PLEASE REFER TO FILE FOLDER NO. 4

FOR THE CONTINUATION OF THIS WATER RIGHT FILE No. 37-20613

BEFORE THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF IDAHO

In the Matter of Application for Transfer No. 71607 in the name of 4 Bros. Dairy, Inc., Applicant,	)	LIST OF POTENTIAL WITNESSES AND EXHIBITS
Henry Blake Buckway JaNene Buckway Protestant.	)	

The protestant submits the following list of potential witnesses and exhibits for the hearing scheduled to begin July 28, 2005.

POTENTIAL WITNESSES:
Bev and/or Val Ashton
Elizabeth, Carla, and/or Rusty Tews
Jerry and/or Susan Westendorf
JaNene and/or Henry Buckway
Doug Albright
Russell and/or Pamela Pantone
Paul Drury and/or Norm Young (ERO RESOURCES- expert testimony)
Andrew, Jerome, and/or Clem Fitzgerald

POTENTIAL EXHIBITS:
100- IDWR map depicting Ground Water Districts*
101- IDWR map depicting ground water elevations in ESPA (dated Jan.-05')*
102- IDWR map depicting ground water flow directions (dated Jan.- 05')*
103- IDWR map depicting ground water elevations in ESPA (enhanced ESRP Model 1.1)
104- Various water right records of neighboring properties
105- Various well driller's logs of 4 Bros. wells and neighboring wells
106- Exhibits A-F (misc. exhibits concerning transfer impacts)

107- Response to Public Records Request by Watermaster- Water District 130

108- Charles Brockway Applications to Rent Water to Water Bank and from Water Bank
109- IDWR Memo and misc. correspondence re: Black Butte Transfer

110- ISDA Siting Team Report to Lincoln Co. (w/color map)
111- Lincoln County Prosecuting Attorney Memo re: withdrawal of application for new dairy
112- 4 Bros. Nutrient Management Plan
113- ISDA Response to Public records Request/ Excerpts from ISDA-EPA- Idaho Dairy

Association Memorandum of Understanding report -2004
114- Water quality test report from 4 Bros. neighbor(s)
115- IDEQ "Cumulative Impacts Assessment" -2000
116- NASS/USDA crop statistics for Idaho 1990- most recent available at www.nass.usda.gov
117- IDWR Orders re: Transfers Nos. 5804 and 5436
118- Satellite photo of area
119- Satellite photo of area
120- Various documents from Lincoln Co. Planning and Zoning re: permits
* indicates that copy already provided applicant in discovery

The protestant reserves the right to supplement its evidence with additional exhibits or oral testimony to rebut evidence the applicant provides up to and during the hearing. The protestant will also ask the hearing officer to take official notice of all orders issued by the Director of IDWR concerning calls for water made by spring and surface water users in the past 3 years.

DATED this 22nd day of July, 2005

Henry Blake Buckway and JaNene Buckway

CERTIFICATE OF SERVICE

I hereby certify that on the 22nd day of July, 2005, I served a true copy of the foregoing document along with copies of the proposed exhibits referenced above on the person listed below, by the method indicated below:

Robert E. Williams
Attorney at Law
P.O. Box 168
Jerome, ID 83338

MAIL DELIVERY

Peter Anderson
Hearing Officer
IDWR
322 East Front Street
PO Box 83720
Boise, ID 83720-0098

Henry Blake and JaNene Buckway

Jerry and Susan Westendorf
707 W 470 N
Shoshone, ID 83352

BEFORE THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF IDAHO

In the Matter of Application for	)	
Transfer No. 71607 in the name of	)	JERRY AND SUSAN
4 Bros. Dairy, Inc.,	)	WESTENDORF LIST OF
Applicant,	)	POTENTIAL WITNESSES
	)	AND EXHIBITS
Lincoln County Rural Council,	)	
Protestant.	)	

Jerry and Susan Westendorf adopt the witness list and exhibit list submitted by the Lincoln County Rural Council on July 22, 2005 as their own:

POTENTIAL WITNESSES:
Bev and/or Val Ashton
Elizabeth, Carla, and/or Rusty Tews
Jerry and/or Susan Westendorf
Janene and/or Henry Buckway
Doug Albright
Russell and/or Pamela Pantone
Paul Drury and/or Norm Young (ERO RESOURCES- expert testimony)
Andrew, Jerome, and/or Clem Fitzgerald

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DATED this 22nd day of July, 2005

Susan K Westendorf
Jerry/ Susan Westendorf

CERTIFICATE OF SERVICE

I hereby certify that on the 22nd day of July, 2005, I served a true copy of the foregoing document on the person named below by depositing a copy of it into the U.S. Mail, postage pre-paid (am not sending the exhibits since I am using the same ones as the LCRC):

