Area No. 6-87 as described in the State Engineer's Order No. 708, dated March 1, 1978.

DURATION OF PERMIT:

This permit is issued for an indefinite period, subject to periodic review by the State Engineer.

TERMS AND CONDITIONS OF PERMIT:

1. During recharge the amount of water recharged at each well location shall be recorded on a daily basis.
2. During recovery the amount of water being pumped from each recovery well shall be recorded on a daily basis. If electronic equipment is used for the collection of data on a daily basis, said

equipment shall be physically checked and calibrated for proper operation per the manufacturer's specifications.

3. The withdrawal of recharged water will be restricted on a well by well basis. The amount of water injected into a particular well can only be recovered by pumping that particular well.

4. Water level measurements for each recharge well shall be taken prior to the start of any recovery/production cycle, followed by a water level measurement 24 hours after the start of any recovery/production cycle and then on a monthly basis thereafter.

5. Monitoring Wells:

A. The following wells have been authorized as monitoring wells:
SEE ATTACHMENT "B"

B. During the recharge and recovery periods, monitoring wells will be pumped only when it is required to obtain water samples.

C. The use of any other well, except as stated above, as a monitoring well must be authorized by the State Engineer. Any new monitoring well shall be constructed as per NAC 534-4351 through NAC 534-4365.

6. Information on the pumping of TMWA's Recharge/Recovery Wells shall be provided with the Permittee's quarterly groundwater reports. Notice shall be given to this office of when recharge and recovery events will begin and end.

7. Collection of Water Quality Data:

For each water quality sample or water level measurement taken pursuant to this permit, the permittee shall record the following information:

- A. The exact place, date and time of sample or measurement;
- B. The dates the analyses were performed;
- C. The person(s) who performed the analyses or measurements;
- D. The analytical techniques or methods used; and
- E. The results of all required analyses and measurements.

8. Per Nevada Division of Environmental Protection (NDEP) Permit No. UNEV92200, the following table identifies the water quality monitoring frequency and water quality parameters to be sampled at the recharge/recovery wells, in addition to the constituents listed in ATTACHMENT "C", which will be reported.

<u>Parameter</u>	<u>Location</u>	<u>Monitoring Frequency</u>	<u>Limitations</u>
a. Constituents as listed under Attachment "B" of this permit	Injectate (distribution system) for each of the 4 zones identified in Part I.A.1 Produced water from each well that was used for recharge the previous season	Quarterly during recharge Quarterly during pumping (year-round)	Concentrations may not exceed enforceable State and Federal Primary and Secondary Drinking Water Regulations
b. Total Trihalomethanes; Bromodichloromethane; Bromoform; Dibromochloromethane; and Chloroform.	Produced water from each well that was used for recharge the previous season	Quarterly from 23 distribution system locations during pumping (year-round)	Running Annual Average (RAA) of Total Trihalomethanes for the past 4 Quarters may not exceed Primary Drinking Water Standards
c. Haloacetic acids (HAA5); Dichloroacetic acid; Trichloroacetic acid; Monochloroacetic acid; Bromoacetic acid; and Dibromoacetic acid.	Produced water from each well that was used for recharge the previous season	Quarterly from 23 distribution system locations during pumping (year-round)	Running Annual Average (RAA) of Haloacetic acids for the past 4 Quarters may not exceed Primary Drinking Water Standards
d. Chlorine concentration	Injectate (distribution system) for each of the 4 zones identified in Part I.A.1	Monthly during recharge	Injectate may not exceed Primary Drinking Water Standards
e. Groundwater Elevations (amsl) and Depth to Water	Recharge wells	Continuous using SCADA (data acquisition system) during recharge and non-recharge periods	Monitor and Report
f. Injection rate (gal/min) and Cumulative volume (gal)	Totalizing flow meter with capability for instantaneous flow rate. Meter to be located on the injection pipe line between the injection pump and the wellhead	Continuous using SCADA during recharge period	Monitor and Report

9. Reporting:

A. Additional monitoring by Permittee:

If the permittee collects any other data than required by this permit, using approved analytical methods, the results of these analyses or measurements shall be included in any reports, as specified in item 8, to the State Engineer.

