

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

Transfer No.

77076

MINIMUM REQUIREMENTS CHECKLIST
TO BE SUBMITTED WITH APPLICATION FOR TRANSFER

An application for transfer must be prepared in accordance with the minimum requirements listed below to be acceptable for processing by the Department. Incomplete applications will be returned. The instructions, fee schedule, Part 2A reports and additional Part 2B forms are available from any Department office or on the Department's website at <http://www.idwr.idaho.gov/>.

RECEIVED
FEB 04 2011
DEPT. OF WATER RESOURCES
SOUTHERN REGION

Check whether each item below is *attached* (Yes) or *not applicable* (N/A) for the proposed transfer.

Yes N/A

* Means the item is always required and must be included with the application.

- ☒ * Completed Application for Transfer of Water Right form, Part 1.
- ☒ * Signature of applicant(s) or applicant's authorized representative on Application for Transfer Part 1. Include evidence of authority labeled Attachment #3 (see below) if signed by representative.
- ☒ * Application for Transfer Part 2A. Attach a Part 2A report describing each water right in the transfer as currently recorded.
- ☐ ☒ Complete and attach an Application for Transfer Part 2B for each water right for which only a portion is proposed to be changed through this transfer application. Part 2B forms are available on the Department's website at: http://www.idwr.idaho.gov/WaterManagement/WaterRights/WaterRightTransfers/PDFs_09/WaterRight_TransferApp_Part2B.pdf.
- ☒ * Application for Transfer Part 3A is always required (see Attachment #7a below); Parts 3B and 3C must be completed for transfer applications proposing to change the nature of use of the water right(s) or proposing changes to supplemental right(s).
- ☒ * Correct fee submitted with transfer application form. (Fee schedule is on website and instructions for application for transfer.)

Attachments to Application - Label each attachment with the corresponding number shown below as Attachment #1-9.

- ☐ ☒ #1 If the applicant is a business, partnership, organization, or association, and not currently registered in the State of Idaho as a business entity, attach documentation identifying officers authorized to sign or act on behalf of right holder. (See Part 1.)
- ☐ ☒ #2a Water Right ownership documentation if Dept. records do not show the transfer applicant as the current water right owner.
- ☐ ☒ #2b If the ownership of the water right will change as a result of the proposed transfer to a new place of use, attach documentation showing land and water right ownership at the new place of use. Include documentation for all affected land and owner(s).
- ☐ ☒ #3 Documentation of authority to make the change if the applicant is not the water right owner.
- ☒ ☐ #4 Power of Attorney or documentation providing authority to sign or act on the applicant's behalf. (See Part 1.)
- ☐ ☒ #5 If the transfer application proposes to change the point of diversion for a water right affecting the Eastern Snake Plain Aquifer (ESPA), attach the results of an ESPA analysis and a detailed mitigation plan to offset any depletions to hydraulically connected reaches of the Snake River. ESPA transfer spreadsheet and model grid labeled cells are available on the Department's website at http://www.idwr.idaho.gov/WaterManagement/WaterRights/WaterRightTransfers/wrt_default.htm.
- ☐ ☒ #6 Notarized statement of agreement or a statement on official letterhead signed by an authorized representative from each lien holder or other entity with financial interest in the water right(s) or land affected by the proposed transfer. (See Part 1.5.c.)
- ☒ * #7a Attach a map identifying the proposed point(s) of diversion, place(s) of use, and water diversion and distribution system details as described on the application. Include legal description labels. If only a portion of the right is proposed to be changed, identify the current location of the part of the existing right(s) proposed to be changed. (See Part 3A.)
- ☐ ☒ #7b If the transfer application proposes to change the place or purpose of use of an irrigation right attach a Geographic Information System (GIS) shape file, or an aerial photo or other image clearly delineating the location and extent of existing acres and changes to the place of use.
- ☐ ☒ #8a If the transfer application proposes to change the nature of use or period of use for one or more rights, provide documentation describing the extent of historic beneficial use for the water rights proposed to be transferred and document how enlargement will be avoided. (See Part 3B.)
- ☐ ☒ #8b If the transfer application proposes to change the place of use of a supplemental irrigation right, provide documentation regarding the historic use of the supplemental right(s) and availability or reliability of the primary right(s) being supplemented, both before and after the proposed change. (See Part 3C.)
- ☒ ☐ #9 Other. Please describe: Stream Depletion Analysis

