

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED

OCT 29 2015

Department of Water Resources
Eastern Region

APPLICATION FOR TRANSFER OF WATER RIGHT – POINT(S) OF DIVERSION

This form may be used to apply to change and/or add points of diversion for existing water rights and to report an ownership change for a water right(s) in connection with the proposed point of diversion change(s). Do not use this form to apply for changes to other elements of a water right. See the Application for Transfer Instructions for help completing this form and for mailing addresses of Department offices where your application can be submitted.

AMENDED

RECEIVED

APR 27 2016

Check all that apply:

- ☐ Change diversion point(s)
 ☒ Add diversion point(s)
 ☐ Ownership change
 ☒ Department of Water Resources Eastern Region

1. **APPLICANT(S)** Liberty Park Irrigation Co. Inc Phone _____

2. **MAILING ADDRESS** 5293 S 4300 W City Rexburg

State Idaho Zip 83440 Email _____

- ☐ If the applicant is not an individual and not registered to do business in the State of Idaho, attach documentation identifying officers authorized to sign for the applicant.
☐ If the applicant is not the current water right(s) owner, attach documentation of authority to file the application.
☐ If the application includes a change in ownership of water right(s), attach a copy of the conveyance document, such as a warranty deed, court decree, contract of sale, etc. The conveyance document must include a legal description of the property conveyed or description of the water right if no land is conveyed. Additional fee(s) are required for water right ownership changes; see Item 9 for the fee schedule.

If the ownership change resulted in the water right(s) being split, how did the division occur? Mark one:

- ☐ The water rights or claims were divided as specifically identified in a deed, contract, or other conveyance document.
☐ The water rights or claims were divided proportionately based on the portion of their place(s) of use acquired by the new owner.

- ☐ If the application is not signed by the applicant, attach a Power of Attorney or other documentation providing authority to sign for the applicant.

3. **LIST WATER RIGHT NUMBER(S)** 01-104, 01-105, 01-106, 01-107, 01-108, 01-253, 01-316

- ☒ Attach a copy of the water right(s) as recorded, available at www.idwr.idaho.gov, *Water Right Transfers, Step 1*, or by contacting any Department office.

4. **TOTAL AMOUNT OF WATER** transferred is 6.0 cubic feet per second and/or _____ acre-feet per annum.
(diversion rate) (storage volume)

5. **POINT OF DIVERSION** – Describe all the point(s) of diversion to be included on the water right(s) after the proposed change.

- ☐ Attach Eastern Snake Plain Aquifer (ESPA) analysis if this transfer proposes to change a point of diversion affecting the ESPA. ESPA analysis information is available at www.idwr.idaho.gov, *Water Right Transfers, Online Resources*.

New?	Lot	1/4	1/4	1/4	Sec	Twp	Rge	County	Source	Local name or tag #
N	7		SW	SW	6	4N	40E	Madison	SNAKE RIVER	
Y			NE	NE	21	5N	39E	Madison	SNAKE RIVER	Rediversion
Y			NW	SE	21	5N	39E	Madison	SNAKE RIVER	Injection

 L.L.H.
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L.L.H.

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Department of Water Resources
Eastern Region

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This form may be used to apply to change and/or add points of diversion for existing water rights and to report an ownership change for a water right(s) in connection with the proposed point of diversion change(s). Do not use this form to apply for changes to other elements of a water right. See the *Application for Transfer Instructions* for help completing this form and for mailing addresses of Department offices where your application can be submitted.

Check all that apply:

- ☐ Change diversion point(s) ☒ Add diversion point(s) ☐ Ownership change ☐ Ownership split

1. APPLICANT(S) Liberty Park Irrigation Co. Inc Phone _____

2. MAILING ADDRESS 5293 S 4300 W City Rexburg

State Idaho Zip 83440 Email _____

- ☐ If the applicant is not an individual and not registered to do business in the State of Idaho, attach documentation identifying officers authorized to sign for the applicant.
- ☐ If the applicant is not the current water right(s) owner, attach documentation of authority to file the application.
- ☐ If the application includes a change in ownership of water right(s), attach a copy of the conveyance document, such as a warranty deed, court decree, contract of sale, etc. The conveyance document must include a legal description of the property conveyed or description of the water right if no land is conveyed. Additional fee(s) are required for water right ownership changes; see Item 9 for the fee schedule.

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(diversion rate) (storage volume)

5. **POINT OF DIVERSION** – Describe all the point(s) of diversion to be included on the water right(s) after the proposed change.

- ☐ Attach Eastern Snake Plain Aquifer (ESPA) analysis if this transfer proposes to change a point of diversion affecting the ESPA. ESPA analysis information is available at www.idwr.idaho.gov, *Water Right Transfers, Online Resources*.

[illegible]



Narrative in Support of Application for Transfer

Liberty Park Irrigation Co. Inc.

Water Right Nos. 01-104, 01-105, 01-106, 01-107, 01-108, 01-253, 01-316

This application is a result of an enforcement action brought against Boyd Smith by the Idaho Department of Water Resources Eastern Regional office on a shallow well irrigating 300 acres. The well in question is an 18-foot well that was excavated under the authority of the seepage loss recovery statute (Idaho Code § 42-228). Recent court action further defining the qualifications of a seepage loss recovery well resulted in the enforcement action against Mr. Smith. The enforcement action requested that Mr. Smith provide reference to the water right pertaining to the well or cease operating the well. The lands being irrigated under the well have had adequate shares pertaining to them from the Liberty Park Irrigation Company since the property was first irrigated.

For the 2015 irrigation season, a diesel pump and portable mainline was established directly to the center-pivot irrigation system from the Liberty Park Canal until evidence was provided that the Smith lands were indeed being irrigated by the Liberty Park shares. In the meantime, Rocky Mountain Environmental Associates, Inc., in collaboration with Clearwater Geosciences, LLP, performed a pump test to evaluate the connectivity of the Boyd Smith well to the Snake River. Conclusions of the pump test indicate that the well is hydraulically connected and derives the majority of its water from the South Fork of the Snake River through the Spring Slough, which is about 650 ft. southwest of the well. A copy of the technical report is attached.

The transfer application proposes to add a point of diversion to the existing water delivery system of the Liberty Park Irrigation Company, Inc. to update the water rights to accurately reflect current and past diversion practices. Liberty Park's water rights consist of seven surface water rights diverted from the South Fork of the Snake River through the Liberty Park Canal. The new point of diversion is an existing shallow well, located in the SWNE of Section 21, Township 5 North, Range 39 East, owned and operated by shareholder Boyd Smith. The well diverts water to approximately 300 acres under the Irrigation Company's water rights.

A handwritten signature in blue ink that reads "Kristin Moore".

Kristin Moore
Senior Water Rights Analyst

A handwritten signature in blue ink that reads "W. Roger Warner".

W. Roger Warner
Hydrologist, Vice President

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 06/01/1885

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	8 CFS	
Total Diversion			8 CFS	

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large POU Info

Conditions of Approval:

1.	172	The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary.
2.	129	Place of use is within the area served by Liberty Park Irrigation Company.
3.	R05	Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 01.
4.	R43	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(s).
5.	F01	Water is delivered through Liberty Park Canal.
6.	T07	The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
7.	To8	Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
8.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008

Water District Number: 01

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05N	38E	1	2	NWNE		1	SENE							
				SWNW										
			8	SWSW			SESW							
				NESE		7	NESE		7	NWSE			SWSE	
				SESE										
		2		NESE										
		11	1	NENE			SWNE							
		12		NENE			NWNE							
				NENW			NWNW			SWNW			SENW	
				NESW			NWSW			SWSW			SESW	
	39E	4		NESW			NWSW			SWSW			SESW	
				NESE			SWSE							
		5	1	NENE		2	NWNE							
				NWSW			SWSW			SESW				
				NESE			NWSE			SWSE			SESE	
		6	3	NENW		4	NWNW							
				NESW		5	NWSW		6	SWSW			SESW	
				NESE			NWSE			SWSE			SESE	
		7		NENE			NWNE							
				NENW		1	NWNW							
				SWSE			SESE							
		8		NENE			NWNE			SWNE			SENE	
				NENW			NWNW			SENW				
				NESW			SWSW			SESW				
				NESE			NWSE			SWSE			SESE	
		9		NENE			NWNE			SWNE			SENE	
				NENW			NWNW			SWNW			SENW	
				NESW			NWSW			SWSW			SESW	
				NESE			NWSE			SWSE			SESE	
		10		SWSW										
		15		NWNW			SWNW			SENW				
				NESW			NWSW			SWSW			SESW	
				SWSE										
		16		NENE			NWNE			SWNE			SENE	
				NENW			NWNW			SWNW			SENW	
				NESW			NWSW			SWSW			SESW	
				NESE			NWSE			SWSE			SESE	
		17		NENE			NWNE			SWNE			SENE	
				NENW			NWNW			SWNW			SENW	
				NESW			NWSW							
				NESE			NWSE			SWSE			SESE	
		18		NENE			NWNE			SWNE			SENE	

05N	39E	20		NENE			NWNE			SWNE			SENE	
				NENW		3	SENW							
			4	NESW										
				NESE			NWSE		6	SESE				
		21		NENE			NWNE			SWNE			SENE	
				NENW			NWNW			SWNW			SENW	
				NESW			NWSW		1	SWSW			SESW	
				NESE			NWSE			SWSE			SESE	
		22		NWNE			SWNE							
				NENW			NWNW			SWNW			SENW	
				NESW			NWSW			SWSW			SESW	
				NWSE			SWSE							
		27		NWNE										
				NENW			NWNW							
		28		NENE		6	NWNE							
06N	38E	36		SWSW										

Attachment #3

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 06/01/1886

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	38 CFS	
Total Diversion			38 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large POU Info

Conditions of Approval:

1.	172	The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary.
2.	129	Place of use is within the area served by Liberty Park Irrigation Company.
3.	R05	Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 01.
4.	R43	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(s).
5.	F01	Water is delivered through Liberty Park Canal.
6.	T07	The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
7.	T08	Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
8.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008

Water District Number: 01

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 06/01/1887

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	38 CFS	
Total Diversion			38 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large POU Info

Conditions of Approval:

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8.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008

Water District Number: 01

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 06/01/1888

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	38 CFS	
Total Diversion			38 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large POU Info

Conditions of Approval:

1.	172	The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary.
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7.	T08	Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
8.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008
 Water District Number: 01
 WATER RIGHT NO. 1-108

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 06/01/1889

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	38 CFS	
Total Diversion			38 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large POU Info

Conditions of Approval:

1.	172	The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary.
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4.	R43	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(s).
5.	F01	Water is delivered through Liberty Park Canal.
6.	To7	The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
7.	To8	Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
8.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008
 Water District Number: 01
 WATER RIGHT NO. 1-253

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 01/22/1916

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	16 CFS	
Total Diversion			16 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large POU Info

Conditions of Approval:

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4.	R43	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(s).
5.	F01	Water is delivered through Liberty Park Canal.
6.	To7	The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
7.	To8	Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
8.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008
 Water District Number: 01
 WATER RIGHT NO. 1-316

Owner Type Name and Address

Current Owner	LIBERTY PARK IRRIGATION CO INC, C/O NICK THOMASON
	5293 S 4300 W, REXBURG, ID 83440

Priority Date: 04/01/1939

Basis: Decreed

Status: Active

Source	Tributary
SNAKE RIVER	COLUMBIA RIVER

Beneficial Use	From	To	Diversion Rate	Volume
IRRIGATION	04/01	10/31	20 CFS	
Total Diversion			20 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER	SWSW Lt 7	Sec. 06	Township 04N	Range 40E	MADISON County
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Place(s) of use: Large [POU Info](#)

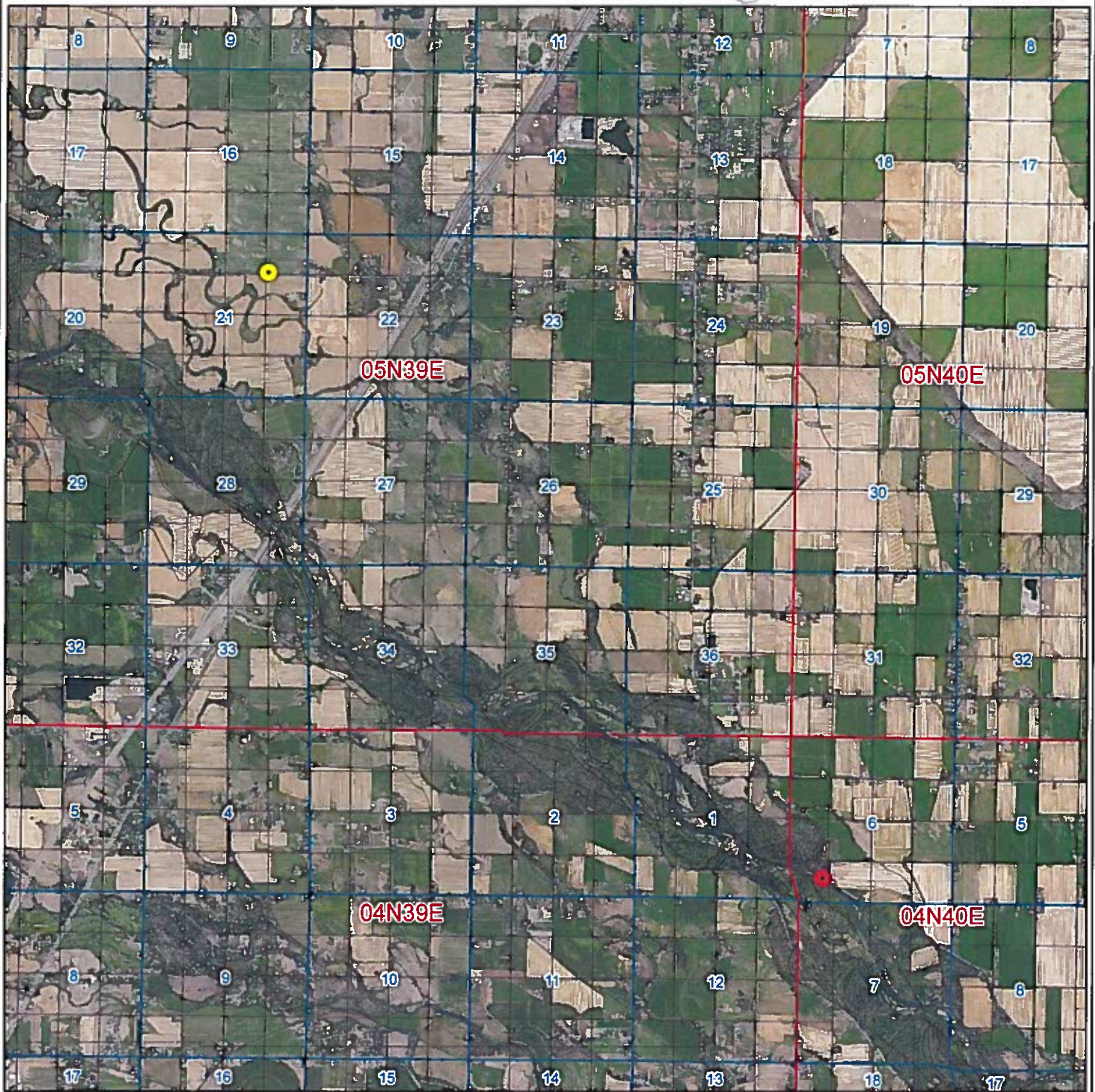
Conditions of Approval:

1.	172	The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary.
2.	129	Place of use is within the area served by Liberty Park Irrigation Company.
3.	179	The delivery of water to this right may be subject to procedures described in the United States Bureau of Reclamation "space holder" contracts and the Burley Irrigation Dist. v. Eagle, Supplemental Decree (Idaho 5th Jud. Dist., July 10, 1968) and Aberdeen-Springfield Canal Co. v. Eagle, Supplemental Decree (Idaho 7th Jud. Dist., March 12, 1969) together with the natural-flow and storage deliveries as calculated by the Idaho Department of Water Resources.
4.	R05	Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 01.
5.	R43	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(s).
6.	F01	Water is delivered through Liberty Park Canal.
7.	T07	The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
8.	T08	Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
9.	T19	Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be

Attachment #3
determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

Decreed Date: 03/14/2008

Water District Number: 01



2013 Aerial Photography



- Existing POD
- Proposed POD
- TR Twp + Rng
- QQ
- TRS *Section*

Boyd Smith

Application for Transfer of Water Right
- Point(s) of Diversion



Rocky Mountain
ENVIRONMENTAL
ASSOCIATES, INC.

80496

6. 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:

Applicant has an existing diversion on the Snake River from which the majority of the water rights are diverted. The new POD is a shallow well hydraulically connected to the Snake River and will divert a small portion of the rights. A magnetic flowmeter can be installed at the well in a location already determined.

- b. Who owns the property at the point(s) of diversion? Boyd Smith

If other than the applicant, describe the arrangement enabling the applicant to access the property for the diversion system:
Boyd Smith is a shareholder and will use the new POD to divert a portion of his shares.

- c. 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 used in a mitigation plan limiting the use of water under the right(s), or
☐ ☒ currently enrolled in a Federal set-aside program limiting the use of water under the right(s)?

If yes, describe:

- d. Is any portion of the water right(s) proposed to be changed currently leased to the Water Supply Bank? ☐ Yes ☒ No

- ☐ If yes and there are multiple owners, attach a Lessor Designation form.
☐ If yes, the individual owner or designated lessor must complete, sign and attach an IRS Form W-9.
(Disregard if these items are on file and ownership has not changed.)

7. **MAP** - ☒ Attach a map of the diversion, measurement, control and distribution system. Include the place of use if a split of the water right occurred. Clearly label the map with township, range, section and $\frac{1}{4}$ $\frac{1}{4}$ of section information. The Map Tool, available at maps.idwr.idaho.gov/TransferApplicationLayouts/ provides a satisfactory template for creating the required map.

8. **SIGNATURE** - The information in this application is true to the best of my knowledge. I understand any willful misrepresentations in this application may result in rejection of the application or cancellation of an approval.

Larry Hansen
Signature of applicant or authorized agent

President Liberty Park Canal 22 Oct 15
Print name and title if applicable Date

Signature of applicant or authorized agent

Print name and title if applicable

Date

9. **FEE** - ☒ The application filing fee provided in Section 42-221, Idaho Code, must be submitted with the application for transfer. The Application fee is based on the total amount of water proposed for transfer in Item 4: the larger fee for either cubic feet per second (diversion rate) or acre-feet per annum (storage volume). The Fee Schedule is available at www.idwr.idaho.gov, Water Right Transfers, Step 4 and in the Application for Transfer Instructions.

FOR DEPARTMENT USE ONLY

Transfer includes _____ pages of attachments.

Received by _____ Date _____

Fee paid 900- Date 10/29/15

Received by SC

Receipt # E041585

Preliminary review by _____

Date _____

Active in the Water Supply Bank? Yes ☐ No ☐

W-9 received? Yes ☐ No ☐

Name on W-9 _____

W-9 forwarded to fiscal? Yes ☐ No ☐

(Do NOT scan the W-9 – confidential information is held by fiscal only)



**Technical Evaluation of Physical Water Source
for the Boyd Smith Diversion,
5N, 39E, Section 20, NE Quarter, Madison County, Idaho**

Bryce A. Contor

Introduction

Boyd Smith has a point of diversion (POD) from shallow groundwater in the Northeast Quarter of Section 20, Township 5 North, Range 39 East, in Madison County, Idaho. A slough passes nearby to the southwest of the POD. Smith has the ability to divert surface water into the slough, supplied by shares owned by Smith in a nearby canal company.

The diversion works for the POD consist of a vertical casing approximately 19 inches in outside diameter, represented by the owner to be installed to a depth of 18 feet below ground surface, equipped with a vertical-turbine pump powered by an electric motor. It is nominally referred to as a "well" though it does not meet the formal definition of Idaho Code 42-230 (attached). Figure 1 (attached) shows the site location.

A pumping test was performed and analyzed to test the hypothesis that the diversion intercepts surface water from the slough.

Test and Analysis Procedures

The pump was operated for approximately seven days, with depth-sensing transducers in the pumping well and in three new piezometers. The piezometers were also set to a depth of 18 feet below ground surface. Data were collected for the pumping period and also a seven-day recovery period. Figure 2 shows the site, the POD and the piezometer locations. Manual water-level readings were taken at the point labeled "Slough MP" to confirm that there were no large, confounding surface-water changes during the test period.

Pump test data were provided to Clearwater Geosciences, LLP (Clearwater) for analysis. Additional graphical analysis of distance to recharge boundaries was performed by Rocky Mountain Environmental Associates, Inc. (RMEA). Both analyses are attached.

Estimates of transmissivity and storage coefficient from the Clearwater analysis were applied to the Jenkins methodology¹ to calculate the time for 50% of the pumping rate to be expressed at the slough. A screenshot of the Jenkins spreadsheet is provided as Figure 4.