B. Quarterly Reports

The Permittee shall provide quarterly reports that include just a tabulation of the pumping information as described in item 7.

C. Semi-Annual Report

The Permittee shall provide a copy to this office of the semi-annual report filed with NDEP under their Permit No. UNEV92200, no later than August 31.

D. Annual Report:

The permittee must file with the State Engineer an annual report as required by NRS § 534.280. Each annual report will be due no later than January 31 of each year.

11. Recharge and Recovery Amount:

This permit for recharge shall be limited to the amount the State Engineer determines to be recoverable but no more than 7,000 acre-feet in any calendar year. The amount recovered during any calendar year shall not exceed the amount established by the State Engineer in the storage account for this project. The amount of recoverable water will be based on the information provided to the State Engineer in the Semi-Annual and Annual reports. Use of the recovered water shall be limited to Truckee Meadows Water Authority's certificated water service area and further limited by the terms set forth under this permit.

12. The State Engineer shall levy and collect an annual fee from the permittee as prescribed in NRS § 534.310.

13. The State Engineer reserves the right to change, modify or amend the terms and conditions of this permit based on just cause.

14. Static water levels at the Fourth Street well shall not be allowed to rise within 20 feet of land surface.

IN TESTIMONY WHEREOF, I Tracy Taylor, P.E., State Engineer of Nevada, have hereunto set my hand and the seal of my office for approval of this permit,

this _____ day of _____
A.D. _____,

Tracy Taylor, P.E.
STATE ENGINEER

ATTACHMENT "A"

Injection Wells for Permit #R-016

- Delucchi Lane Well - Situate in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 31, T. 19N., R. 20E., M.D.B.&M., or at a point from which the Northwest corner of said Section 31 bears North $27^{\circ} 21' 05''$ West, a distance of 3,067.64 feet, in Washoe County, Nevada.
- El Rancho Dr. Well - Situate in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 6, T. 19N., R. 20E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 6 bears North $88^{\circ} 45' 00''$ East, a distance of 1,221.0 feet, in Washoe County, Nevada.
- Galletti Way Well - Situate in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 7, T. 19N., R. 20E., M.D.B.&M., or at a point which bears South $85^{\circ} 00' 00''$ West from the East $\frac{1}{4}$ corner of said Section 7, a distance of 1,572.63 feet, in Washoe County, Nevada.
- Glenn Hare Well - Situate in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 15, T. 19N., R. 19E., M.D.B.&M., or at a point from which the NE corner of said Section 15 bears North $20^{\circ} 31' 00''$ East, a distance of 2,502.35 feet, in Washoe County, Nevada.
- Greg Street Well - Situate in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 8, T. 19N., R. 20E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 8 bears North $32^{\circ} 15' 52''$ East, a distance of 2,155.97 feet, in Washoe County, Nevada.
- Holcomb Lane Well - Situate in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 7, T. 18N., R. 20E., M.D.B.&M., or at a point from which the N $\frac{1}{4}$ corner of said Section 7 bears North $17^{\circ} 13' 30''$ West, a distance of 1,415.00 feet, in Washoe County, Nevada.
- Hunter Lake Well - Situate in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 15, T. 19N., R. 19E., M.D.B.&M., or at a point from which the NE corner of said Section 15 bears North $44^{\circ} 48' 16''$ East, a distance of 4,080.27 feet, in Washoe County, Nevada.
- Lakeside Dr. Well - Situate in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 35, T. 19N., R. 19E., M.D.B.&M., or at a point from which the Northeast corner of said Section 35 bears North $02^{\circ} 12' 08''$ East, a distance of 2,234.4 feet, in Washoe County, Nevada.
- Longley Lane Well - Situate in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 6, T. 18N., R. 20E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 6 bears South $37^{\circ} 00' 00''$ East, a distance of 1,772.76 feet, in Washoe County, Nevada.
- Patriot Well - Situate in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 6, T. 18N., R. 20E., M.D.B.&M., or at a point from which the South $\frac{1}{4}$ corner of said Section 6 bears South $00^{\circ} 20' 27''$ East, a distance of 2,298.70 feet, in Washoe County, Nevada.
- Peckham Lane Well - Situate in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 30, T. 19N., R. 20E., M.D.B.&M., or at a point from which the Northeast corner of said Section 30 bears North $13^{\circ} 40' 48''$ East, a distance of 3,563.25 feet, in Washoe County, Nevada.
- Pezzi Well - Situate in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 17, T. 19N., R. 20E., M.D.B.&M., or at a point from which the West $\frac{1}{4}$ corner of said Section 17 bears South $82^{\circ} 42' 26''$ West, a distance of 4,130.0 feet, in Washoe County, Nevada.
- Poplar #1 Well - Situate in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 8, T. 19N., R. 20E., M.D.B.&M., or at a point from which the North $\frac{1}{4}$ corner of said Section 8 bears North $10^{\circ} 49'$ East, a distance of 2,232 feet, in Washoe County, Nevada.
- Poplar #2 Well - Situate in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 8, T. 19N., R. 20E., M.D.B.&M., or at a point from which the North $\frac{1}{4}$ corner of said Section 8 bears North $12^{\circ} 27' 23''$ East, a distance of 2,235.0 feet, in Washoe County, Nevada.