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

Transfer No. _____

APPLICATION FOR TRANSFER OF WATER RIGHT PART 1

Name of Applicant(s) Oliver Family Trust Phone (619) 321-1111Mailing address c/o Oliver McMillan, 733 8th Ave., San Diego, CA 92101 Email _____

- ☐ If applicant is not an individual and not registered to do business in the State of Idaho, attach documentation identifying officers authorized to sign or act on behalf of the applicant. Label it **Attachment #1**.
- ☐ Attach water right ownership documentation if Department records do not show the transfer applicant as the current water right owner. Label it **Attachment #2a**.
- ☐ If the ownership of the water right will change as a result of the proposed transfer to a new place of use, attach documentation showing land and water right ownership at the new place of use. Include documentation for all affected land and owner(s). Label it **Attachment #2b**.
- ☐ Attach documentation of authority to make the proposed change if the applicant is not the water right owner. Label it **Attachment #3**.

Provide contact information below if a consultant, attorney, or any other person is representing the applicant in this transfer process.

☐ No Representative

Engineering representative: Scott King, SPF Water Engineering, (208) 383-4140, sking@spfwater.com

Name of Representative Christopher H. Meyer, Givens Pursley LLP Phone (208) 388-1236Mailing address 601 W. Bannock St., Boise, ID 83702 Email chrismeyer@givenspursley.com☒ Send all correspondence for this application to the representative and not to the applicant.

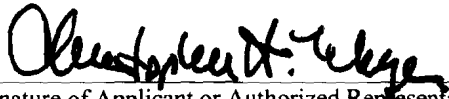
OR

☐ Send original correspondence to the applicant and copies to the representative.☐ The representative may submit information for the applicant but is not authorized to sign for the applicant.

OR

☒ The representative is authorized to sign for the applicant. Attach a Power of Attorney or other documentation providing authority to sign for the applicant and label it **Attachment #4**.

I hereby assert that no one will be injured by the proposed changes and that the proposed changes do not constitute an enlargement in use of the original right(s). The information contained in this application is true to the best of my knowledge. I understand that any willful misrepresentations made in this application may result in rejection of the application or cancellation of an approval.



Signature of Applicant or Authorized Representative

CHRISTOPHER H. MEYER

Print Name and Title if applicable

Per Power of Attorney

2-3-2011

Date

Signature of Applicant or Authorized Representative

Print Name and Title if applicable

Date

A. PURPOSE OF TRANSFER

- ☒ Change point of diversion
☐ Change nature of use

☐ Add diversion point(s)
☐ Change period of use

☐ Change place of use
☐ Other _____
- Describe your proposal in narrative form, including a detailed description of non-irrigation uses to justify amounts transferred (i.e. number of stock, etc.), and provide additional explanation of any other items on the application. Attach additional pages if necessary and label it **Part 1A.2**. This transfer changes the point of diversion for water right 37-22256 from the Big Wood River to a shallow well near the Big Wood River. The well's direct hydraulic connection with the Big Wood River is demonstrated by analysis included in Attachment 9.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION FOR TRANSFER OF WATER RIGHT
PART 1 Continued

B. DESCRIPTION OF RIGHTS AFTER THE REQUESTED CHANGES. IF THE RIGHTS ARE BEING SPLIT, DESCRIBE PORTIONS TO BE CHANGED AS THEY WOULD APPEAR AFTER THE REQUESTED CHANGES.

1.	Right Number	Amount (cfs/ac-ft)	Nature of Use	Period of Use	Source & Tributary
All or Part ☒ ☐	37-22256	0.35 cfs	Irrigation	4/1 to 11/1	Big Wood River/Malad River
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	

Total authorized under rights 0.35 cfs and/or _____ ac-ft

2. Total amount of water proposed to be transferred or changed 0.35 cubic feet per second and/or _____ acre-feet per annum.