Results

Water levels in the slough were stable within a range of 0.20 feet.

Clearwater estimated a range of 2.0×10^4 to 2.2×10^5 ft²/day for aquifer transmissivity, and a range of 0.0001 to 0.10 for storage coefficient. The "cone of depression quickly comes into equilibrium with a nearby source of surface water. This is demonstrated by the stabilization of the drawdown curves in less than 1,000 minutes."

RMEA graphical analyses of distance to a recharge boundary indicated the following results:

- Piezometer P20: 666 ft
- Piezometer P50: 258 ft
- Piezometer P100: 1036 ft

For the Jenkins calculation, the mean of Clearwater's transmissivity estimates (1.2×10^5 ft²/day) and a storage coefficient of 0.10 were used. This storage coefficient is the upper range of Clearwater's estimates. Using a larger storage coefficient is conservative, producing a longer capture time in the Jenkins methodology. Jenkins analysis resulted in an estimate of 56% of the pumping-rate effect captured within 24 hours, with 50% capture occurring within 18 hours.

Conclusion

Clearwater concluded: "The main point is that the pumping test demonstrates that there is a definite connection between surface water and ground water in this location. The cone of depression from the well is established very quickly and it draws water from the slough. There is no doubt that water pumped from the well primarily comes from the nearby surface water bodies." The Jenkins analysis results are consistent with this conclusion.

Within the limitations introduced by pumping-rate disturbances and those inherent in graphical methodology, the data indicate distances to a recharge boundary that are generally compatible with the geographic location of the slough southwest of the POD.

¹ C. T. Jenkins, 1968. *Computation of Rate and Volume of Stream Depletion by Wells. Chapter D1. Techniques of Water Resources Investigations of the United States Geological Survey, Book 4.* USGS, Washington, D.C.

Hydrologically, we conclude that effectively this POD extracts water from the nearby slough, and that delivery of surface water or canal shares to the slough would fully mitigate for any extraction from the POD.

Bryce A. Contor

Bryce A. Contor
Senior Hydrologist (Author)

24 Sept 2015

Date

W. Roger Warner

W. Roger Warner
Principal Hydrogeologist (Reviewer)

9/24/15

Date

Attachments:

Figure 1 Site Location Map
Figure 2: Site Detail
Figure 3: Geometry for Jenkins Calculation
Figure 4: Screenshot of Jenkins Calculation
Clearwater Geosciences Report
Graphical Analysis of Distance to Boundary
Idaho Code 42-230



POD
Township/Range
Sections

Figure 1: Site Location Map
Boyd Smith Well Interaction Analysis -
Jenkins Methodology

Project 13-0052

Rocky Mountain
ENVIRONMENTAL
ASSOCIATES, INC.
482 Constitution Way, Idaho Falls, ID 83402
208-524-2353

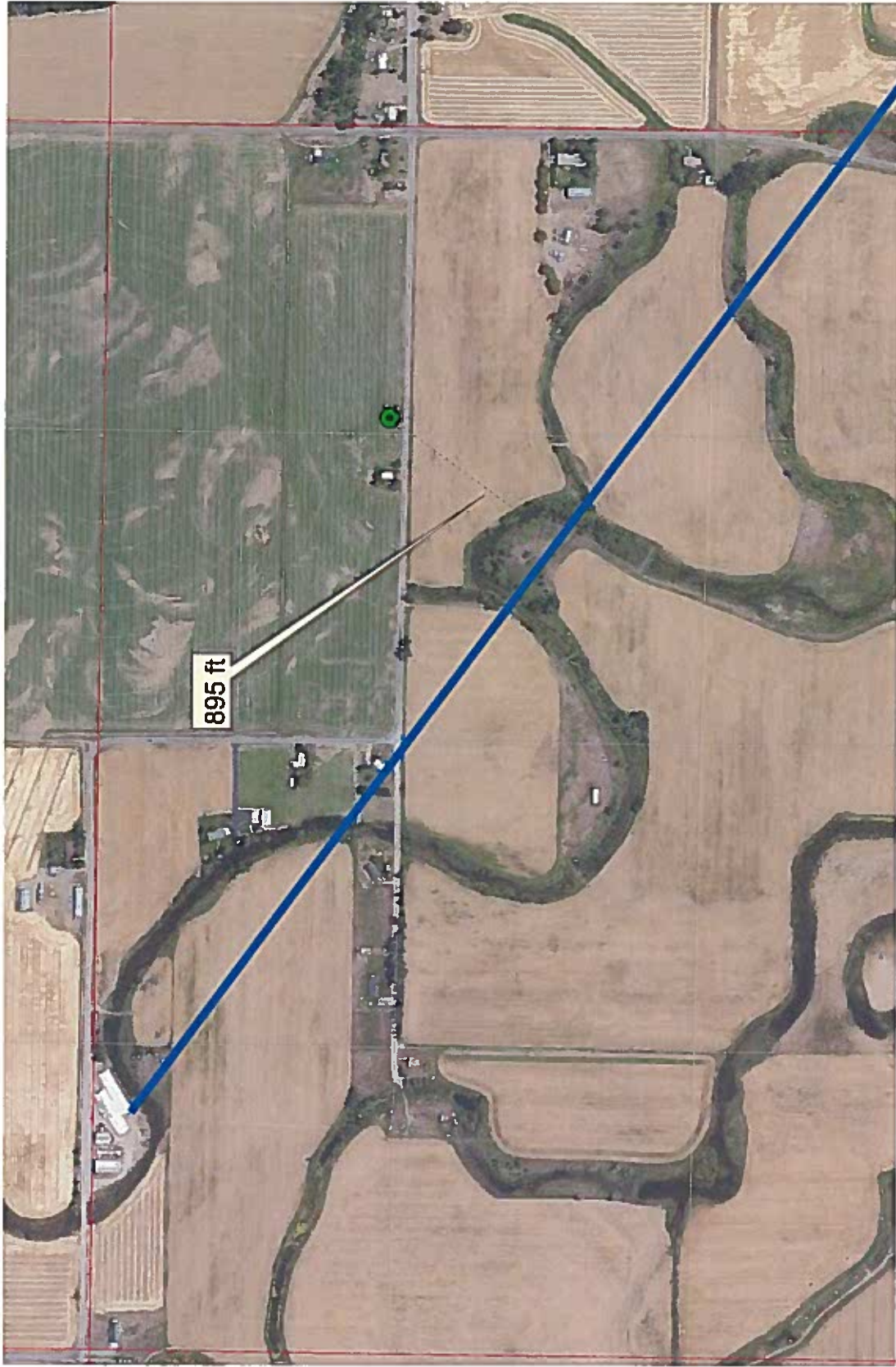


- Features
- Township/Range
- Sections
- QQ

Figure 2: Site Detail
 Boyd Smith Well Interaction Analysis -
 Jenkins Methodology
 Project 13-0052

Rocky Mountain
ENVIRONMENTAL
ASSOCIATES, INC.

482 Constitution Way, Idaho Falls, ID 83402
 208-524-2353



200 0 200 400 Feet

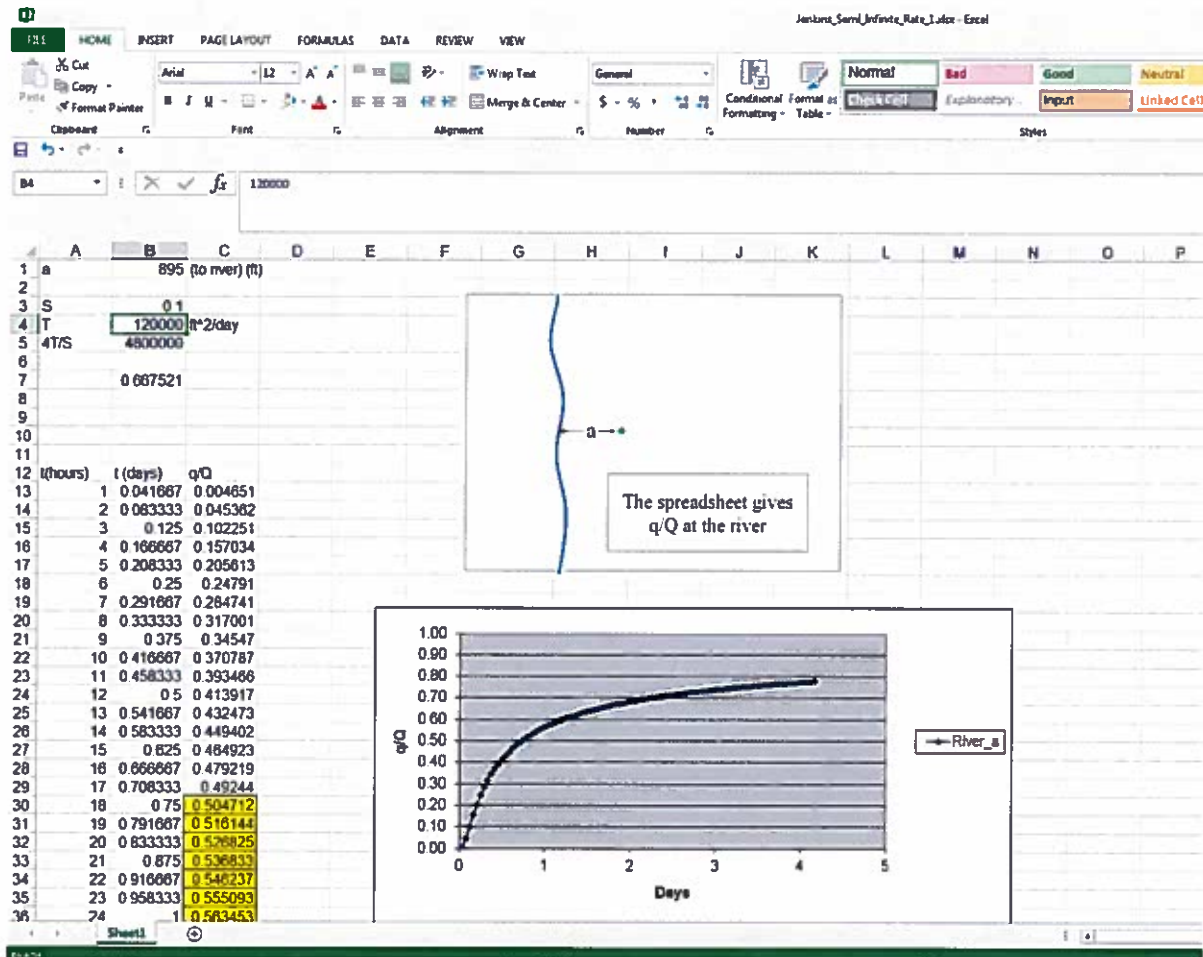
Linear Approximation
Pod.ship
Township/Range
Sections
QQ