Robert E. Williams
Attorney at Law
P.O. Box 168
Jerome, ID 83338

Susan K Westendorf
Jerry/Susan Westendorf

Richard A. Carlson, ISB #5971
P.O. Box 21
Filer, ID 83328
Telephone and fax: (208)326-3686

Attorney for Lincoln County Rural Council

BEFORE THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF IDAHO

In the Matter of Application for Transfer No. 71607 in the name of 4 Bros. Dairy, Inc., Applicant,	)	LINCOLN COUNTY RURAL COUNCIL'S LIST OF POTENTIAL WITNESSES AND EXHIBITS
Lincoln County Rural Council, Protestant.	)	

The protestant Lincoln County Rural Council, through its attorney, Richard A. Carlson, submits the following list of potential witnesses and exhibits for the hearing scheduled to begin July 28, 2005.

POTENTIAL WITNESSES:
Bev and/or Val Ashton
Elizabeth, Carla, and/or Rusty Tews
Jerry and/or Susan Westendorf
Janene and/or Henry Buckway
Doug Albright
Russell and/or Pamela Pantone
Paul Drury and/or Norm Young (ERO RESOURCES- expert testimony)
Andrew, Jerome, and/or Clem Fitzgerald

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DATED this 22nd day of July, 2005

Richard A. Carlson
Attorney for Lincoln County Rural Council

CERTIFICATE OF SERVICE

I hereby certify that on the 22nd day of July, 2005, I served a true copy of the foregoing document along with copies of the proposed exhibits referenced above on the person listed below, by the method indicated below:

Robert E. Williams
Attorney at Law
P.O. Box 168
Jerome, ID 83338

HAND DELIVERY

Richard A. Carlson

Beverly Ashton
685 N 250 W
Shoshone, ID 83352

BEFORE THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF IDAHO

In the Matter of Application for	)	
Transfer No. 71607 in the name of	)	BEVERLY ASHTON
4 Bros. Dairy, Inc.,	)	LIST OF
Applicant,	)	POTENTIAL WITNESSES
	)	AND EXHIBITS
Lincoln County Rural Council,	)	
Protestant.	)	

Beverly Ashton adopts the witness list and exhibit list submitted by the Lincoln County Rural Council on July 22, 2005 as her own:

POTENTIAL WITNESSES:
Bev and/or Val Ashton
Elizabeth, Carla, and/or Rusty Tews
Jerry and/or Susan Westendorf
Janene and/or Henry Buckway
Doug Albright
Russell and/or Pamela Pantone
Paul Drury and/or Norm Young (ERO RESOURCES- expert testimony)
Andrew, Jerome, and/or Clem Fitzgerald

POTENTIAL EXHIBITS:
100- IDWR map depicting Ground Water Districts*
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112- 4 Bros. Nutrient Management Plan
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115- IDEQ "Cumulative Impacts Assessment" -2000
116- NASS/USDA crop statistics for Idaho 1990- most recent available at www.nass.usda.gov
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DATED this 22nd day of July, 2005

Beverly Ashton

CERTIFICATE OF SERVICE

I hereby certify that on the 22nd day of July, 2005, I served a true copy of the foregoing document on the person named below by depositing a copy of it into the U.S. Mail, postage pre-paid (am not sending the exhibits since I am using the same ones as the LCRC):

Robert E. Williams
Attorney at Law
P.O. Box 168
Jerome, ID 83338

Beverly Ashton

3 Large
Maps go
here.
(scanned seperately)

ose

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

07/20/2005

WATER RIGHT NO. 37-10405

Owner Type	Name and Address
Current Owner	IRENE WESTENDORF
Current Owner	KURT W WESTENDORF
	443 N 700 W
	SHOSHONE, ID 83352
	(208)886-7570

Priority Date: 01/01/1912
Basis: Decreed
Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
DOMESTIC	1/01	12/31	0.04 CFS	
Total Diversion			0.04 CFS	

Location of Point(s) of Diversion:

GROUND WATER NESESW Sec. 10 Township 05S Range 16E LINCOLN County

Place(s) of use:

Place of Use Legal Description: DOMESTIC LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05S	16E	10		SESW										

Conditions of Approval:

1. 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.
2. N13 THE QUANTITY OF WATER UNDER THIS RIGHT SHALL NOT EXCEED 13,000 GALLONS PER DAY.
3. N11 THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.
4. PARCEL NO. RP05S16E104800

Dates:
Licensed Date:
Decreed Date: 01/10/2001
Enlargement Use Priority Date:
Enlargement Statute Priority Date:
Water Supply Bank Enrollment Date Accepted:
Water Supply Bank Enrollment Date Removed:
Application Received Date:
Protest Deadline Date:
Number of Protests: 0

Other Information:
State or Federal: S
Owner Name Connector: AND
Water District Number:
Generic Max Rate per Acre:
Generic Max Volume per Acre:
Civil Case Number:
Old Case Number:
Decree Plantiff:
Decree Defendant:

Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
E Act Number:
y Act Number:
Mitigation Plan: False
Close

ose

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

07/20/2005

WATER RIGHT NO. 37-10404

Owner Type	Name and Address
Current Owner	SUSAN WESTENDORF 705 W 420 N GOODING, ID 83330 (208)886-7570
Current Owner	JERRY L WESTENDORF 707 W 470 N SHOSHONE, ID 83352 (208)886-7570

Priority Date: 01/01/1950
Basis: Decreed
Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
STOCKWATER	1/01	12/31	0.04 CFS	
DOMESTIC	1/01	12/31	0.04 CFS	
Total Diversion			0.04 CFS	

Location of Point(s) of Diversion:

GROUND WATER NENESW Sec. 10 Township 05S Range 16E LINCOLN County

Place(s) of use:

Place of Use Legal Description: STOCKWATER LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05S	16E	10		NESW										

Place of Use Legal Description: DOMESTIC LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05S	16E	10		NESW										

Conditions of Approval:

1. 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.
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3. N11 THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.
4. PARCEL NO. RP05S16E104800A STOCKWATER, 60 HERFORD

Dates:
Licensed Date:
Decreed Date: 01/10/2001
Enlargement Use Priority Date:
Enlargement Statute Priority Date:
Water Supply Bank Enrollment Date Accepted:
Water Supply Bank Enrollment Date Removed:
Application Received Date:
Protest Deadline Date:
Number of Protests: 0

Other Information:
State or Federal: S
Owner Name Connector: AND
Water District Number:
Generic Max Rate per Acre:
Generic Max Volume per Acre:
Civil Case Number:
Old Case Number:
Decree Plantiff:
Decree Defendant:
Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
DLE Act Number:
Cary Act Number:
Mitigation Plan: False
Close

Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

07/08/2005

WATER RIGHT NO. 37-10425

Owner Type	Name and Address
Current Owner	DOUGLAS ALBRIGHT 675 NORTH 150 WEST SHOSHONE , ID 83352 (208)866-2315
Original Owner	ROBERT A HILTON PO BOX 98 BLAINE, WA 98230 (604)533-2328

Priority Date: 12/31/1910
Basis: Decreed
Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
STOCKWATER	1/01	12/31	0.09 CFS	
DOMESTIC	1/01	12/31	0.08 CFS	
Total Diversion			0.17 CFS	

Location of Point(s) of Diversion:

GROUND WATER NWNESE Sec. 33 Township 04S Range 17E LINCOLN County

Place(s) of use:

Place of Use Legal Description: STOCKWATER LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
04S	17E	33		NESE			NWSE							

Place of Use Legal Description: DOMESTIC LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
04S	17E	33		NESE										

Conditions of Approval:

1. 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.
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3. N11 THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.
4. PARCEL NO. RP04S17E330000A STOCKWATER, 300 COWS, 10 HORSES

Dates:
Licensed Date:
Decreed Date: 01/10/2001
Enlargement Use Priority Date:
Enlargement Statute Priority Date:
Water Supply Bank Enrollment Date Accepted:
Water Supply Bank Enrollment Date Removed:
Application Received Date:
Protest Deadline Date:
Number of Protests: 0

Other Information:
State or Federal: S
Owner Name Connector:
Water District Number:
Generic Max Rate per Acre:
Generic Max Volume per Acre:
Civil Case Number:
Old Case Number:
Decree Plantiff:
Decree Defendant:
Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
DLE Act Number:
Cary Act Number:
Mitigation Plan: False

Close

ose

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

07/19/2005

WATER RIGHT NO. 37-10382

Owner Type	Name and Address
Current Owner	LAWRENCE Z TEWS
Current Owner	MARIE E TEWS
	680 N 350 W
	SHOSHONE, ID 83352
	(208)886-7585

Priority Date: 01/01/1952
Basis: Decreed
Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
STOCKWATER	1/01	12/31	0.03 CFS	
DOMESTIC	1/01	12/31	0.04 CFS	
Total Diversion			0.04 CFS	

Location of Point(s) of Diversion:

GROUND WATER SESENE Sec. 31 Township 04S Range 17E LINCOLN County

Place(s) of use:

. .ce of Use Legal Description: STOCKWATER LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
04S	17E	31		SENE										

Place of Use Legal Description: DOMESTIC LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
04S	17E	31		SENE										

Conditions of Approval:

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3. N11 THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.
4. PARCEL NO. RP04S17E301200A STOCKWATER, 125 RANGE CATTLE

Dates:
Licensed Date:
Decreed Date: 01/10/2001
Enlargement Use Priority Date:
Enlargement Statute Priority Date:
Water Supply Bank Enrollment Date Accepted:
Water Supply Bank Enrollment Date Removed:
Application Received Date:
Protest Deadline Date:
Number of Protests: 0