3. Point(s) of Diversion:

- ☐ No changes to point(s) of diversion are proposed-the following chart is therefore not completed. (Proceed to #4.)
☐ Attach Eastern Snake Plain Aquifer analysis if this transfer proposes to change a point of diversion affecting the ESPA.
 Label it **Attachment #5**.

New ?	Lot	¼	¼	¼	Sec	Twp	Rge	County	Source	Local name or tag #
			SE	SE	5	2N	18E	Blaine	Ground Water	D0030068

4. Place of use: (If irrigation, identify with number of acres irrigated per ¼ ¼ tract.)

- ☒ No changes to place of use are proposed-the following chart is therefore not completed. (Proceed to #5.)

Twp	Rge	Sec	NE ¼				NW ¼				SW ¼				SE ¼				Acre Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

Total Acres (for irrigation use) _____

**STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES**

**APPLICATION FOR TRANSFER OF WATER RIGHT
PART 1 Continued**

5. General Information:

- a. Describe the complete diversion system, including how you will accommodate a measuring device and lockable controlling works should they be required now or in the future: The diversion system will consist of an existing eight-inch well, submersible pump and sprinkler irrigation system. A flowmeter and lockable control valve will be installed in the pump discharge piping.

- b. Who owns the property at the point(s) of diversion? Applicant
If other than the applicant, describe the arrangement enabling the applicant to access the property for the diversion system: _____

- c. Are the lands from which you propose to transfer the water right subject to any liens, deeds of trust, mortgages, or contracts?
If yes, ☐ Attach a notarized statement from the holder of the lien, deed of trust, mortgage or contract agreeing to the proposed changes on official letterhead signed by an authorized representative. Label it **Attachment #6**. List the name of the entity and type of lien: _____

It is the applicant's responsibility to provide notice to lien holder, trustee, mortgagor, or contract holder of the proposed changes that may impact or change the value of the water rights or affected real property. Any misrepresentation of legal encumbrance on this application may result in rejection of the application or cancellation of an approval.

- d. Describe the effect on the land now irrigated if the place or purpose of use is changed pursuant to this transfer: No change in place or purpose of use.

- e. Describe the use of any other water right(s) for the same purpose or land, or the same diversion system as right(s) proposed to be transferred at both the existing and proposed point(s) of diversion and place(s) use: None

- f. To your knowledge, has/is any portion of the water right(s) proposed to be changed:

Yes No

- ☐ ☒ undergone a period of five or more consecutive years of non-use.
☐ ☒ currently leased to the Water Supply Bank,
☐ ☒ currently used in a mitigation plan limiting the use of water under the right, or
☐ ☒ currently enrolled in a Federal set-aside program limiting the use of water under the rights?

If yes, describe: _____

Total Acres (for irrigation use) _____

ATTACHMENT TRANSFER PART 2A
WATER RIGHT REPORT

**IDAHO DEPARTMENT OF WATER RESOURCES
APPLICATION FOR TRANSFER OF WATER RIGHT
PART 2A**

Current Water Right No.: 37-22256

Current Owner: OLIVER FAMILY TRUST
Priority Date: 5/1/1883
Origin: Adjudication Recommendation
Status: Active
Basis: Decreed

Source BIG WOOD RIVER	Tributary MALAD RIVER	
---------------------------------	---------------------------------	--

Beneficial Use	From	To	Diversion Rate	Annual Volume
IRRIGATION	04/15	10/31	0.35 CFS	
	Total Diversion		0.35 CFS	

Location of Point(s) of Diversion
 BIG WOOD RIVER SE1/4NE1/4 Sec. 5. Twp. 02N. Rge. 18E B.M.
 BLAINE County

Place of Use
IRRIGATION Within BLAINE County

T02N R18E S4	NWSW	3.10	T02N R18E S4	SSW	2.90
T02N R18E S5	SESE	1.90			
Total Acres: 7.9					