Figure 3: Geometry for Jenkins Calculation
Boyd Smith Well Interaction Analysis -
Jenkins Methodology

Project 13-0052

Rocky Mountain
ENVIRONMENTAL
ASSOCIATES, INC.
482 Constitution Way, Idaho Falls, ID 83402
208-524-2353

Figure 4
Screenshot of Jenkins Calculation





Clearwater Geosciences, LLP
Ground Water Development and Exploration

September 11, 2015

Rocky Mountain Environmental, Inc.
Mr. Bryce Contour, Senior Hydrogeologist
482 Constitution
Idaho Falls, ID 83402-3537

Subject: Letter Report on Pumping Test Analysis for the Boyd Smith Well

Dear Mr. Contour,

I have completed my analysis of the pumping test data for the Boyd Smith Irrigation Well near Thornton, Idaho. Since you conducted the pumping test and collected the data you will have the specifics on the test. Briefly, a 7 day pumping test and 7 days of recovery monitoring were conducted in an existing irrigation well. Three piezometers were installed at radial offsets of 19.24 ft, 48.83 ft and 98.79 ft. Water levels were monitored using automated pressure transducers and all water level data were corrected for barometric pressure fluctuations. Rocky Mountain Environmental Associates (RMEA) performed a careful QA/QC analysis of the data and provided me with excel spreadsheets of the water level data. Flow was estimated based on the discharge capacity of the sprinkler system that the pumped water supplied and by calculating the flow based on the power consumed during the pumping test. You provided me with a range of volume discharge of 55 to 72 ac-ft. This means that on average the flow rate during pumping ranged between 1,860 and 2,436 gpm. The pumped well experienced a maximum drawdown of approximately 9 ft and the observation wells recorded between 1 and 4 ft of drawdown depending upon the radial offset from the pumped well. This is a very well documented test with a relatively clean data set (minus some starts and stops of pumping). It provides a very good measurement of aquifer parameters in this area.

The data were initially processed and put in terms of elapsed time from the start of pumping, feet of drawdown from static and missing lines in the data string were removed (lines had been inserted for comments). At an elapsed time of 9881 minutes the transducer was removed and then reinstalled in the pumped well. Upon reinstallation the transducer got hung up and did not return to its original setting. A length of 0.631 ft was added to the drawdown after elapsed time 9637 minutes to make the recovery match the earlier data. This has no impact on the data quality as the offset did not affect the relative changes in water levels during the recovery test and the transducer was fully submerged. In addition to the barometric correction made by RMEA it was apparent that during the test water levels in the aquifer were impacted by regional fluctuations. This is probably related to irrigation pumping occurring during the pumping test. The corrections were small, +0.1, +0.17, +0.21 and +0.3 ft in wells Pump, P20, P50 and P100, respectively. The fully processed data sets for the wells are presented in Figure 1. As can be seen in Figure 1, the flow rate of the pump was interrupted or altered five times during the pumping test. The shut down and variation in pumping rate early in the test (day 1) are the most problematic for aquifer analysis. The recovery test data is much better because the pumped well was left alone for the entire 7 day period. Figure 2 is a plot of the recover test data.

Several analytical solutions were attempted to find the best match to the aquifer test data. Initially, the Theis Solution was attempted. A suitable match for the Theis curve could not be found. This is not surprising because the aquifer in this location is very shallow and almost certainly unconfined or leaky confined. The best match to the data was to the leaky confined analytical solution shown in Figure 3. A good match could not be found to the unconfined analytical solution as shown in Figure 4. The better match to the leaky confined solution was no



Clearwater Geosciences, LLP
Ground Water Development and Exploration

doubt driven by the ability of this analytical solution to yield water from an overlying or underlying aquifer, which mimics the effects of an aquifer source boundary. In this case the source boundaries are the sloughs located southwest of the pumping field. The best estimate of the leaky confined aquifer transmissivity (2,436 gpm) is 2.9×10^4 and the specific yield is very high, 0.3, which is unrealistically high probably by a factor of 5 to 10. The match to the data for 1860 gpm yields a transmissivity of 2.02×10^4 ft²/day. For the Cooper-Jacob straight line method (Figure 5) for a confined aquifer the transmissivity ranges from 1.5 to 2.2×10^5 ft²/day for 1860 and 2436 gpm, respectively. The storativity is more realistic for this method approximately 0.0001.

It is difficult to quantify the uncertainty of these calculations because the automated type curve matching routine in AQTESOLV failed to converge. Additionally, the two different aquifer type analytical solutions yield values that are roughly an order of magnitude apart. Roughly speaking the estimate of transmissivity ranges from 2.0×10^4 ft²/day to 2.2×10^5 ft²/day. The calculated storativity is unreliable. Problems with the match to the analytical solutions are driven mainly by the presences of an interfering hydraulic boundary that impacts the shape of the recovery curve (discussed below). Based on these types of materials, the anticipated range of storativity is between 0.0001 and 0.1. The wide range is driven by the natural variation in aquifer confinement conditions in this area.

A detailed examination of the drawdown and recovery curves on semi-log scale plots illuminates the fact that the water levels in wells came to effective or quasi-steady state conditions relatively early in the pumping test. Figure 6 shows all data plotted at a semi-log scale with solid lines indicating trends in drawdown (left side) and a near horizontal line indicating near quasi-steady state when pumping is being satiated by a recharge boundary. Figure 7 is a plot of the recovery data at a semi-log scale. There is a bit of scatter or noise in the data most likely attributed to several factors: 1) other irrigation wells turning off and on; regional and diurnal changes in water levels; and variations in the pumping rate of the test well. However, the test results are conclusive in that they demonstrate that pumping of the Boyd Smith creates a cone of depression that quickly comes into equilibrium with a nearby source of surface water. This is demonstrated by the stabilization of the drawdown curves in less than 1,000 minutes. Additionally, the aquifer test drawdown and recovery data could not be matched to an analytical solution not containing an inherent supply of water, i.e. the field data departed significantly below the Theis Curve. The Theis solution assumes an infinite aquifer without a source of recharge. The behavior of the drawdown and recovery curves for this test are characteristic of aquifers with a recharge boundary. I know that you have performed calculations for the distances to a boundary and I will not repeat them here. I reviewed your calculations and found them to be accurate. The main point is that the pumping test demonstrates that there is a definite connection between surface water and ground water in this location. The cone of depression from the well is established very quickly and it draws water from the slough. There is no doubt that water pumped from the well primarily comes from the nearby surface water bodies.

Please call or email me if you have questions about this letter report.

Sincerely,

Thomas R. Wood, Ph.D., P.G.
Idaho Registered Geologist, #643



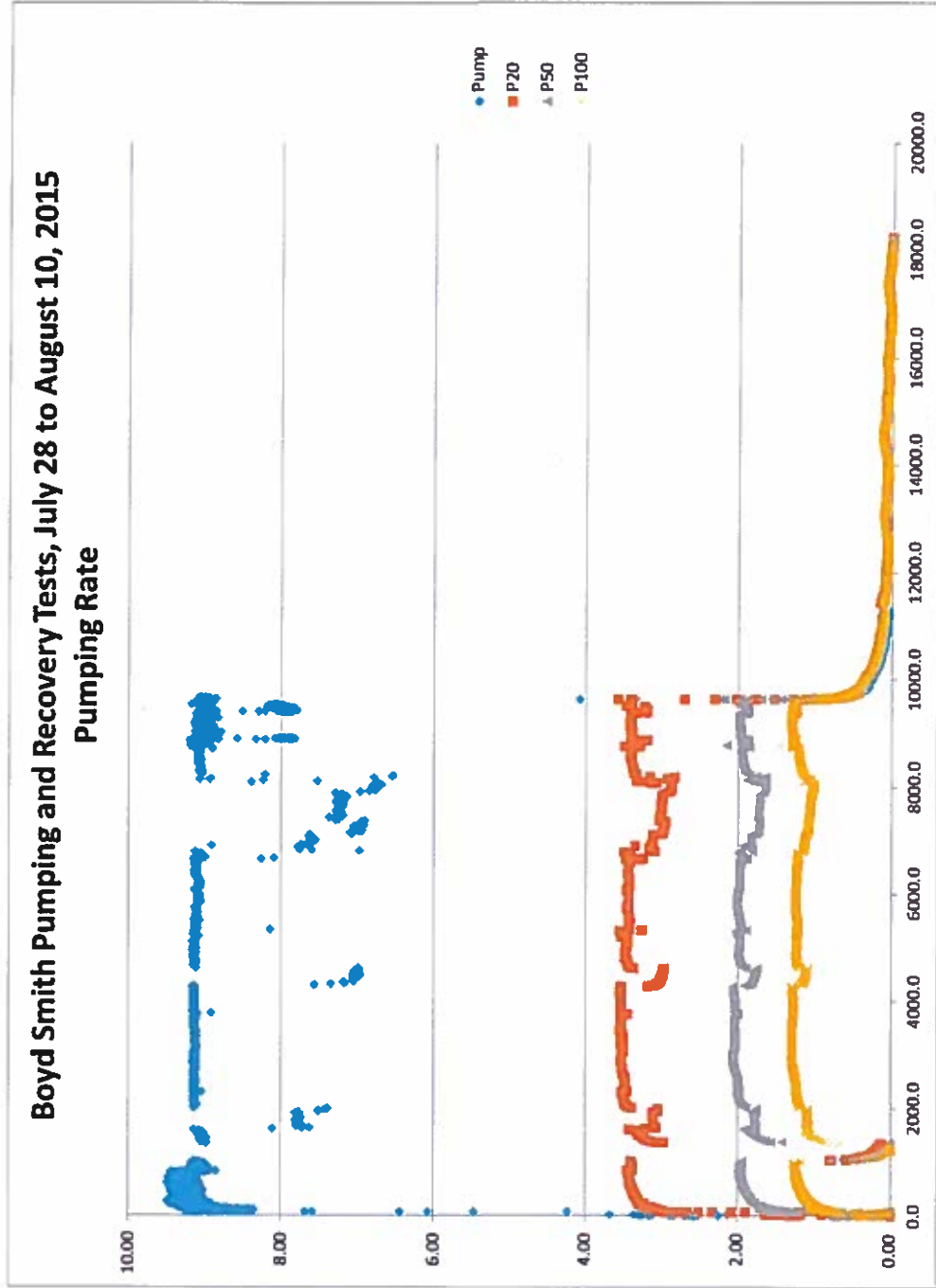


Figure 1. Arithmetic plot of pumping and recovery test data.