ıer Information:
State or Federal: S

Owner Name Connector: AND
Water District Number:
Generic Max Rate per Acre:
Generic Max Volume per Acre:
Civil Case Number:
Old Case Number:
Decree Plantiff:
Decree Defendant:
Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
DLE Act Number:
Cary Act Number:
Mitigation Plan: False

Close

lose

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

07/19/2005

WATER RIGHT NO. 37-10237

Owner Type	Name and Address
Current Owner	JOSEPH J BUCKWAY
Current Owner	PATTY L BUCKWAY
	584 N 250 W
	SHOSHONE, ID 83352
	(208)886-7522

Priority Date: 07/31/1945
sis: Decreed
Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
STOCKWATER	1/01	12/31	0.13 CFS	
DOMESTIC	1/01	12/31	0.04 CFS	
Total Diversion			0.13 CFS	

Location of Point(s) of Diversion:

ROUND WATER SENENE Lt 1 Sec. 05 Township 05S Range 17E LINCOLN County

DOMESTIC Use:
Number of homes: 2

Place(s) of use:

Place of Use Legal Description: STOCKWATER LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05S	17E	4	4	NWNW										
		5	1	NENE										

Place of Use Legal Description: DOMESTIC LINCOLN County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05S	17E	4	4	NWNW										
		5	1	NENE										

nditions of Approval:

1. N13 THE QUANTITY OF WATER UNDER THIS RIGHT SHALL NOT EXCEED 13,000 GALLONS PER DAY.
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. N11 THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.

Dates:
Licensed Date:
Decreed Date: 12/11/2002
Enlargement Use Priority Date:
Enlargement Statute Priority Date:
Water Supply Bank Enrollment Date Accepted:
Water Supply Bank Enrollment Date Removed:
plication Received Date:
Protest Deadline Date:

Number of Protests: 0

...ner Information:
State or Federal: S
Owner Name Connector: AND
Water District Number:
Generic Max Rate per Acre:
Generic Max Volume per Acre:
Civil Case Number:
Old Case Number:
Decree Plantiff:
Decree Defendant:
Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
DLE Act Number:
Cary Act Number:
Mitigation Plan: False

Close

Form 238-7
3/95

0 '451 Pg 1 of 2

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 37- 96- S 0126 - 000
Other IDWR No _____

2. OWNER:
Name BLACK BUTTE RANCH LLC
Address P.O. BOX 1877
City KETCHUM State ID Zip 83340

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp 4 North ☐ or South ☐ X
Rge 17 East ☐ X or West ☐
Sec 29, ____ 1/4 (10 acres) NE 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County LINCOLN
Lat: : : Long: : :
Address of Well Site _____
City SHOSHONE
(Give at least name of road + Distance to Road or Landmark)

Lt _____ Blk _____ Sub Name _____

4. USE:
☐ X Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc)
☐ X New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☐ Air Rotary ☐ X Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	19	150#	OVERBORE

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8.625	+1	19	.250	STEEL	☐ X	☐	☐ X	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
275 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp 60 Bottom hole temp _____
Water Quality test or comments: _____
Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	2	SURFACE DIRT		X
	2	9	GREY BASALT		X
	9	14	BROWN GREY		X
	14	26	GREY		X
	26	28	BROWN GREY		X
	28	39	GREY SOFT BASALT		X
8	39	41	GREY SOFT BASALT		X
	41	55	CINDERS SOFT LST CIRCULATION		X
	55	70	SOLID		X
	70	74	CINDERS BROKEN		X
	74	76	SOFT		X
	76	81	BROKEN SOFT CAVING		X
	81	105	SOLID		X
	105	115	SOFT		X
	115	125	BROKEN SOLID		X
	125	135	SOLID		X
	135	145	BROKEN		X
	145	151	SOLID		X
	151	163	BROKEN		X
	163	176	SOLID		X
	176	215	SOLID HARDER		X
	215	218	SOFT BROKEN		X
	218	227	SOLID		X
	227	294	SOFT TALC	X	
	294	340	SOLID HARDER		X
	340	425	SOLID GREY BROWN		X
	345	425	RHYOLITE		X
	425	450	BROKEN CINDERS TALC		X
	450	466	BLACK RED BASALT	X	
	466	470	VOID	X	
	470	480	DECOMPOSED BASALT SAND	X	
	470	480	GRAVEL CAVING	X	
			TO BE CONTINUED ON NEXT PAGE		

Completed Depth 470' (Measurable)
Date: Started 09/16/96 Completed 09/19/96

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Department of Water Resources
MICROFILMED
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OCT 15 1996
Department of Water Resources
Southern Region

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Firm Name WALKER WATER SYSTEMS INC. Firm No 15
Firm Official Fred Walker Date 10/10/96
and
Supervisor or Operator _____ Date _____
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
3/95