Conditions of Approval:

1. This right is a split from former right 37-862
2. C18 This partial decree is subject to such general provisions necessary for the definition of the rights or for the efficient administration of the water rights as may be ultimately determined by the Court at a point in time no later than the entry of a final unified decree. Section 42-1412(6), Idaho Code.
3. In settlement of objections to this water right, the right holder, the objecting parties, and the Department have agreed to add a condition requiring installation of a measuring device and controlling works. This condition is added with the understanding that the right holder will be allowed a reasonable period of time to pursue a transfer of the point of diversion for this water right before the devices must be installed. If that transfer is approved, the condition will be retained for the transferred right and will become enforceable six months after transfer approval. If the transfer application is not filed within six months following issuance of the partial decree, the condition will become enforceable at that time. If the transfer application is denied, the condition will become enforceable with respect to the water right as decreed six months after transfer denial.
4. This right when combined with all other rights shall provide no more than 0.02 cfs per acre at the field headgate for irrigation of the lands above.
5. J01 Property is also known as Lots 7 & 11, River Grove Farm Subd.
6. The right holder shall maintain a measuring device and lockable controlling works of a type approved by the Department in a manner that will provide the watermaster suitable control of the diversion.

Add'l Fee Paid	Date	Received by	Receipt #
----------------	------	-------------	-----------

ATTACHMENT 4
POWER OF ATTORNEY

SPECIAL POWER OF ATTORNEY FOR WATER RIGHTS

Morgan Dene Oliver and Elizabeth Reed Hamman Oliver, as Trustees of the Oliver Family Trust, hereby appoint the attorneys of Givens Pursley LLP, 601 West Bannock Street, P.O. Box 2720, Boise, Idaho, 83701 as their true and lawful attorneys for the purpose of signing on their behalf the following forms for submission to the Idaho Department of Water Resources and/or the Snake River Basin Adjudication:

1. Notice of Claim to a Water Right;
2. Application for Amendment of Permit to appropriate the Waters of the State of Idaho;
3. Notice of Change of Water Right Ownership;
4. Request for Extension of Time to Provide Additional Time in Which to Submit Proof of Beneficial Use for a Water Right Permit;
5. Notice of Protest;
6. Application for Transfer of a Water Right;
7. Proof of Beneficial Use;
8. Application for Exchange of Water;
9. Application for Extension of Time to Avoid Forfeiture of a Water Right;
10. Application to Sell or Lease a Water Right to the Water Supply Bank;
11. Application for Temporary Approval of a Water Application;
12. Application for Permit to appropriate the Waters of the State of Idaho;
13. Pleadings submitted to the Snake River Basin Adjudication in connection with water rights of the Oliver Family Trust; and
14. Any other document in support or furtherance of any of the above.

All may rely on such authority. This Special Power of Attorney shall be effective until revoked in writing by either Morgan Dene Oliver or Elizabeth Reed Hamman Oliver.

For purposes of the exercise of the powers herein granted, the facsimile signature of said attorneys shall be lawful and binding and any person may rely upon such facsimile signature as if it were an original.

[End of text]

IN WITNESS WHEREOF, we have executed this Special Power of Attorney effective as of the last date noted.

Dated: 17 Dec -06

Morgan ~~Don~~ Oliver, Trustee

Dated: 17.70.06

Elizabeth Reed Hamman Oliver, Trustee

ACKNOWLEDGMENTS

State of Idaho)
) ss.
County of Blaine)

On this 20 day of DECEMBER 2006, before me, a Notary Public, in and for said County and State, personally appeared Morgan Dene Oliver, known or identified to me to be the person whose name is subscribed to the within instrument as Trustee of the Oliver Family Trust and acknowledged to me that he executed the same as Trustee of the Oliver Family Trust.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

KAREN E. McNARY
NOTARY PUBLIC
STATE OF IDAHO

Notary Public for Idaho
 Residing at Blackfoot, ID
 My Commission expires 9-28-10

State of Idaho)
) ss.
County of Blaine)

