

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 65-23960
Exam Date: 08/20/2025

1. Current Owner:
ROBERT ANNO 11 PINE BEACH RD GARDEN VALLEY ID 83622-1036
2. Accompanied by: Rob and Nancy Anno
Phone No: (541) 601-8907
Address: 3954 W Quail Ridge Dr Boise, ID 83703
Relationship to permit Holder: Permit Owner

3. **SOURCE:**
MIDDLE FORK PAYETTE RIVER
GROUND WATER

Tributary
PAYETTE RIVER

Method of Determination: In person field exam, ArcGIS 2023 aerial imagery, proof of beneficial use

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: No overlapping license or permit place of use currently exist for WR 65-23960 for Aesthetic, Aesthetic Storage, and Diversion to Storage.

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: No overlapping licenses or permit points of diversion currently exist for WR 65-23960.

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

MIDDLE FORK PAYETTE RIVER SW¼ SE¼, Sec. 34, Twp 10N, Rge 04E, B.M. BOISE County
GROUND WATER SW¼ SE¼, Sec. 34, Twp 10N, Rge 04E, B.M. BOISE County
44.15216 -115.96383

Method of Determination: In person field exam, ArcGIS aerial imagery, OnX GPS

PLACE OF USE: AESTHETIC

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
10N	04E	34														X	X		

PLACE OF USE: AESTHETIC STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
10N	04E	34														X	X		

Method of Determination: In person field exam, ArcGIS aerial imagery, proof of beneficial use

3. Delivery System Diagram Attached (required). Indicate all major components and distances between components.
☒ Indicate weir size/pipe as applicable.

☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

☐ Aerial Photo Attached (required for irrigation of 10+ acres).

☒ Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Middle Fork Payette River POD	Baldor Reliance	5	JPL1508T	Cornell Pump 4WH-5-5	260070 6.25 0.00

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
N/A	N/A	N/A	N/A	N/A	N/A	N/A

2. Measurements: A closed conduit flow measurement could not be collected for Diversion to Storage since the pipe was not pressurized. A theoretical calculation is provided.

E. FLOW CALCULATIONS

Theoretical:

During the field exam the 6" pipe diameter associated with the point of diversion had 1.5inch water depth, as it was a quarter full while the system was running during the field exam, so pressure was excluded from the theoretical calculation below.

$$\frac{8.8 * 5\text{hp} * 0.70 \text{ eff.}}{10\text{ft.}} = 3.08 \text{ cfs}$$

F. VOLUME CALCULATIONS

2. Volume Calculations for aesthetic storage:

The surface area of the pond as measured on satellite imagery is 0.3 acres and a maximum depth of 12 feet with sloped sides.

$$0.3 \text{ acres} * 0.4 * 12\text{ft} = 1.44 \text{ AFA}$$

Seepage loss:

CL soil was used to calculate the seepage rate, as recommended by the USDA Web Soil Survey.

$$(0.3\text{-acre surface area} * 0.003 \text{ ft./day}) * 7.48 = 293 \text{ GPD}$$

$$\frac{293 \text{ GPD} * 365 \text{ days}}{325,850} = 0.3 \text{ AFA}$$

Evaporative Loss:

The Garden Valley RS weather station was used to provide annual precipitation deficit and calculate evaporative losses.

$$\frac{500.53 \frac{\text{mm}}{\text{yr}} * 0.3}{304.8} = \mathbf{0.5 \text{ AFA}}$$

$$1.44 \text{ AFA} + 0.3 \text{ AFA} + 0.5 \text{ AFA} = \mathbf{2.24 \text{ AFA}}$$

Aesthetic:

The pump runs at the permitted diversion rate of 0.17cfs for the entirety of the permitted season for aesthetic use, totaling 213 days.

$$0.17\text{cfs} * 1.9835 * 213 = \mathbf{71.8 \text{ AFA}}$$

G. NARRATIVE/REMARKS/COMMENTS

An application for permit was submitted to the Department on June 1, 2020, for 0.17 cfs diversion to storage, 0.17 cfs aesthetic, and 2.4 AFA Aesthetic Storage. A permit was issued on September 4, 2020, with an original Proof due date of September 1, 2021. An Extension of Time was requested to achieve a five-year development period, which was approved, and Proof of Beneficial Use was submitted on August 11, 2025. I conducted a field exam on August 20, 2025, accompanied by the owners, Nancy and Rob Anno.