05-152 Pg 2 of 2

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Page 2

Use Typewriter or Ballpoint Pen

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 37-96-S-0126-000
Other IDWR No _____

2. OWNER:
Name Black Butte Properties, LLC
Address P. O. Box 1877
City Ketchum State ID Zip 83340

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp 4 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 29 ____ 1/4 NE 1/4 NE 1/4
(10 acres) (40 acres) (160 acres)
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site _____
City Shoshone
(Give at least name of road + Distance to Road or Landmark)

Lt _____ Blk _____ Sub Name _____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
_____ft below ground Artesian pressure _____lb.
Depth flow encountered _____ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp _____ Bottom hole temp _____
Water Quality test or comments: _____
Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
	470	480	Brown decomposed granite	X	

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Department of Water Resources

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OCT 21 1996

MICROFILMED
DEC 06

Completed Depth 430 (Measurable)
Date: Started 9/20/96 Completed 9/25/96

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name WALKER WATER SYSTEMS 824 PIERCE ST. TWIN FALLS, ID 83301 Firm No 15
Firm Official Paul Walker Date _____
and
Supervisor or Operator _____ Date _____
(Sign once if Firm Official & Operator)

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Form 238-7
10/91

NW C

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALLPOINT PEN

1. WELL OWNER
Name Gary C. Will
Address PO Box 388 Shoshone Id
Drilling Permit No. 37-92-S-081-009
Well deepened Water Right Permit No. 37-92-S-0081-100 W

2. NATURE OF WORK
☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter		From	
.25 inches	8 inches	+	1 feet	19 feet
_____ inches	_____ inches		_____ feet	_____ feet
_____ inches	_____ inches		_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

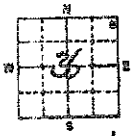
Number		From	To
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 19' Material used in seal: ☐ Cement grout ☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port Sanitary Well Cap

6. LOCATION OF WELL
Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Lincoln
NE¼ NE¼ Sec. 36, T. 4 N ☐ S ☒, R. 16 E ☐ W ☒

7. WATER LEVEL
Static water level 194 feet below land surface
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature 65 °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 87298

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
10	0	7	Top Soil		X
10	7	19	Clay Lava		
8	19	29	"		
	29	31	Red + bl Lava		
	31	39	Red Clay		
	39	44	Gray Lava		
	44	46	Crevasse		
	46	47	Soft bl Lava		
	47	80	Gray Lava		
	80	83	Soft Red + bl Lava		
	83	89	Crevasse		
	89	113	Bl Lava		
	113	116	Tan Clay		
	116	121	Gray + Red Lava		
	121	131	Red Clay		
	131	141	Soft br Lava Cascading	X	
	141	189	Hr Lava Small boulders		
	189	190	Crevasse No Returns	X	
	190	192	Hard		
	192	196	Soft + broken		
	196	217	Hard		
	217	218	Soft	X	
↓	218	230	Hard		

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JUL 07 1992
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Department of Water Resources
Southern Region Office
AUG 19 1992
FILMED
Department of Water Resources
DEC 04 1992

10. Work started 6-9-92 finished 6-10-92

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name Eaton Drilling Firm No. 26
Address Wendell Date 6-16-92
Signed by Drilling Supervisor _____
and
(Operator) Dave Curtz
(If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name Geary C. Will
Address P.O. 368 Shoshone Id
Drilling Permit No. 37-92-S-0081-000
Water Right Permit No.

2. NATURE OF WORK
☐ New well ☒ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other
Thickness / Diameter / From / To
.25 inches 8 inches + 1 feet 19 feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches
Number / From / To
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 19' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded
☐ Solvent Weld ☐ Cemented between strata
Describe access port Sanitary Well Cap

6. LOCATION OF WELL
Sketch map location must agree with written location.
Subdivision Name _____
Lot No. _____ Block No. _____
County Lincoln
Address of Well Site _____ (give at least name of road)
NE ¼ NE ¼ Sec. 36, T. 9 N ☐ or S ☒, R. 16 E ☒ or W ☐

7. WATER LEVEL
Static water level 232 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature 58 °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

87299

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	230	250	Hard Lava		
	250	256	Soft broke Lava		
	256	269	Hard Lava		
	269	269	Soft broke Lava		
	269	270	Clay SSC		
	270	280	Soft broke Lava		
	280	291	Clay-SSC		
	291	297	Soft		
	297	301	Clay		
V	301	305	Hard broke Lava		

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Department of Water Resources
Southern Region Office

called in to get permission to use the original permit #.
EM
NOTE: FOR ORIGINAL well log see #37-92-S-0081-000

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Nov 30 1992
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Department of Water Resources
DEC 04 1992

10. Work started 8-10-92 finished 8-10-92

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name Eaton Drilling Firm No. 26
Address Wendell Date 8-11-92
Signed by Drilling Supervisor _____
and
(Operator) Dave Crosby
(If different than the Drilling Supervisor)