On this 30 day of DECEMBER, 2022, before me, a Notary Public, in and for said County and State, personally appeared Elizabeth Reed Hamman Oliver, known or identified to me to be the person whose name is subscribed to the within instrument as Trustee of the Oliver Family Trust and acknowledged to me that she executed the same as Trustee of the Oliver Family Trust.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

KAREN E. McNARY
NOTARY PUBLIC
STATE OF IDAHO

David E. McFarley
Notary Public for Idaho
Residing at *Hailey, ID*
My Commission expires *9-28-10*

ATTACHMENT 7a

TRANSFER MAP



Figure 1: Transfer Map

ATTACHMENT 9

BIG WOOD RIVER DEPLETION ANALYSIS

Stream Depletion Analysis Oliver Family Trust Transfer Application

The proposed new point of diversion is a well located on the applicant's property about 150 feet from the Big Wood River (see Figure 2). The Well Driller's Report for the proposed well describes an eight-inch shallow well completed primarily in sands and gravels with some clay and perforated from 30 to 50 feet below ground level in gravel layers (Figure 3). Test-pumping yielded 200 gpm.

Elevations were surveyed on December 8, 2009 by Scott King of SPF Water Engineering, LLC. Water surface elevation in the irrigation well was 1.03 feet below that of the Big Wood River. Reported elevations in Figure 2 are referenced to the domestic well where the top of casing elevation is approximated at 5,343.50 feet.

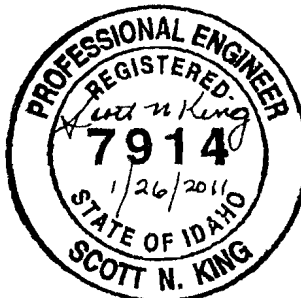
Stream depletion was estimated utilizing the Glover and Balmer method spreadsheet provided by IDWR¹ to Scott King. The Glover and Ballmer (1954) method is a general solution to equations developed by Theis (1941). The Glover and Balmer method is based on the following assumptions: (1) the aquifer is homogeneous and isotropic, (2) the aquifer has a flat water table, (3) all water pumped is assumed to come from the stream system, and (4) the stream system is in full hydraulic connection with the adjacent aquifer.

Spreadsheet entries include transmissivity value of 70,000 ft²/day, specific yield of 0.23, a 24-hour pumping duration, 150-ft distance from well to stream, and a 0.35 cfs pumping rate. Transmissivity was calculated based on a hydraulic conductivity (K) value of 1,400 ft/day per Table 6.1 provided in the spreadsheet (see Figure 5 equivalent to a K value of 0.50 cm/sec), representative of the average reported value for coarse gravel which is consistent with the described stratum, and a saturated aquifer thickness (b) of 50 feet per the driller's report where $T = K \times b$. Specific yield (S) is based on Table 3.5 provided in the spreadsheet, representative of the average values for medium gravel (see Figure 6). The analysis yields an estimated stream depletion volume of 74% in a 24-hour period, which significantly exceeds IDWR's guidelines of 50% in a 24-hour period for similar changes in relocated a point of diversion to a shallow well adjacent to the source stream.

References:

- Theis, C.V., 1941. The effect of a well on the flow of a nearby stream. Transactions of the American Geophysical Union, 22(3): 734-738.
- Glover, R.E. and Balmer, G.G., 1954. River depletion resulting from pumping a well near a river. Transactions of the American Geophysical Union, 35(3): 468-470.

**Scott N. King, P.E.,
SPF Water Engineering, LLC
300 E Mallard Drive, Suite 350
Boise, Idaho 83706
(208) 383-4140**



¹ Personal correspondence with Mathew Weaver, P.E. on November 11, 2009.