The system, as developed, includes a 5hp pump diverting surface water from the Middle Fork of the Payette River to Aesthetic Storage. The pond was excavated for aesthetic storage, with the initial fill being both incidental groundwater and surface water. Additional flow from the river is used to maintain the pond level and provide aesthetic components to the system, such as a small stream at the outlet with a walking bridge. The pump used for this system was specifically installed to provide water to this right while an irrigation pump is placed upstream about five feet, leaving no overlapping water rights for this point of diversion or place of use. Since the 6" pipe was about ¼ full at the time of the field exam, a measurement was not taken and a theoretical calculation is provided in item E, showing the system capability far exceeding the diversion rate for Aesthetic and Diversion to Storage. I recommend the full diversion rate of 0.17cfs is licensed, along with the Aesthetic Storage volume of 2.2 AF, since the developed capacity and losses total 2.2 AFA. Seepage is included in the annual volume, since the sloped sides of the pond leave some portions of the pond as shallow as 1-2 feet. The owner stated that groundwater was exposed only at the deepest portion of the pond during the excavation process, but groundwater and surface water cannot be measured individually, so aesthetic and aesthetic storage are considered additive volumes. The aesthetic volume was derived from the diversion rate used over 24-hours per day for the entire 213 day permitted season of use after the owner confirmed that the pump runs constantly throughout the year. I recommend the licensed aesthetic volume of 71.8 AFA, and the owner submits an additional Application for Permit for 0.17cfs to supplement the aesthetic use for the whole year.

The aesthetic storage pond does extend into the NWSE ¼ ¼ of 10N04E Sec. 34 by about 3 yards and should be included in an amendment to the place of use, as reflected above in item C. Condition 121 was replaced with 103 per Department standards. 01H was replaced with R02. All other conditions remained on the license.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
AESTHETIC	04/01 to 10/31	0.17 CFS	71.8 AF
AESTHETIC STORAGE	01/01 to 12/31		2.2 AF
DIVERSION TO STORAGE	04/01 to 10/31	0.17 CFS	

Totals: 0.17 CFS 74 AF

2. Recommended Amendments

_____ Change P.D. as reflected above _____ Add P.D. as reflected above ☒ None

_____ Change P.U. as reflected above ☒ Add P.U. as reflected above _____ None

I. AUTHENTICATION Kate Englund - Water Resource Agent

Field Examiner's Name Kate Englund Date 09/26/2025

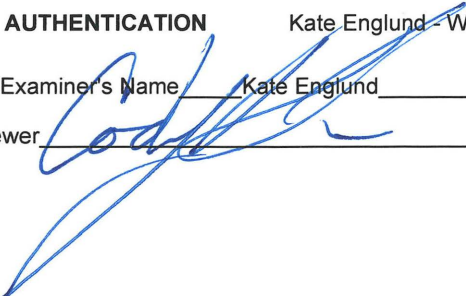
Reviewer  Date 10-24-25



Figure 1 System diagram including the point of diversion, diversion to storage aesthetic storage, and the return to the natural source.



Figure 2 Baldor Reliance 5hp pump used to divert storage water.



Figure 3 Point of diversion for 65-23960.