- Reno High Well - Situate in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 15, T. 19N., R. 19E., M.D.B.&M., or at a point from which the Northeast corner of said Section 15 bears North $67^{\circ} 10' 00''$ East, a distance of 1,047.0 feet, in Washoe County, Nevada.
- S. Virginia St. Well - Situate in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 6, T. 18N., R. 20E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 6 bears South $47^{\circ} 52' 48''$ East, a distance of 3,741.06 feet, in Washoe County, Nevada.
- Sparks Ave Well - Situate in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 8, T. 19N., R. 20E., M.D.B.&M., or at a point from which the North $\frac{1}{4}$ corner of said Section 8 bears North $03^{\circ} 01' 25''$ East, a distance of 549.76 feet, in Washoe County, Nevada.
- Swope Well Situate in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 16, T. 19N., R. 19E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 16 bears North $81^{\circ} 30' 00''$ East, a distance of 709.5 feet, in Washoe County, Nevada.
- Terminal Way Well - Situate in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 18, T. 19N., R. 20E., M.D.B.&M., or at a point from which the North $\frac{1}{4}$ corner of said Section 18 bears North $12^{\circ} 00' 30''$ West, a distance of 3,425.12 feet, in Washoe County, Nevada.
- View Street Well - Situate in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 6, T. 19N., R. 20E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 6 bears North $38^{\circ} 28' 29''$ East, a distance of 2,845.82 feet, in Washoe County, Nevada.
- 4th Street Well - Situate in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 12, T. 19N., R. 19E., M.D.B.&M., or at a point from which the Northeast corner of said Section 12 bears North $50^{\circ} 09' 55''$ East, a distance of 348.43 feet, in Washoe County, Nevada.
- 21st Street Well - Situate in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 7, T. 19N., R. 20E., M.D.B.&M., or at a point from which the East $\frac{1}{4}$ corner of said Section 7 bears North $21^{\circ} 41' 00''$ East, a distance of 945.0 feet, in Washoe County, Nevada.

ATTACHMENT "A-1"

Data on Truckee Meadows Water Authority's Wells

Well #	Well Name	Depth, ft	Screened interval, ft	Total Screen Length, ft
1	Swope	361	170-350	171
2	Hunter Lk	480	210-470	250
3	Reno High Sch	430	179-420	221
4	4th St	490	176-480	231
5	El Rancho Dr	370	142-360	136
6	View St	530	150-518	223
7	Sparks Ave	282	152-272	86
8	Poplar #1	665	453-645	170
9	Poplar #2	300	146-286	120
10	21st St	253	119-248	109
11	Greg St	274	110-260	140
12	Pezzi Well	563	214-548	187
13	Terminal Way	685	330-665	210
14	Peckham Ln	826	149-809	250
15	Lakeside Dr	400	180-400	220
16	Delucchi Ln	323	114-308	154
17	S. Virginia St	286	108-272	132
18	Patriot (Huffaker Ln)	310	135-300	146
19	Holcomb Ln	334	177-321	114
20	Glenn Hare	470	186-441	225
21	Longley Ln	300	120-290	100
22	Galletti Way	260	120-240	96