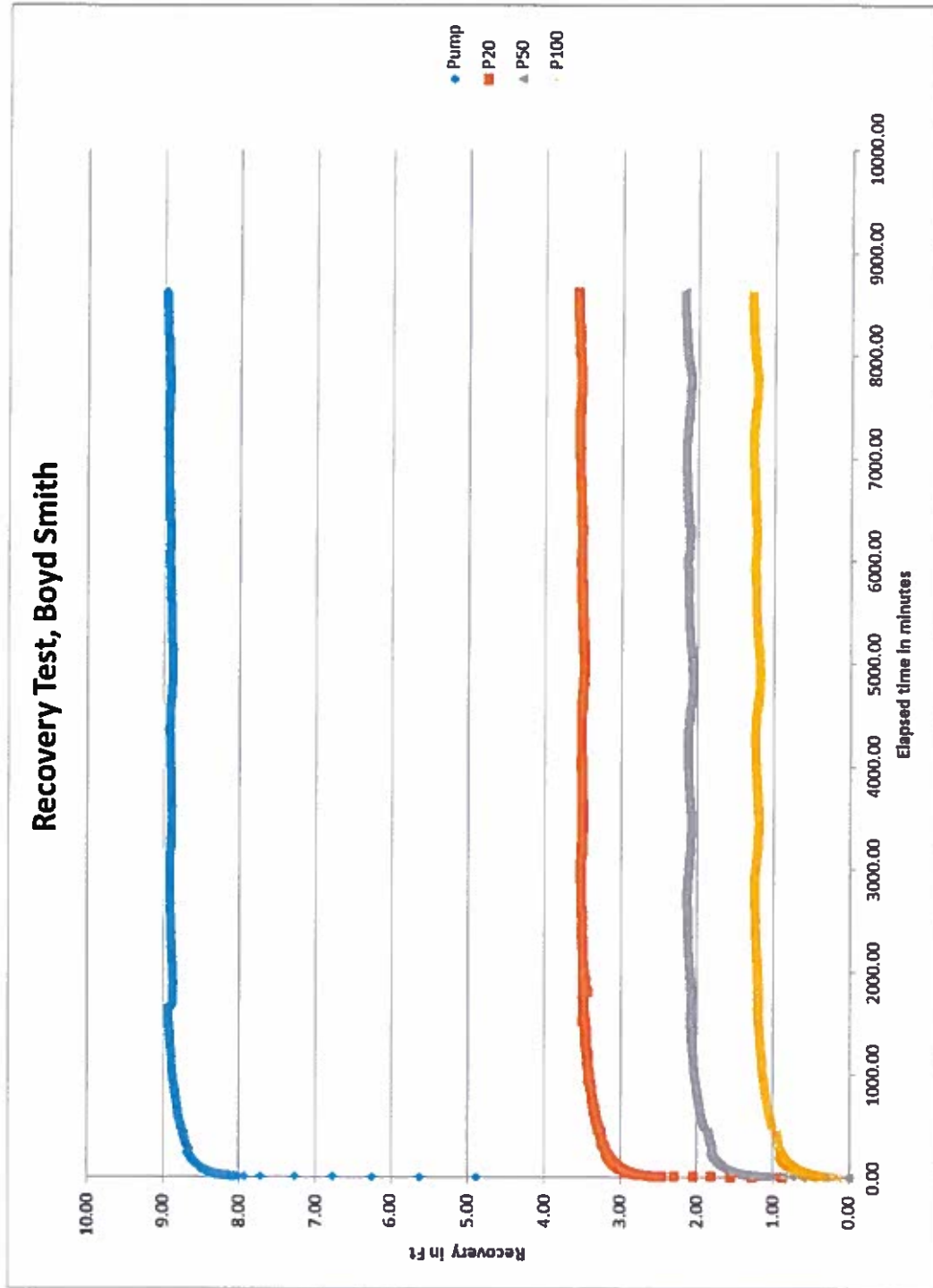


Figure 2. Arithmetic plot of water level recovery after pumping ceased.



Clearwater Geosciences, LLP
Ground Water Development and Exploration
Boyd Smith Recovery Test Plot

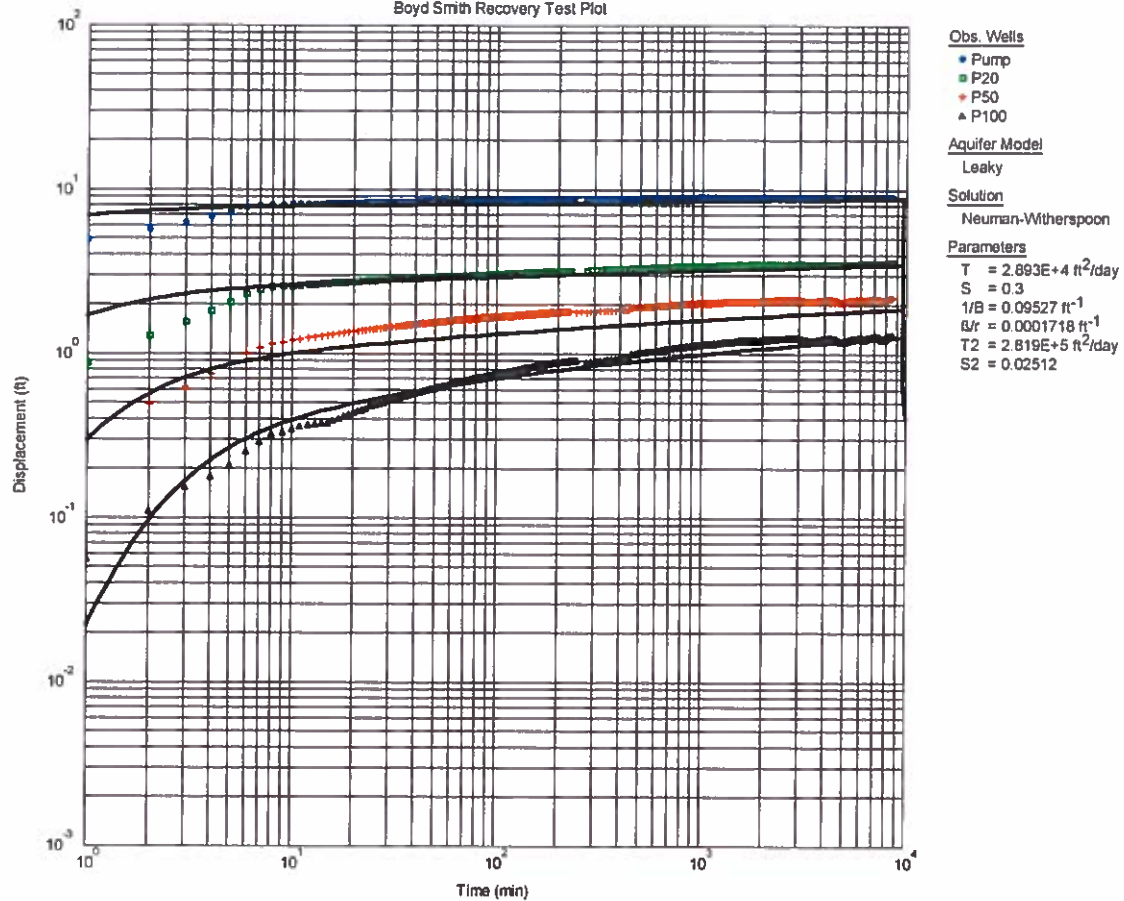


Figure 3. Data match to the Neuman-Witherspoon leaky confined analytical solution.



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Boyd Smith Recovery Test Plot

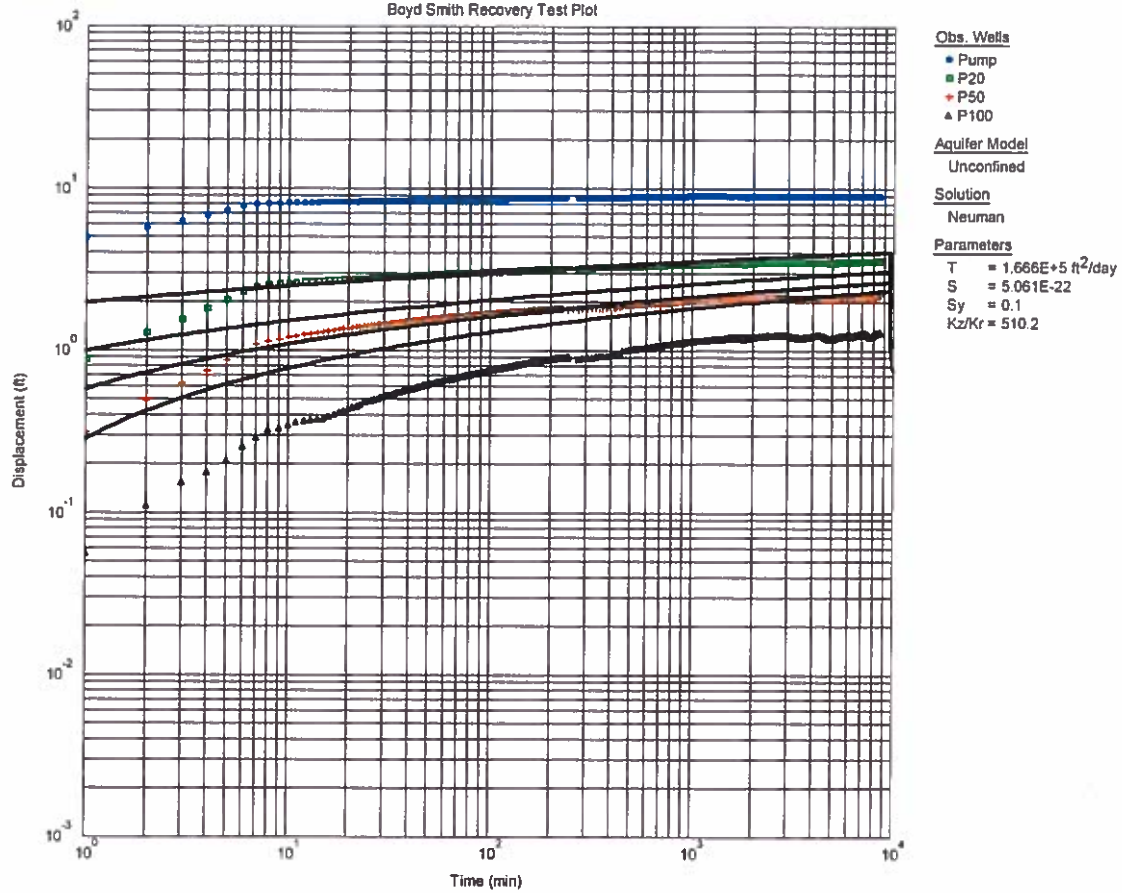


Figure 4. Data match to the Neuman unconfined solution.