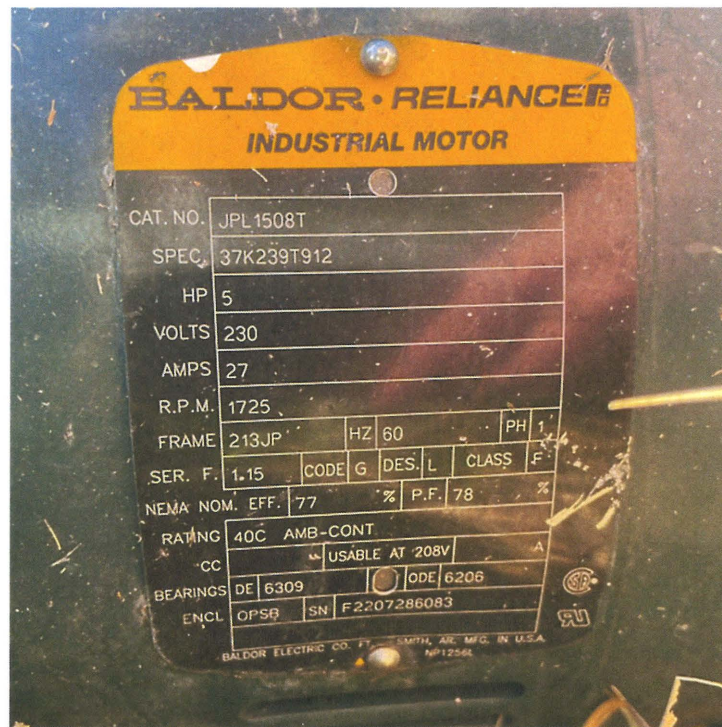


Figure 4 Baldor Reliance industrial motor specification tag showing 5HP and a cat. number of JPL1508T.

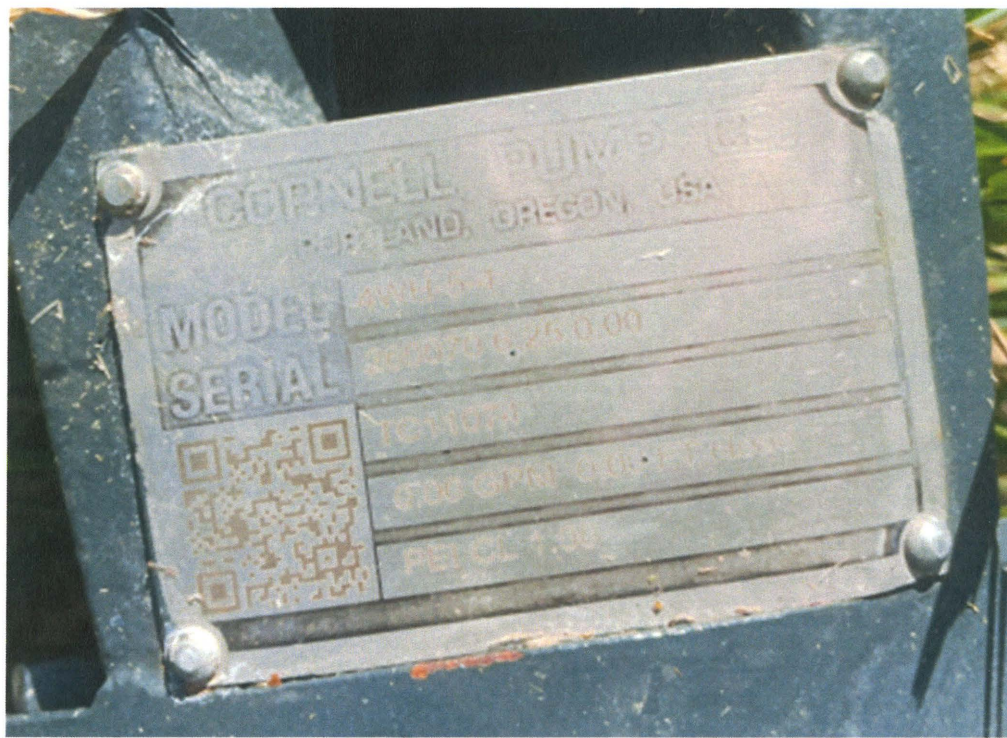


Figure 5 Cornell pump tag with serial number 260070-6-25-0.00.



Figure 6 East facing phot of aesthetic storage pond.



Figure 7 North facing photo of aesthetic storage pond.