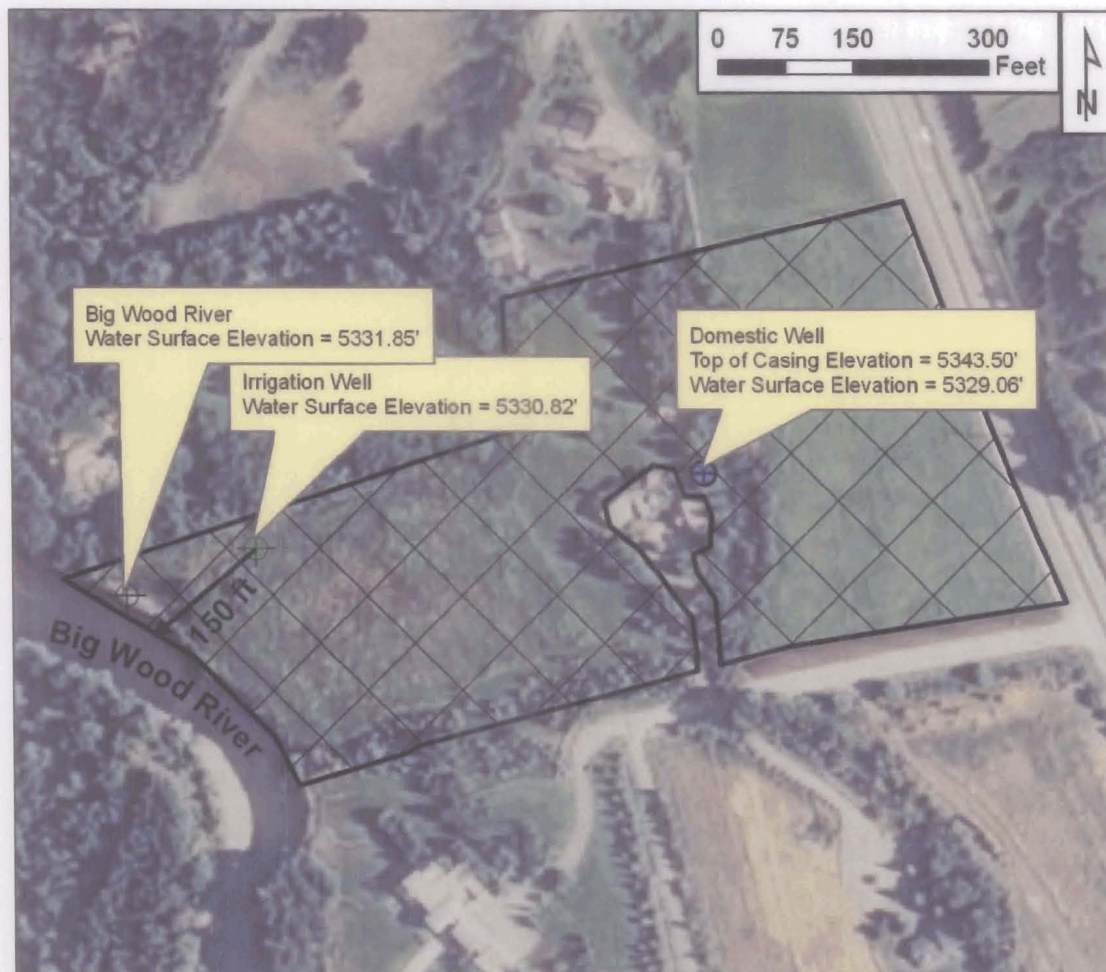


Figure 2: Irrigation well and domestic well locations and water surface elevations measured December 8, 2009.

1. WELL TAG NO. D - 0030068

DRILLING PERMIT NO 809175

Other IDWR No. _____

2. OWNER

Name OLIVER, DENE

Address 983 SCOTT STREET

City SAN DIEGO State CA Zip 92106

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location

N

W

Twp. 2 ☒ North or ☐ South

Rge. 18 ☒ East or ☐ West

Sec. 5 NE 1/4

Gov't Lot _____ County BLAINE

Lat: _____ Long: _____

Address of Well Site 108 MOUNTAIN VIEW LANE

City HAILEY

(Circle at least name of road + Distance to Road or (undermark))

Lt. _____ Blk. _____ Sub. Name RIVER GROVE

Ranch

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation

☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (replacement ect.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

