

APPLICATION FOR PERMIT

TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

Date of filing in State Engineer's Office MAR 11 1985

Returned to applicant for correction MAR 27 1985

Corrected application filed

Map filed

The applicant Nevada Department of Wildlife

P.O. Box 10678, of Reno, Nevada

89520, hereby make s. application for permission to appropriate the 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.)

1. The source of the proposed appropriation is Underground (multiple wells)

Name of stream, lake, spring, underground or other source

2. The amount of water applied for is 3.50 (average) second-foot

One second-foot equals 448.83 gals. per min.

(a) If stored in reservoir give number of acre-feet 2534.4 acre feet per year

3. The water to be used for flow through nonconsumptive cold water fish hatchery for statewide public recreation and wildlife habitat

Irrigation, power, mining, manufacturing, domestic or other use. Must limit to one use.

4. If use is for:

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

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

(c) Other use (describe fully under "No. 12. Remarks" see attachment

(d) Power:

(1) Horsepower developed DNA

(2) Point of return of water to stream DNA

5. The water is to be diverted from its source at the following point SE 1/4 NW 1/4, NW 1/4 NE 1/4, SW 1/4 NE 1/4

Describe as being within a 40-acre subdivision of public

S18 T.14N., R.26E., MDM adjacent to the Sand Ridge Well (Cert #7587)

survey, and by course and distance to a section corner. If on unsurveyed land, it should be so stated.

within NE 1/4 NW 1/4, S18, T.14N., R.26E., MDM from which the NW cor. of S.18 bears N. 64°33'W., 2052.40 feet

6. Place of use Proposed Mason Valley WMA cold water fish hatchery within

Describe by legal subdivision. If on unsurveyed land, it should be so stated.

the SE 1/4 SW 1/4, S7 and the NE 1/4 NW 1/4, s.18, t.14N., R.26E., MDM with outfall

distributed through the existing Sand Ridge and Joggles Ditch systems,

for maximum reinjection and minimum consumptive loss.

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.) Multiple 16" x 500 foot deep wells

State manner in which water is to be diverted, i.e. diversion structure, ditches and

spaced for minimum aquifer impact with water distributed through piping through existing ditches and ponds. \$7,750.00

9. Estimated cost of works \$7,750.00

10. Estimated time required to construct works 4 years  
if well completed, describe works.

11. Estimated time required to complete the application of water to beneficial use 4 years

12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

Please refer to the proposed water management plan for the Mason Valley Wildlife Management Area cold water fish hatchery, Yerington, Nevada, attached and made a part of this application.

By s/ William A. Molini  
William A. Molini, Director  
P.O. Box 10678  
Reno, NV 89520

Compared jm/tw

Protested \_\_\_\_\_

\_\_\_\_\_  
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:

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

Work must be prosecuted with reasonable diligence and be completed on or before \_\_\_\_\_

Proof of completion of work shall be filed on or before \_\_\_\_\_

Application of water to beneficial use shall be made on or before \_\_\_\_\_

Proof of the application of water to beneficial use shall be filed on or before \_\_\_\_\_

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

Completion of work filed \_\_\_\_\_ IN TESTIMONY WHEREOF, I \_\_\_\_\_

Proof of beneficial use filed \_\_\_\_\_ State Engineer of Nevada, have hereunto set my hand and the seal of

Cultural map filed \_\_\_\_\_ my office, this \_\_\_\_\_ day of \_\_\_\_\_,

Certificate No. \_\_\_\_\_ Issued \_\_\_\_\_ A.D. 19 \_\_\_\_\_

MAY 29 1985

CANCELLED BECAUSE OF FAILURE TO REPLY

PROCESSED APPLICATION WITHIN STATUTORY TIME

*William A. Molini*  
STATE ENGINEER

WATER MANAGEMENT PLAN FOR THE PROPOSED  
MASON VALLEY WILDLIFE MANAGEMENT AREA COLD WATER FISH HATCHERY  
YERINGTON, NEVADA

PROPOSAL:

Reclaim existing surface irrigation water lost from the Mason Valley Wildlife Management Area ditches and ponds through seepage into the ground water system and utilize that reclaimed water for non-consumptive fish rearing and hatchery operations. All hatchery outfall will be redistributed to management area ponds through existing ditches and conveyance structures for maintenance of wildlife habitat for public recreation purposes. The use of existing ditches for redistribution of hatchery outfall will maximize reinjection of reclaimed underground water and minimize the effects of long-term pumping of the local aquifer for hatchery operations.

JUSTIFICATION:ESTIMATE OF GROUND WATER RECHARGE BY POND SEEPAGE REINJECTION-

Note: All estimates corrected for evapotranspiration losses.