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Boyd Smith Recovery Test Plot

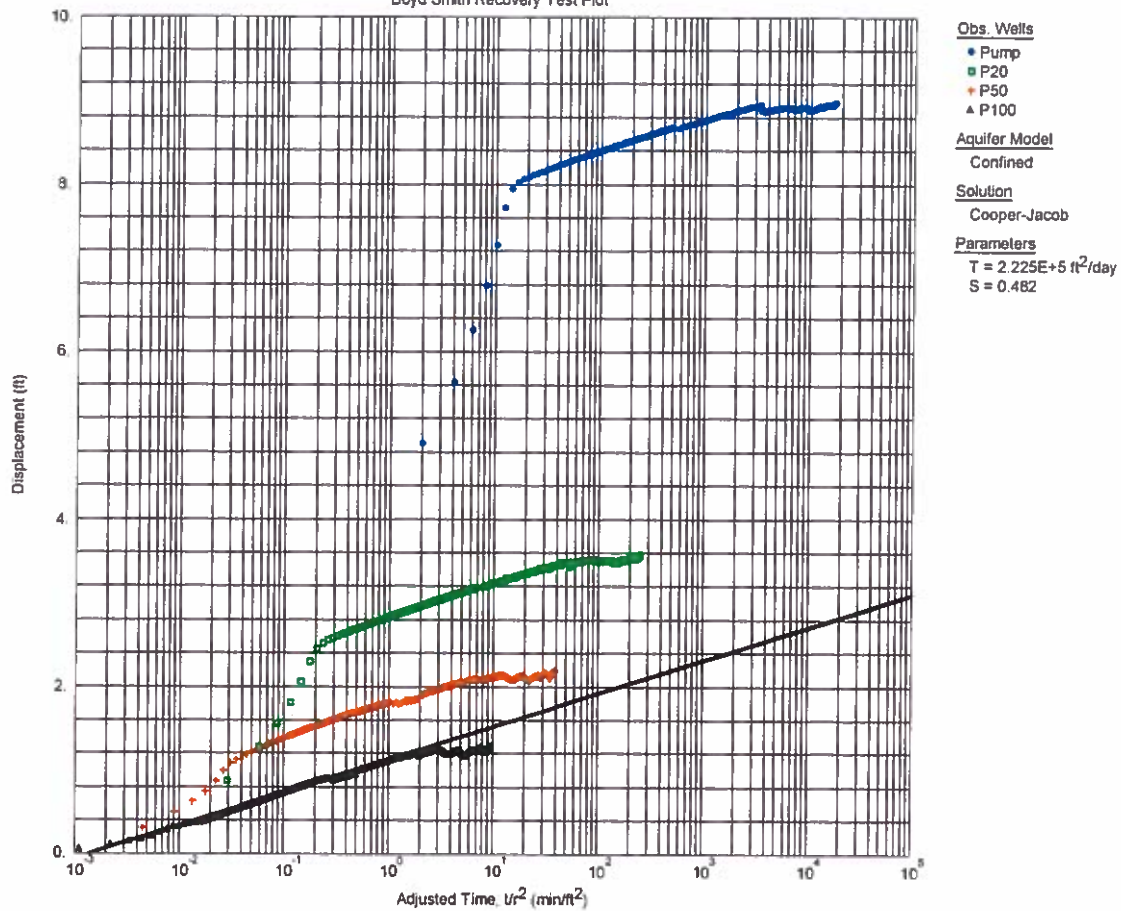


Figure 5. Data match to the Cooper-Jacob confined solution.

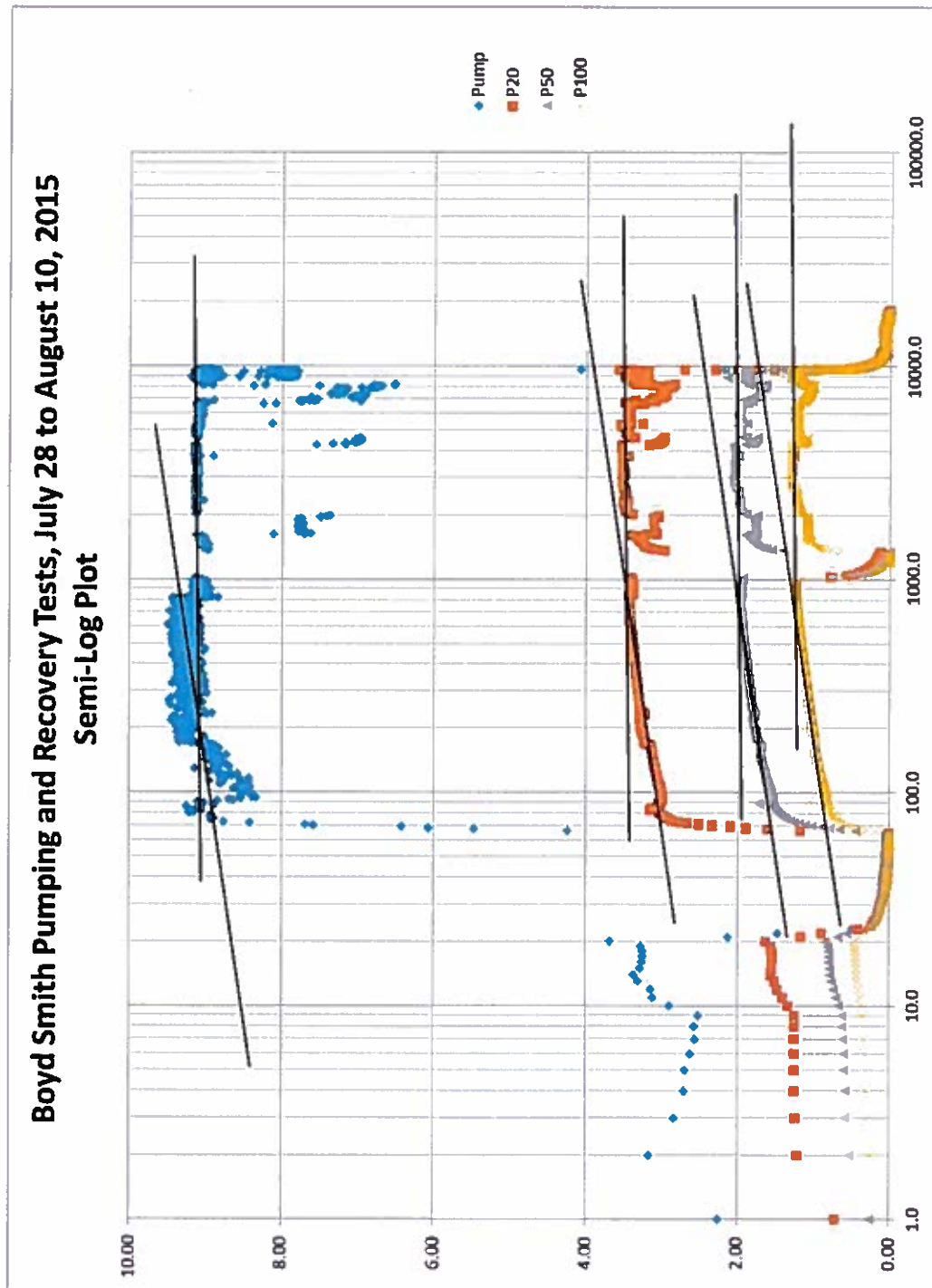


Figure 6. Semi-log plot of both drawdown and recovery data with lines showing the break in slope 700 minutes indicating the onset of near steady state drawdown.

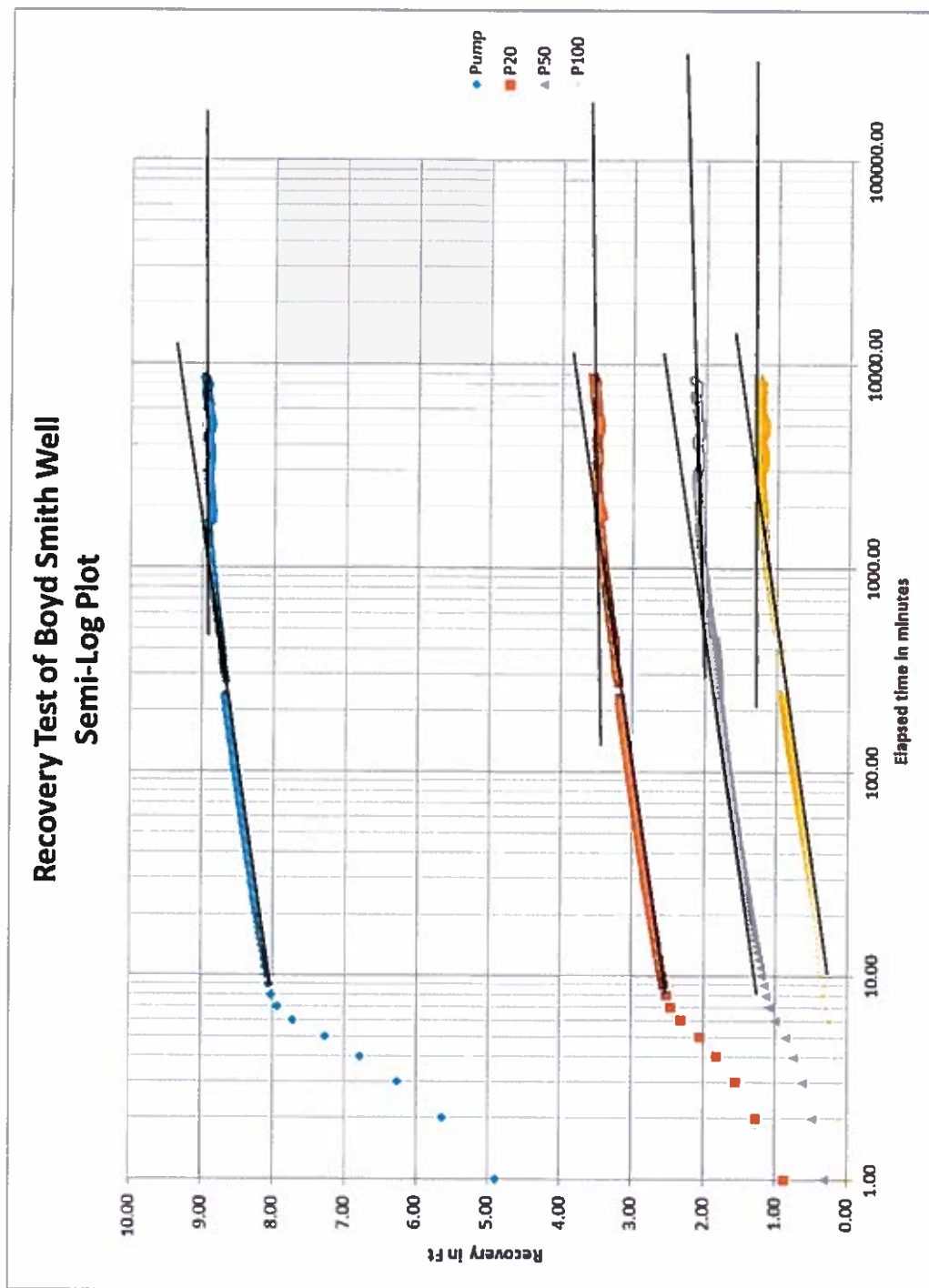


Figure 7. Semi-log plot of recovery data with lines showing the break in slope ~1400 minutes indicating full aquifer recovery.