ATTACHMENT "B"

Monitoring Wells for Recharge Wells

Recharge Well	Monitoring Wells
Delucchi Lane Well	S. Virginia Street Monitoring Sierra Plaza Monitoring
El Rancho Drive Well	El Rancho Shallow (200 ft) Monitoring El Rancho Deep (360 ft) Monitoring
Galletti Way Well	Galletti Way Monitoring
Glenn Hare Well	Glenn Hare Monitoring
Greg Street Well	Greg Street Shallow Monitoring Greg Street Deep Monitoring (260 ft)
Holcomb Lane Well	Holcomb Lane Monitoring (320 ft)
Hunter Lake Well	Hunter Lake Monitoring
Lakeside Drive Well	Bartley Ranch
Longley Lane Well	Longley Lane Monitoring Quilici Ranch
Patriot Well	8170 S. Virginia Street Monitoring
Peckham Lane Well	Peckham Lane Shallow Monitoring Peckham Deep Monitoring
Pezzi Well	Belfast (Pepsi)
Poplar #1 Well	Poplar #1 Monitoring
Poplar #2 Well	CTM-74 (PR-3) Monitoring (106 ft) CTM 75 (PR-4) Monitoring (175 ft)
Reno High Well	Reno High Shallow (228 ft) Monitoring Reno High Deep (420 ft) Monitoring
S. Virginia Street Well	S. Virginia Street Shallow Monitoring S. Virginia Street Deep Monitoring (270 ft) Quilicci Ranch
Sparks Avenue Well	CTM-67 (SA-3) Monitoring (114 ft) CTM-68 (SA-4) Monitoring (186 ft)
Swope Well	Hunter Lake Monitoring Swope Monitoring (Future if needed)
Terminal Way Well	Terminal Way Monitoring (future if needed)
View Street Well	View Street Shallow (190 ft) Monitoring View Street Deep (520 ft) Monitoring
4 th Street Well	4 th Street Shallow (300 ft) Monitoring 4 th Street Deep (480 ft) Monitoring
21 st Street Well	21 st Street Shallow Monitoring (60 ft) 21 st Street Deep Monitoring (250 ft)

ATTACHMENT C

<u>Characteristic</u>	<u>Symbol</u>	<u>Drinking Water Standard (mg/l)</u>
Alkalinity	HCO ₃	--
Aluminum	Al	0.05 – 0.2 (Advisory Standard)
Antimony	Sb	0.006
Arsenic	As	0.05 (0.010 starting 1/23/06)
Barium	Ba	2
Calcium	Ca	--
Chloride	Cl	400
Chromium	Cr	0.1
Color	Color units	15
Copper	Cu	1.3
Dissolved Oxygen	DO	--
Fluoride	F	4
Hardness	mg/l	--
Iron	Fe	0.6
Lead	Pb	0.015
Magnesium	Mg	150
Manganese	Mn	0.1
Mercury	Hg	0.002
Nickel	Ni	0.1
Nitrate as Nitrogen	NO ₃ -N	10
Nitrite as Nitrogen	NO ₂ -N	1
pH	Value	6.5 - 8.5
Potassium	K	--
Total Dissolved Solids	TDS	1000
Sodium	Na	--
Specific Conductance	µmhos/cm	--
Sulfate	SO ₄	500
Total Suspended Solids	TSS	--
Temperature	°C	--
Zinc	Zn	5