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT 065380

Use Typewriter or Ballpoint Pen

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 37-76-S-0148-000
Other IDWR No _____

2. OWNER:
Name BLACK BUTTE PROP. LLC
Address P.O. BOX 1877
City KETCHUM State ID Zip 83340

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp 4 North ☐ or South ☐ X
Rge 17 East ☐ X or West ☐
Sec 29 ____ 1/4 NE 1/4 NE 1/4 (10 acres / 40 acres / 160 acres)
Gov't Lot ____ County LINCOLN
Lat: : : Long: : :
Address of Well Site _____
City SHOSHONE
(Give at least name of road + Distance to Road or Landmark)
Lt 013 Blk _____ Sub. Name Black Butte Ranch

Black Butte River
1 of 3

4. USE:
☐ X Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ X New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☐ Air Rotary ☐ X Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	39	300#	OVERBORE

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8.625	+1	39	.250	STEEL	☐ X	☐	☐ X	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

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Department of Water Resources
Southern Region

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
235 ft below ground Artesian pressure _____ lb
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
239	45'	280'	3.5

Water Temp 60 Bottom hole temp _____
Water Quality test or comments: _____
Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	11	SURFACE DIRT		X
	11	17	GREY BASALT		X
	17	21	GREY BROWN BASALT		X
	21	23	GREY BASALT		X
	23	27	GREY BROWN		X
	27	36	SOFT CLAY		X
	36	44	GREY BASALT		X
8	44	49	CINDERS SOFT LST CIRCULATION		X
	49	65	SOLID		X
	65	72	SOFT BROKEN		X
	72	75	SOFT		X
	75	80	BROKEN		X
	80	105	SOLID		X
	105	140	GREY BASALT		X
	140	170	GREY BASALT		X
	170	188	DARK GREY		X
	188	207	GREY BASALT CLAY		X
	207	220	RED CLAY		X
	220	224	GREY BASALT CLAY		X
	224	240	DARK GREY		X
	240	250	BLACK		X
	250	260	BLACK BASALT RED	X	
	260	290	BLACK BASALT RED	X	
	290	335	GREY BASALT		X
	335	360	GREY BROWN BASALT		X
	360	401	BROWN BLACK BROKEN	X	
	401	430	BROWN BLACK BROKEN	X	
	430	440	BROWN DECOMPOSED GRANITE	X	
	430	440	SAND GRAVEL CAVING	X	
	440				X

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MICROFILMED
SEP 29 1998
JUL 13 1998
Department of Water Resources

Completed Depth 430' (Measurable)
Date: Started 09/20/96 Completed 09/25/96

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name WALKER WATER SYSTEMS INC. Firm No. 15
Firm Official Fred Walker Date 10/10/96
and
Supervisor or Operator _____ Date 10/10/96
(Sign once if Firm Official & Operator)

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App 8804.0

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No.
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0030123
DRILLING PERMIT NO. 8096648
Water Right or Injection Well No. ID 380389

2. OWNER: Bev & Val Ashton
Name %Magic Homes
Address 5475 Highway 93
City Jerome State ID Zip 83338

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 4 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 32 ____ 1/4 (10 acres) SE 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site 685 North 250 West City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk ____ Sub. Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	5	18	4 S	Poured

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 326 ft
Was drive shoe seal tested? ☒ Y ☐ N How? Air pressure

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	326	.250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☐ N Type ____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method Knife
Screen Type & Method of Installation ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
275	300	1/8 x 3	4 R	6"	Steel	☒	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
246 ft below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

12. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter ____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	2	Topsoil		x
	2	20	Gray basalt		x
	20	83	Fractured gray basalt		x
	83	122	Brown basalt		x
	122	177	Fractured basalt		x
	177	189	Cinders		x
	189	228	Fractured gray basalt		x
	228	240	Brown basalt		x
	240	302	Fractured gray basalt	x	
	302	320	Tan sandy clay		x
	320	326	Fractured gray basalt	x	
6"	326	430	Fractured gray basalt	x	
			actual bore hole diameter is 8-3/4" and 6-1/8"		

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DEC 29 2003
Department of Water Resources
Southern Region

Completed Depth 430 ft. (Measurable)
Date: Started 12-16-03 Completed 12-17-03

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Company Name Elsing Drilling Firm No. 31
Principal Driller Arnold Elsing Date 12-26-03
and
Driller or Operator II Craig Egan Date 12-26-03
Operator I Lloyd Snyder Date 12-26-03
Principal Driller and Rig Operator *Required*.
Operator I must have signature of Driller/Operator II.