Physical and Chemical Hydrogeology

Second Edition

Patrick A. Domenico

*David B. Harris Professor of Geology
Texas A&M University*

Franklin W. Schwartz

*Ohio Eminent Scholar in Hydrogeology
The Ohio State University*



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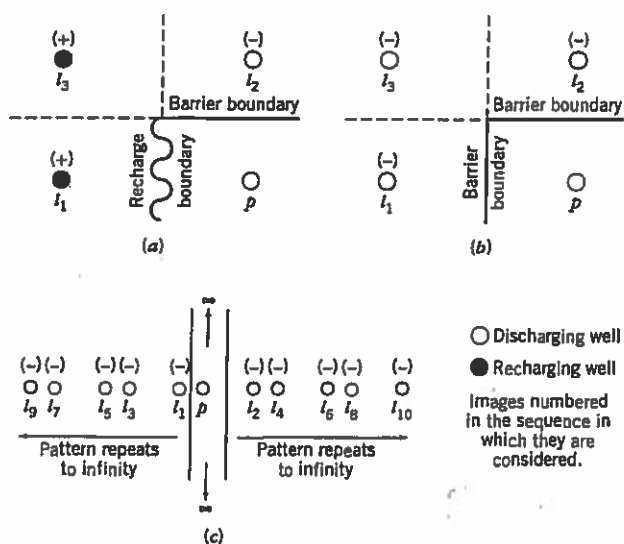


Figure 6.24 Image well systems for (a) wedge-shaped aquifer with both barrier and recharge boundaries, (b) wedge-shaped aquifer with barrier boundaries, and (c) infinite strip.

extent. In other words, graphic models such as given in Example 6.7 can be used to find the drawdown in response to one or several wells pumping simultaneously. Once the distance from real and imaginary wells to the point of interest has been determined, drawdown (or recovery) may be obtained from the graphs. For example, the drawdown at any point in the real aquifer of Figure 6.24 is the algebraic sum of the effect of one real well, one discharging imaginary well, and two recharging imaginary wells. For the infinite array (Figure 6.24c), image wells are added until the most remote pair has negligible influence on water-level response.

Example 6.8

A 60-cm-diameter well is located in an aquifer with a transmissivity of $125 \text{ m}^2/\text{day}$ and a storativity of 5×10^{-2} . A fault (barrier) is located 300 m from the well. The drawdown at the midpoint between the fault and the barrier at the end of one year's pumpage at a rate of $2700 \text{ m}^3/\text{day}$ is determined

$$s = s_p + s_i = \frac{Q}{4\pi T} [W(u)_p + W(u)_i]$$

$$(u)_p = \frac{r_p^2 S}{4Tt} = \frac{(150 \text{ m})^2 5 \times 10^{-2}}{(4)(125 \text{ m}^2/\text{day})(365 \text{ day})} = 6.16 \times 10^{-3}$$

$$(u)_i = \frac{r_i^2 S}{4Tt} = \frac{(450 \text{ m})^2 5 \times 10^{-2}}{(4)(125 \text{ m}^2/\text{day})(365 \text{ day})} = 5.55 \times 10^{-2}$$

From Table 6.1, $W(u)_p = 4.52$, $W(u)_i = 2.37$.

$$s = \frac{2700 \text{ m}^3/\text{day}}{4 \times 3.14 \times 125 \text{ m}^2/\text{day}} (6.89) = 11.85 \text{ m}$$

Example 6.9

The accompanying figure depicts a time-drawdown response in an observation well affected by one pumping well and a barrier boundary. By construction, $s_1 = s_2$. It thus follows that $W(u)_1 = W(u)_2$ and

$$u_1 = \frac{r_1^2 S}{4Tt_1} \quad \text{and} \quad u_2 = \frac{r_2^2 S}{4Tt_2}$$

where $u_1 = u_2$. Thus

$$r_2 = r_1 \left(\frac{t_2}{t_1} \right)^{1/2}$$

where r_1 is the distance from the pumping well to the observation well, which is known, and r_2 is the distance from the observation well to the imaginary pumping well causing the inflection, which is readily calculated. However, because the exact location of the barrier is not known, r_2 merely defines a set of points that form a circle of radius r_2 with the observation well located at its center.

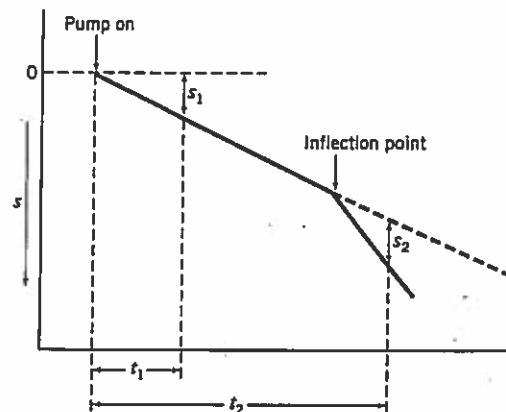
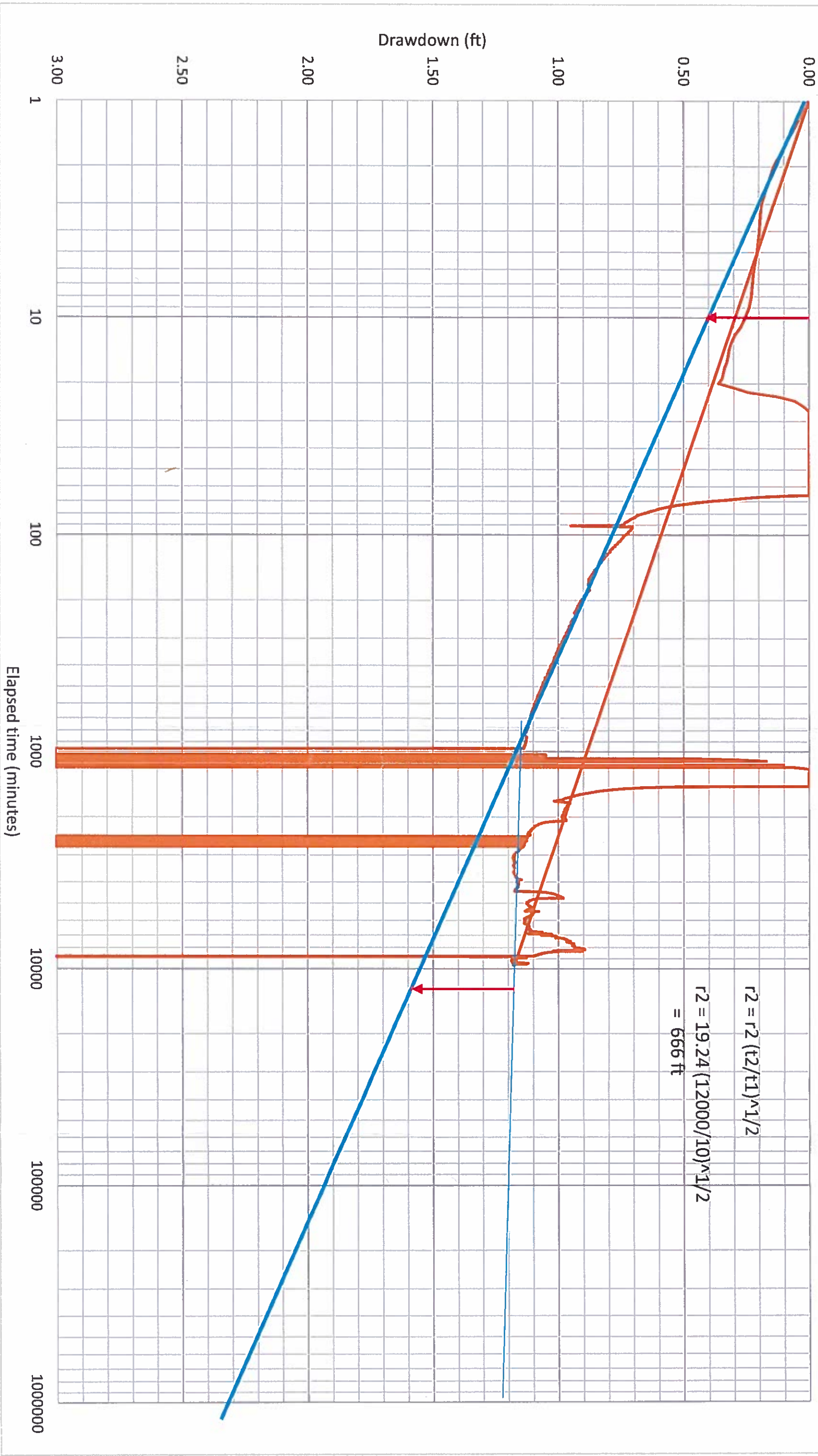