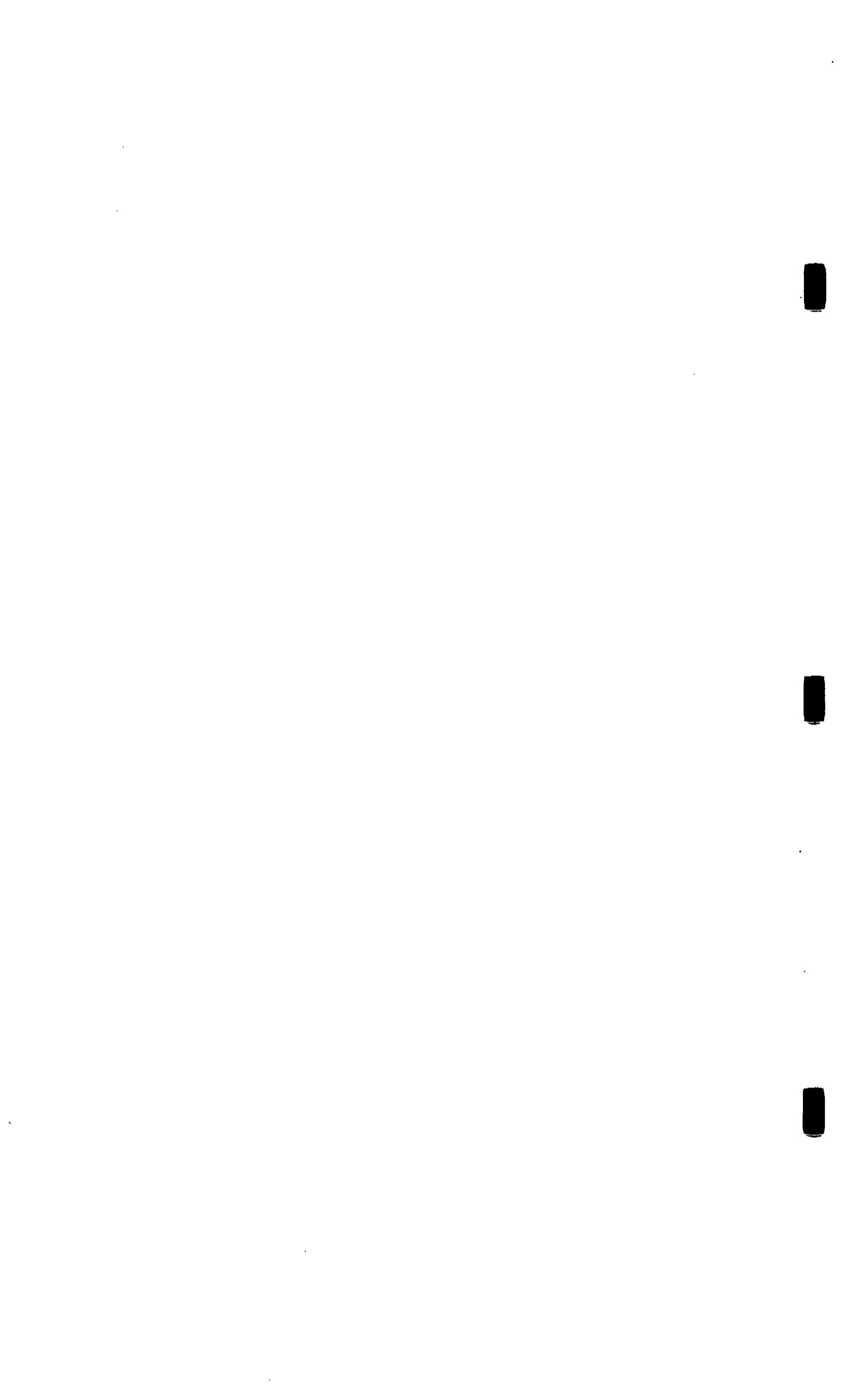
Mason Valley Pond Inventory<sup>2</sup>

<u>Pond</u>	<u>Avg. Seepage Loss/Month</u>	<u>Surface Acres</u>
Bass	0"*	66
Bufflehead	4"	59
Canvasback	4"	28
Cinnamon Teal	5½"	54
Crappie	0"*	33
Upper Gadwall	2½"	52
Lower Gadwall	2½"	129
Goldeneye	4"	60
Green-wing Teal	0"*	33
Honker Lake	2½"	67
Mallard	4"	37
Bluegill	0"*	24
Perk Slough	1½"	112
Upper Pintail	1½"	39
Lower Pintail	1½"	66
Redhead	4"	49
Ringneck	5½"	52
Ruddy	4"	141
Scaup	4½"	45
Shoveler	5"	28
Swan Lake	0"*	37
Widgeon	3"	34
Millet	0"*	68

\* Data reflects annual rotational drying of recreational ponds for vegetative control.