Seal/Filter Pack	Amount		Method
Material	From	To	Sacks or Pounds
BENT	0	20	400 LBS.
			OVERBORE

Was drive shoe used? ☒ Y ☐ N Shoe depth(s) _____

Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER

Dis.	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8 5/8	+1	67	250	STEEL	☒	☐	☒	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations _____ Methods AIR KNIFE

Screens _____ Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
30	50	0.125	± 100	8 5/8	STEEL	☒	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

17 ft below ground _____ Artesian pressure _____

depth flow encountered _____ ft Describe access port _____

or control devices WELL CAP

WELL DRILLER'S REPORT

Correction

11. WELL TESTS:

☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gpm	Drawdown	Pumping Level	Time
± 200			

Water Temp. 46° Bottom hole temp. _____

Water Quality test or comments: _____

Depth first water encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Dis.	From	To	Remarks, Lithology, Water Quality & Temperature	Water
8	0	5	SOIL & SAND	
	5	11	SAND & SMALL GRAVEL	
	11	20	GRAVEL & CLAY	X
	20	30	GRAVEL & SAND/CLAY	X
	30	50	GRAVEL	X
	50	60	GRAVEL & CLAY	
	60	65	GRAVEL COARSE	X
	65	67	GRAVEL COARSE	X

RECEIVED

AUG 08 2005

DEPT. OF WATER RESOURCES

SOUTHERN REGION

Completed depth 87 ft. (measurable)

Date: Started NOVEMBER 28, 2003 Completed December 1, 2003

13. DRILLERS CERTIFICATION

We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name WALKER WATER SYSTEMS Firm No. 15

624 PIERCE ST. TWIN FALLS, ID 83301

Firm Official _____ Date 12-17-03

and _____

Driller or Operator _____ Date 12-21-03

(Sign once if Firm Official & Operator)

Figure 3: Well Driller's Report

Analysis of Stream Depletion Due to the Influences of a Pumping Well Utilizing the Glover and Balmer Method

Calculation of Stream Depletion rate & volume				Values of q/Q , w/Q , & $w/Qsdf$ corresponding to selected value of tsd/t			
Input Values				tsd/t	q/Q	w/Q	$w/Qsdf$
$t =$	1	duration of pumping (days)		0.00	0.000	0.000	0.0000
$T =$	70000	transmissivity (ft ² /day)		0.07	0.008	0.001	0.0001
$S =$	0.23	specific yield (unitless)		0.10	0.025	0.008	0.0008
$S/T =$	0.00000329	component of sdf (unitless) for observation only		0.15	0.058	0.019	0.0030
$a =$	150	distance (ft)		0.20	0.114	0.037	0.0070
$Q =$	0.35	pumping rate (ft ³ /s)		0.25	0.187	0.057	0.0140
$Q_t =$	30240	pumping rate (ft ³ /day)		0.30	0.197	0.077	0.0230
	30240	pumped volume (ft ³)		0.35	0.232	0.087	0.0340
	0.69	pumped vol (ac-ft)		0.40	0.254	0.115	0.0480
				0.45	0.292	0.134	0.0600
				0.50	0.317	0.151	0.0760
				0.55	0.340	0.187	0.0920
				0.60	0.361	0.182	0.1090
				0.65	0.380	0.197	0.1290
				0.70	0.398	0.211	0.1480
				0.75	0.414	0.224	0.1690
				0.80	0.429	0.238	0.1890
				0.85	0.443	0.248	0.2110
				0.90	0.458	0.259	0.2330
				0.95	0.468	0.270	0.2560
				1.00	0.480	0.280	0.2800
				1.10	0.500	0.299	0.3290
				1.20	0.519	0.316	0.3790
				1.30	0.535	0.333	0.4330
				1.40	0.550	0.348	0.4870
				1.50	0.564	0.362	0.5430
				1.60	0.578	0.375	0.6000
				1.70	0.588	0.387	0.6580
				1.80	0.598	0.398	0.7160
				1.90	0.608	0.409	0.7770
				2.00	0.617	0.419	0.8380
				2.20	0.634	0.438	0.9840
				2.40	0.648	0.455	1.0900
				2.60	0.661	0.470	1.2200
				2.80	0.673	0.484	1.3600
				3.00	0.683	0.497	0.1490
				3.50	0.705	0.525	0.1940
				4.00	0.724	0.549	2.2000
				4.50	0.739	0.569	2.5600
				5.00	0.752	0.587	2.9400
				5.50	0.763	0.603	3.3200
				6.00	0.773	0.618	3.7000
				7.00	0.789	0.640	4.4800
				8.00	0.803	0.659	5.2700
				9.00	0.814	0.676	6.0800
				10.00	0.823	0.690	6.9000
				15.00	0.865	0.740	11.1000
				20.00	0.874	0.772	15.4000
				30.00	0.897	0.810	24.3000
				50.00	0.920	0.850	42.5000
				100.00	0.944	0.922	89.2000
				900.00	0.977	0.955	573.0000