Figure 6.E9

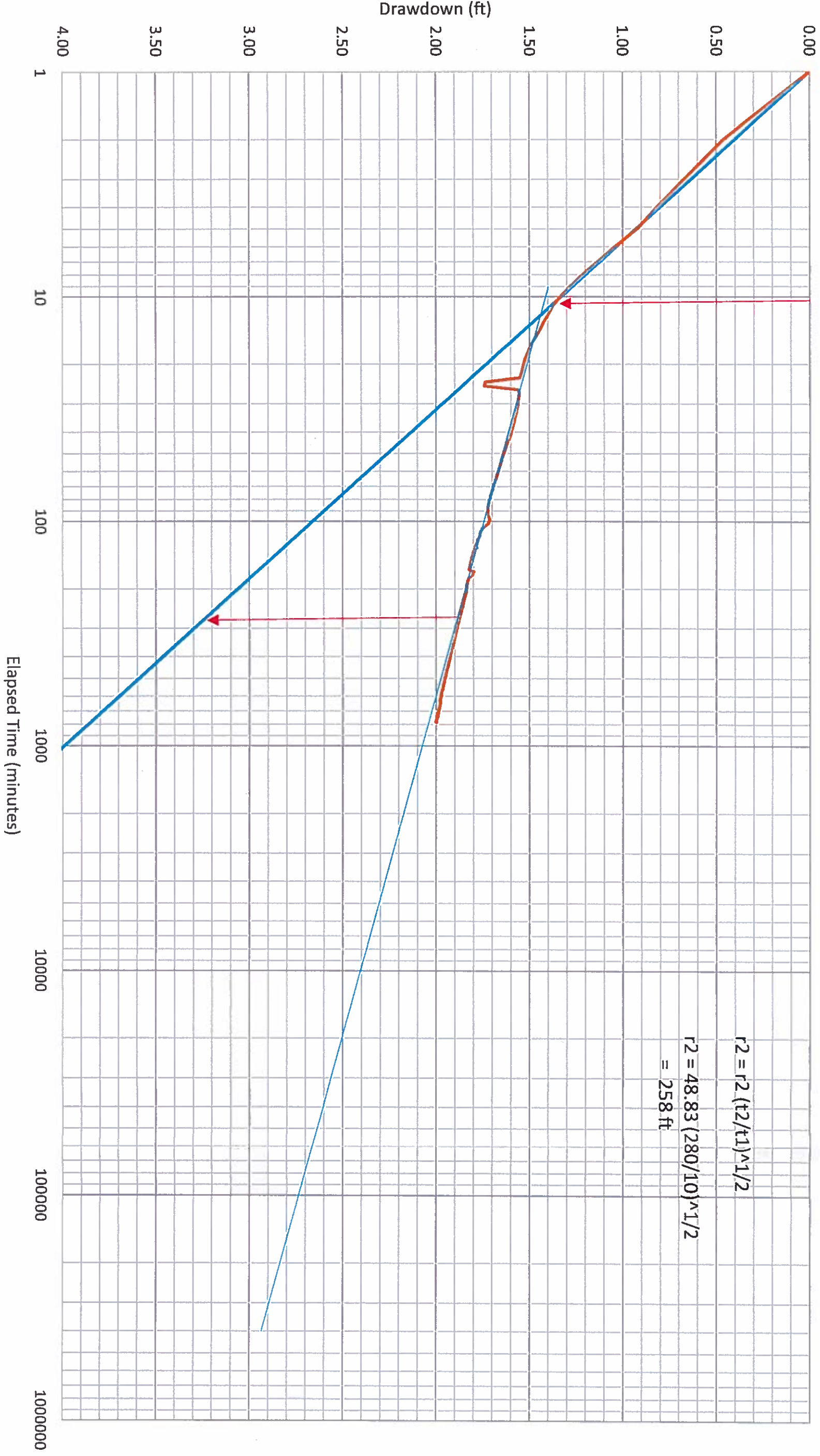
6.5 Hydraulic Testing in Fractured or Low-Permeability Rocks

Advances in hydraulic testing over the past decade have been born out of the practical necessity of evaluating rocks as hosts for chemical or nuclear wastes. In some cases, this requires testing in deep boreholes up to a few thousand feet in depth, often in rocks that are of a low permeability, and frequently in rock that is fractured. In many cases, the emphasis has been on the single-borehole test. These tests generally require special equipment such as packers to isolate testing zones, feed in apparatus whereby a slug of water may be removed from the isolated zone or the zone quickly pressurized, and pressure transducers to measure the response. With deep boreholes, temperature or salinity effects on fluid density must sometimes be accounted for. Hydraulic testing in

P20 Time/Drawdown



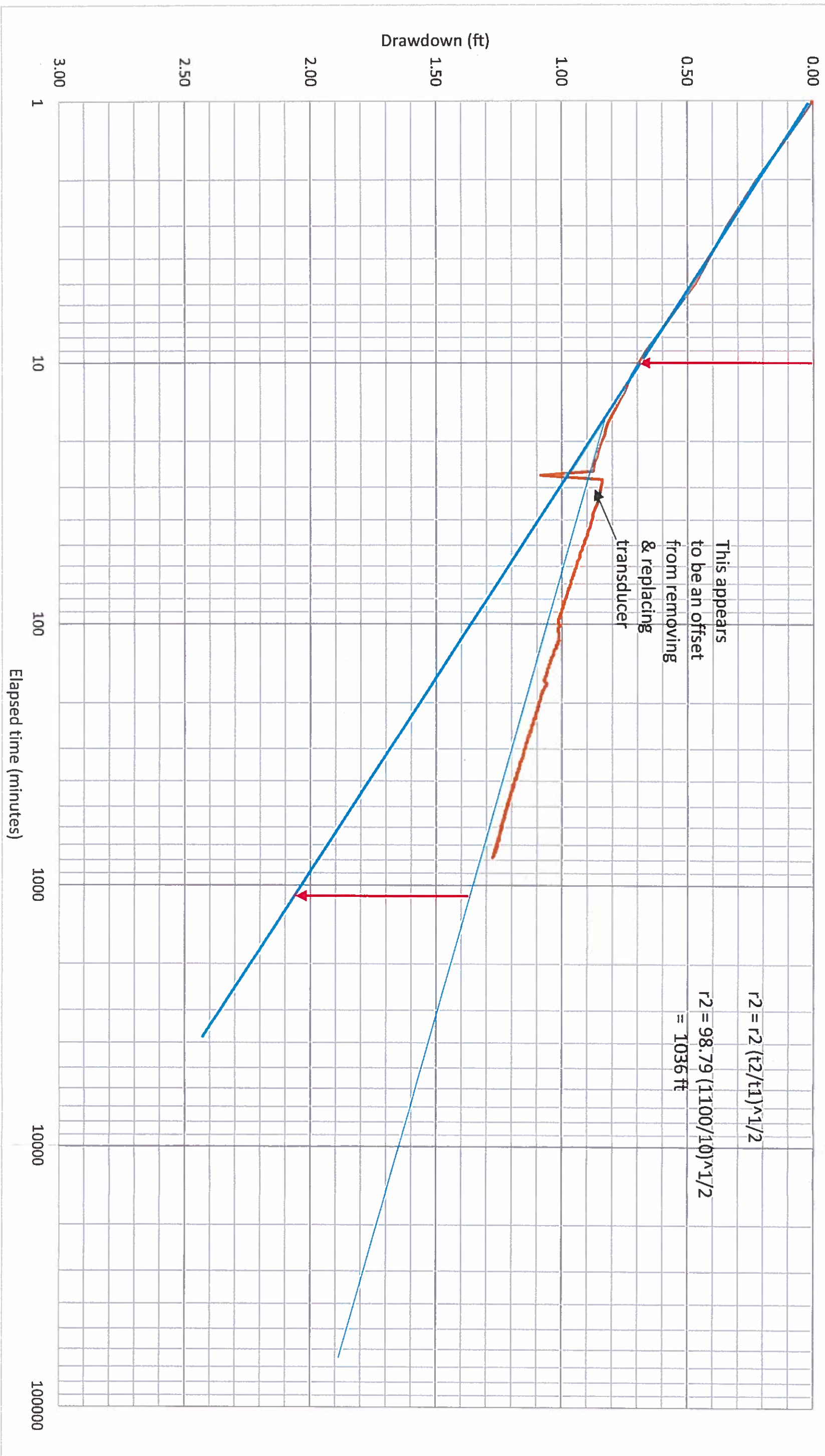
P50 Time/Drawdown



$$r_2 = r_1 \left(\frac{t_2}{t_1} \right)^{1/2}$$

$$r_2 = 48.83 \left(\frac{280}{10} \right)^{1/2} \\ = 258 \text{ ft}$$

P100 Time/Drawdown





Idaho Statutes

TITLE 42

IRRIGATION AND DRAINAGE -- WATER RIGHTS AND RECLAMATION

CHAPTER 2

APPROPRIATION OF WATER -- PERMITS, CERTIFICATES, AND LICENSES -- SURVEY

42-230. DEFINITIONS. (a) "Ground water" is all water under the surface of the ground whatever may be the geological structure in which it is standing or moving.

(1) All ground water having a temperature of greater than eighty-five (85) degrees Fahrenheit and less than two hundred twelve (212) degrees Fahrenheit in the bottom of a well shall be classified and administered as a low temperature geothermal resource pursuant to section 42-233, Idaho Code.

(2) All ground water having a temperature of two hundred twelve (212) degrees Fahrenheit or more in the bottom of a well shall be classified as a geothermal resource pursuant to section 42-4002, Idaho Code, and shall be administered as a geothermal resource pursuant to chapter 40, title 42, Idaho Code.

(b) "Well" is an artificial excavation or opening in the ground more than eighteen (18) feet in vertical depth below land surface by which ground water of any temperature is sought or obtained.

(c) "Well driller" is any person or group of persons who excavate or open a well or wells for compensation or otherwise upon the land of the well driller or upon other land. Well driller does not include those persons who construct a well on their own property for their own use without the aid of any power driven mechanical equipment.

(d) "Well drilling" or "drilling" for purposes of this chapter is the act of constructing a new well or deepening or modifying an existing well by any percussion, rotary, boring, digging, jetting, or augering method.

(e) "Water right" is the legal right, however acquired, to the use of water for beneficial purposes.

(f) "Operator" is the employee of the well driller who, through his work at the drilling site, causes the well to be drilled.

(g) "Low temperature geothermal resource well" means a well which is capable of producing a low temperature geothermal resource from which fluids can be produced which have value by virtue of the heat contained therein.

History:

[42-230, added 1951, ch. 200, sec. 5, p. 423; am. 1970, ch. 187, sec. 3, p. 541; am. 1971, ch. 149, sec. 1, p. 739; am. 1980, ch. 209, sec. 1, p. 479; am. 1987, ch. 347, sec. 2, p. 743; am. 1990, ch. 319, sec. 3, p. 872.]