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Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APR 23 1993

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name JOESPH BUCKWAY
Address 584 N. 250 W SHOSHONE ID
Drilling Permit No. 37-93-S-0042-000
Water Right Permit No. A37-10237

2. NATURE OF WORK
☐ New well ☐ Deepened ☒ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc in lithologic log section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1½ feet	404 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number		From	To
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet

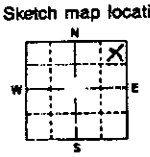
Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 19 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL
Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County LINCOLN
Address of Well Site 584 N 250 W SHOSHONE
(give at least name of road)
NE ¼ NE ¼ Sec. 5, T. 5 N ☐ or S ☒, R. 17 E ☒ or W ☐

APPROFILMED AUG 09 1993

7. WATER LEVEL
Static water level 268 feet below land surface
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
50	330	1

9. LITHOLOGIC LOG 10372

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	7	TOP SOIL		✓
8	7	16	HARD BLACK LAVA		✓
86	16	60	BLACK LAVA		✓
6	60	106	RED CLAY & LAVA		✓
6	106	84	BROWN CLAY & BLK LAVA		✓
6	84	112	RED LAVA		✓
6	112	140	BROWN CLAY & BLK LAVA		✓
6	140	150	BLACK LAVA		✓
6	150	200	BRN CLAY & BLK LAVA		✓
6	200	217	RED LAVA		✓
6	217	230	BRN CLAY & BLK LAVA		✓
6	230	255	BLK LAVA		✓
6	255	290	RED LAVA, SAND & BRN CLAY		✓
6	290	300	GREY LAVA		✓
6	300	320	RED LAVA & BRN CLAY		✓
6	320	360	BLK LAVA, BROWN CLAY, RED LAVA, RED SAND	✓	
6	360	370	RED LAVA	✓	
6	370	378	BLK LAVA	✓	
6	378	388	BRN CLAY, RED LAVA	✓	
6	388	394	BLK LAVA	✓	
6	394	400	RED LAVA CREVICE NO RETURN	✓	
6	400	440	BLK LAVA & TALC	✓	

RECEIVED
APR 06 1993
Department of Water Resources
Southern Region Office

10.
Work started 3-24-93 finished 3-30-93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Firm Name WOOD RIVER DRILLING & PUMP Firm No. 265
Address BOX 837 BELLEVUE, ID 83313
Signed by Drilling Supervisor Ken Smith Date
and
(Operator) _____ (If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Reclamation

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

Department of Reclamation

1. WELL OWNER

Name ROCK CREEK INC.

Address BOX 505 SHOSHONE, IDAHO

Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☒ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6" inches Total depth 473 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6" inches	0 feet	318 feet
.250liner inches	5" inches	289 feet	412 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation inches by inches

Number		From	To
perforations		feet	feet
perforations		feet	feet
perforations		feet	feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name

Type Model No.

Diameter Slot size Set from feet to feet

Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☒ No Size of gravel

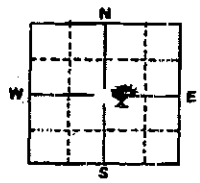
Placed from feet to feet

Surface seal? ☒ Yes ☐ No To what depth 20' feet

Material used in seal ☒ Cement grout ☐ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



•37

County LINCOLN

NW ¼ SE ¼ Sec 33 T 4S N/S, R 17E E/W

7. WATER LEVEL

Static water level 300 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow

Temperature ° F. Quality

Artesian closed-in pressure p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
9 G.P.M	10'	21

9. LITHOLOGIC LOG 39460

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
16"	0	2	TOP SOIL		X
10"	2	6	YELLOW CLAY		X
10"	6	20	GRAY BASALT SOFT 4' HOUR		X
6"	20	55	GRAY BASALT " " "		X
6"	55	65	GRAY BASALT HARD 1' HOUR		X
6"	65	86	(BLUE) SCORIA		X
6"	86	91	(BROWN) CLAY		X
6"	91	126	(GRAY) BASALT 4' HOUR		X
6"	126	135	(RED) SCORIA		X
6"	135	176	(GRAY) BASALT 4' HOUR		X
6"	176	213	(BROWN) SCORIA		X
6"	213	249	(GRAY) BASALT 3' HOUR		X
6"	249	255	(RED) SCORIA WITH WATER		
			CARRYING RED SAND	X	
6"	255	280	(RED) SANDY CLAY WATER		
			UNUSABLE BECAUSE OF SAND	X	
6"	280	285	(RED) SCORIA		
6"	285	318	(GRAY) BASALT HARD RAN 6"		
			CASING TO THIS POINTCASED		
			ABOVE WATER OFF		X
6"	318	338	(GRAY) BASALT		X
6"	338	350	(RED) SCORIA WITH CLAY	X	
6"	350	369	(GRAY) BASALT		X
6"	369	408	(RED) SCORIA WITH CLAY WATER	X	
			WATER CARRYING SANDY SILT		
			WOULD'NT CLEAR PROPERLY		
6"	408	412	HARD SAND STONE- RAN 5"		
			LINER CASED ABOVE WATER OFF		
5"	412	460	HARD SAND STONE		X
5"	460	473	SOFT SAND STONE SOME GRAVEL		
			CARRYING GOOD WATER	X	

10.