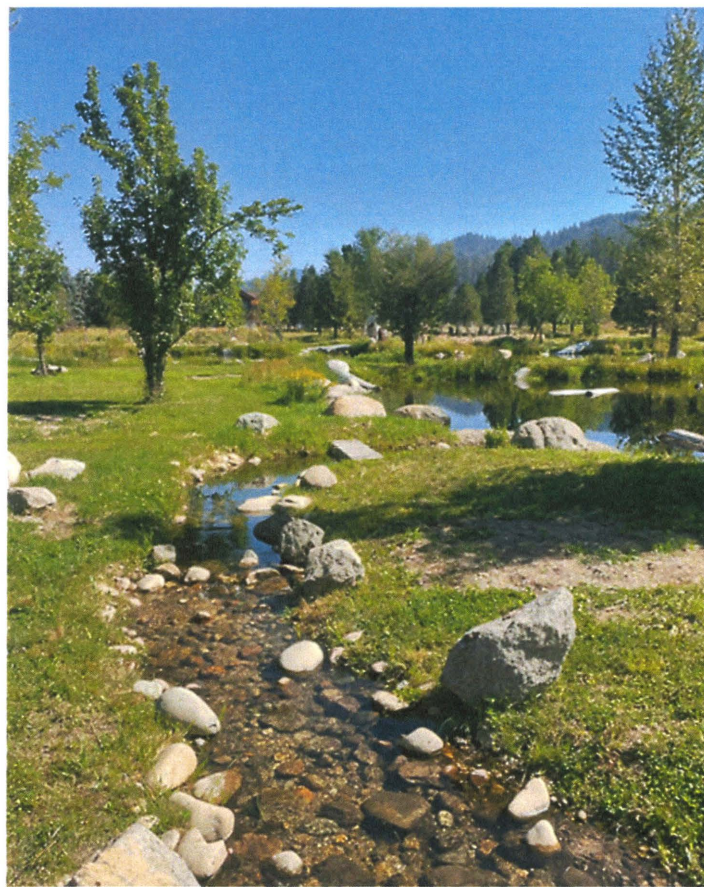


Figure 8 Aesthetic channel showing return to source from the pond.

Seepage Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total annual seepage losses from a pond.

FILE NUMBER	65-23960
REVIEWER	KE
DATE	9/25/2025

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.3	AC.
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Pond Surface Area (SQ. FT.)	13068	SQ. FT.
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I used the following method to obtain my Soil Classification information:	NRCS Web Soil Survey	
My Soil Classification is	CL	
Suggested Seepage Rate (FT./DAY)	0.0030	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss		
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Convert to GPD	293	GPD
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Total Seepage Loss (AFA)	0.3	AFA
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Though sand and gravel seepage rates may actually be higher, the maximum allowable rate is 0.2 ft/day, pursuant to Administrative Memo "Seepage Loss Standards for Ponds and Reservoirs."

Suggested Seepage Rates for Different Soil Types:
GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = 0.2 ft per day
OL and ML (inorganic silts - very fine sands, silty, or clayey fine sands) = 0.02 ft per day
SC (clayey sands, sand clay mixtures) = 0.007 ft per day
CL (Low to medium plasticity clays) = 0.003 ft per day
MH, OH, PT and CH (high plasticity clays) = 0.0003 ft per day
LINED PONDS (liners can be chemical, fabric, or bentonite) = 0 ft per day
Ponds Intercepting Groundwater (excavated ponds filled by ground water) = 0 ft per day

PLEASE NOTE: The initial basis for the Suggested Seepage Rates in the table above is found on Page 16 of Seepage from Fish Ponds, Bulletin 599, August 1989 Alabama Agricultural experiment Station, Auburn University, Auburn University Alabama. If you don't know the soil type, please refer to the map provided at the NRCS Web Soil Survey (Tab #1), an ArcMap Soil Classification Map (Tab #1.1), or published NRCS Soil Survey (Tab #1.2). Use "0" if the pond fill relies on the water table.

Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	65-23960
REVIEWER	KE
DATE	9/25/2025

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:

P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d =ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at <X:/Spatial/Climate/ETIdahostations.shp>.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any negative precipitation deficit values.

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station: GARDEN VALLEY RS
Twin Falls 2 NNE (NWS -- 109294)

Month	mm/day ¹	Days per month	mm/Month
Jan	0.00	31	0.00
Feb	0.00	28	0.00
March	0.00	31	0.00
April	0.81	30	24.30
May	1.73	31	53.63
June	2.91	30	87.30
July	4.38	31	135.78
August	3.83	31	118.73
September	2.29	30	68.70
October	0.39	31	12.09
November	0.00	30	0.00
December	0.00	31	0.00

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

Total mm/year = **500.53**

$$\left(\frac{500.53}{304.8} \right) \times 0.30 = 0.5 \text{ AFA}$$

Total Storage Calculations

FILE NUMBER	65-23960
REVIEWER	KE
DATE	9/25/2025

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.3	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4.8	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	1.44	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.3	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.5	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	2.3	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

Flow Rate into Pond (CFS)	0.17	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	4.38	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.01	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.00	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	4	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.
Days Required to Fill the Pond at 13,000 Gallons per Day	42	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond. Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.