$t =$	70157	8" day (transmissivity)	
$K =$	0.50	unitless (K assumed from Tables 3.7 and 6.1)	
$b =$	1403	ft/day	
	50	feet (saturated thickness of the aquifer)	

Table 1 - Summary of Stream Depletion Characteristics Associated w/ Delta Oliver Well #2				
Distance from Stream (ft)	Stream Depletion Rate (cfs)	% of Total Diversion Rate	Water from Stream (ac-ft)	% of Total Diversion Vol.
150	0.299	85	0.51	74

Table 1 (Jenkins, 1989, pp. 5)

Figure 4: Stream Depletion Analysis.

Table 6.1 Typical ranges of hydraulic conductivity, K (cm/sec), for various soils (pg. 14)						
Soil Type	cm/sec			ft/min		
	max.	min.	avg.	max.	min.	avg.
Clean Gravel	100.0	1.0	50.5	200.0	2.0	101.0
Coarse Gravel	1.0	0.01	0.51	2.0	0.02	1.01
Fine Sand	0.01	0.001	0.0055	0.02	0.002	0.011
Silty Clay	0.001	0.00001	0.000505	0.002	0.00002	0.00101
Clay	<0.000001	—	—	<0.000002	—	—

Das, B.M. 2002. *Principles of Geotechnical Engineering - Fifth Edition*. Brooks/Cole, Pacific Grove, CA

Table 3.7 Typical ranges of intrinsic permeability, k (darcys), for various soils (pg. 15)						
Soil Type	Intrinsic Permeability (darcys)			Hydraulic Conductivity (cm/sec)		
	min.	max.	avg.	min.	max.	avg.
Clay	0.000001	0.001	0.0005	1E-09	0.000001	0.0000005
Silt, sandy silts, clayey sands, till	0.001	0.1	0.05	0.000001	0.0001	0.00005
Silty sands, fine sands	0.01	1.0	0.5	0.00001	0.001	0.0005
Well-sorted sands, glacial wash	1.0	100.0	50.5	0.001	0.1	0.05
Well-sorted gravel	10.0	1000.0	505.0	0.01	1.0	0.5

Fetter, C.W. 2001. *Applied Hydrogeology - Fourth Edition* Prentice Hall, New Jersey

Figure 5: Tables 6.1 and 3.7 from the Stream Depletion spreadsheet.

Table 3.5 Typical ranges of specific yield, Sy (pg. 15)			
Material	Maximum	Minimum	Average
Clay	5	0	2
Sandy Clay	12	3	7
Silt	19	3	18
Fine Sand	28	10	21
Medium Sand	32	15	26
Coarse Sand	35	20	27
Gravelly Sand	35	20	25
Fine Gravel	35	21	25
Medium Gravel	28	13	23
Coarse Gravel	28	12	22

Johnson, A.I. 1967. *Specific Yield-Compilation of specific yields for various materials. U.S. Geological Survey Water Supply Paper 1662-D*

Figure 6: Table 3.5 from the Stream Depletion spreadsheet.