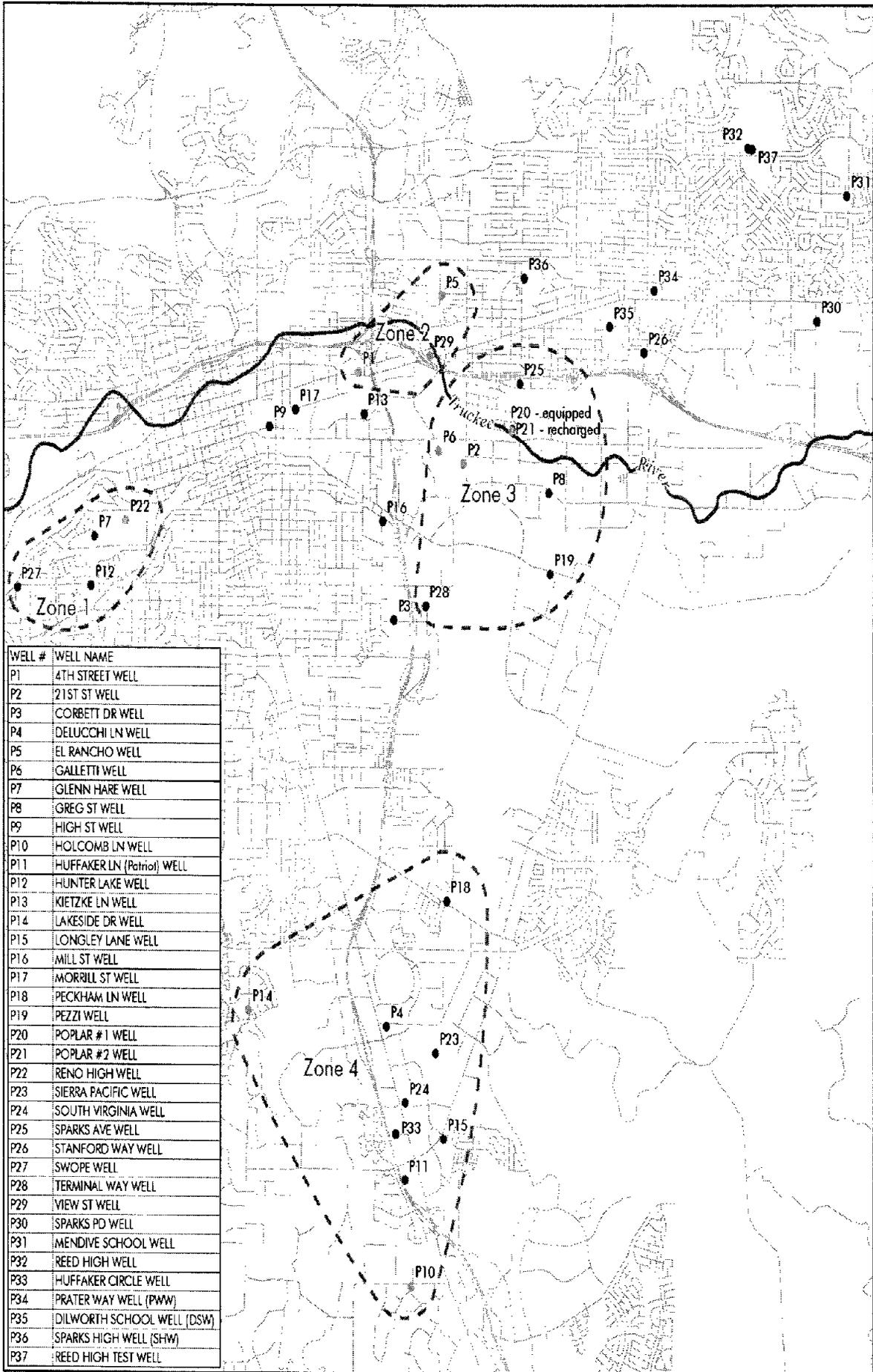
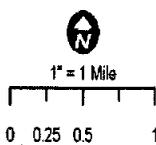


Figure 1 Well Locations - Truckee Meadows Basin

Legend

- ⊛ Well Recharged in 1st Half 2006
- Well Equipped to Recharge
- Well
- Distribution System Zone



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