<sup>1</sup> Huxel, C. J., Jr. and E. E. Harris. Water Resources and Development in Mason Valley, Lyon and Mineral Counties, Nevada 1948-65. State of Nevada Water Resources Bulletin No. 38. 1969.

<sup>2</sup> Nevada Department of Wildlife. Water Management Plan, Mason Valley Wildlife Management Area.



23 pond units, 1,313 surface acres, average seepage rate 2.59" per month

$$\frac{2.59" \times 1,313}{12"} = \underline{283.39 \text{ acre feet per month seepage}}$$

ESTIMATED ANNUAL SEEPAGE LOSS FROM PONDS = 3,400.67 acre feet per year

ESTIMATE OF GROUND WATER RECHARGE BY SUPPLY DITCHES SEEPAGE REINJECTION-

It has been reported that ditch seepage will average<sup>3</sup> from 0.5 to 2.0 cubic feet per square foot per day depending on soil type. Medium soils averaged 1.0 cubic foot per square foot per day and tight clay soil averaged 0.23 cubic feet per square foot per day. Department of Wildlife staff at the Mason Valley Wildlife Management Area have measured average ditch seepage losses in the Joggles/Sandridge ditch systems at 0.75 cubic feet per square foot per day.

Seepage loss from the management area distribution ditches can be estimated by the following formula:

$$\text{Acre feet per day} = \frac{\text{Average wetted width} \times \text{ditch length} \times 0.75 \times \text{estimated use}}{43,560}$$

Average ditch dimensions on the Mason Valley Wildlife Management Area by ditch system:

Joggles ditch	5.45 miles @ 22 feet wetted width (100% use)
Joggles/Sandridge ditches	9.44 miles @ 10 feet wetted width (75% use)
Sandridge/laterals	8.00 miles @ 6 feet wetted width (50% use)

$$\text{Joggles ditch:} \\ \frac{(22 \text{ ft.})(5.45)(5280)(0.75)}{43,560} \times 100\% = \underline{10.90 \text{ acre feet/day}} \quad (5.50 \text{ cfs})$$

$$\text{Joggles/Sandridge ditches:} \\ \frac{(10 \text{ ft.})(9.44)(5280)(0.75)}{43,560} \times 75\% = \underline{6.44 \text{ acre feet/day}} \quad (3.25 \text{ cfs})$$

$$\text{Sandridge/lateral ditches:} \\ \frac{(6 \text{ ft.})(8.00)(5280)(0.75)}{43,560} \times 50\% = \underline{2.18 \text{ acre feet/day}} \quad (1.10 \text{ cfs})$$

$$\text{Total} = \underline{19.52 \text{ acre feet/day}} \quad (9.86 \text{ cfs})$$

There are 245 days in the irrigation season by decree.

ESTIMATED SEASONAL SEEPAGE  
LOSS FROM ALL DITCHES = 4,782.4 acre feet per season

<sup>3</sup> Worstell (1976).



SUMMARY:Seepage Losses To Ground Water System

Ponds	3,400.7 acre feet per year
Ditches	<u>4,782.4</u> acre feet per season
Total	<u>8,183.1</u> acre feet per year recharged to aquifer

Fish Hatchery Water Requirements: (Annual Basis)

<u>Month</u>	<u>Demand (Ac. Ft.)</u>
January	274.1
February	433.2
March	479.6
April	464.2
May	479.6
June	464.2
July	479.6
August	205.6
September	265.2
October	274.1
November	198.9
December	<u>205.6</u>
Total	<u>4,223.9</u> acre feet per year

RECOMMENDATIONS:

Utilize certificate #7587, Sandridge well, for 1,689.52 acre feet per irrigation season for flow-through hatchery use with hatchery outfall diverted in accordance with the terms of the certificate.

Utilize reclaimed surface recharge water for 2,534.4 acre feet for flow-through hatchery use for the balance of the irrigation season and the non-irrigation period between November and March of each year with all hatchery outfall returned to the ponds through the existing Joggles/Sandridge ditch systems to maximize reinjection and non-consumptive use.

Note: Based on the average 0.75 cubic feet per square foot per day ditch seepage rate, the total hatchery outfall will be reinjected, through seepage, in approximately 8.51 miles of the 14.99 miles of primary Joggles and Sandridge ditches entirely within the Mason Valley Wildlife Management Area. In theory, this water will not be lost from the system but will be moved within the system with minimum evapotranspiration losses and maximum utilization for public recreation and wildlife habitat management.