Work started 5 AUGUST 69 finished 17 OCT. 69

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

CLAUDE NICHOLSON WELL DRILLING 159
Driller's or Firm's Name Number

BOX 322 SHOSHONE, IDAHO
Address

Claude Nicholson OCT 69
Signed By Date

USE ADDITIONAL SHEETS IF NECESSARY

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen 60029

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 37 - 97 - S - 0029 - 000
Other IDWR No. _____

2. OWNER:
Name Stephen R. Olsen
Address P.O. Box 104
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S — X

Twp 4 North ☐ or South ☒
Rge 16 East ☐ or West ☐
Sec 36 ____ 1/4 SE 1/4 NE 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site _____
City _____
(Give at least name of road + Distance to Road or Landmark)

Lt ____ Blk ____ Sub Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	218	6 S	Poured
Overbore to seal depth				

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	218	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
242 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp ____
Water Quality test or comments: _____
Depth first Water Encountered ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	5	Topsoil		x
	5	23	Gray basalt		x
	23	26	Brown ash		x
	26	99	Gray basalt		x
	99	103	Brown cinders		x
	103	107	Brown basalt		x
	107	118	Broken basalt, lost circulation		x
	118	133	Fractured basalt		x
	133	148	Cinders		x
	148	218	Fractured basalt		x
6"	218	235	Fractured basalt		x
	235	260	Brown basalt	x	
	260	273	REd cinders	x	
	273	300	Fractured gray basalt	x	

RECEIVED
APR 22 1997
Department of Water Resources
Southern Region

RECEIVED
APR 28 1997
Department of Water Resources

Completed Depth 300 ft. (Measurable)
Date: Started 4-16-97 Completed 4-16-97

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Firm Name Elsing Drilling Firm No. 31
Firm Official Arnold Elsing Date 4-22-97
and
Supervisor or Operator Craig Egan Date 4-22-97
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
4/92

C

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

RECEIVED
APR - 8 1993
Department of Water Resources

USE TYPEWRITER OR BALLPOINT PEN

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name Andrew Fitzgerald Four Brothers Dairy
Address 425 N. 250 W. Shoshone Id 83352
Drilling Permit No. 37-93-S-0024-000
Water Right Permit No.

2. NATURE OF WORK ?
☒ New well ☐ Deepened ☒ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☒ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.25 inches	8 inches	+ 3 feet	19 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

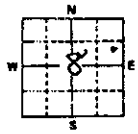
Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 19' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port Sanitary Well Cap

6. LOCATION OF WELL
Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Lincoln
Address of Well Site Same as above
(give at least name of road)
SE ¼ NE ¼ Sec 8, T. 5 N ☐ or S ☒, R 17 E ☒ or W ☐

MICROFILMED AUG 09 1993

7. WATER LEVEL
Static water level 253 feet below land surface
Flowing? ☐ Yes ☒ No G.P.M flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ~60 °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 103773

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
10	0	5	Top Soil		X
10	5	6	Broken Bl Lava		
10	6	8	Br Clay		
10	8	19	Gray Lava		
8	19	61	111		
	61	62	Br Lava		
	62	63	Creusse		
	63	70	Br Lava		
	70	161	Gray Lava		
	161	167	Red Lava		
	167	217	Gray Lava		
	217	221	Br Sand + Clay		
	221	237	Gray Lava		
	237	240	Broken Red + bl Lava		
	240	261	Gray Lava		
	261	285	Br Lava		
	285	291	Bl + Red Lava		
	291	294	Broken Bl + Red Lava + Br Talc	X	
	294	302	Red + bl Lava		
	302	310	Salt + broken Red Lava + Br Clay	X	
	310	348	Bl Lava		
	348	391	Gran. T		
	391	394	Broken Gran. T	X	
	394	396	Granite		
	396	397	Creusse	X	
	397	405	Gran. T		

RECEIVED
MAR 04 1993
Department of Water Resources
Southern Region Office

10.
Work started 2-15-93 finished 2-18-93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed
Firm Name Eaton Drilling Firm No. 26
Address Wendell Date 2-21-93
Signed by Drilling Supervisor Gary Nielson
and
(Operator) Dave Crofts
(If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Basin 37
App 868662
ID 343317

R 771393

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016654
DRILLING PERMIT NO _____
Other IDWR No. _____

2. OWNER:
Name Andrew Fitzgerald
Address 180 4 Mile Rd.
City Shoshone State ID Zip 83330

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 9 ____ 1/4 (10 acres) SE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 160 4 Mile Rd. City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☐ New Well ☒ Modify ☐ Abandonment ☐ Other deepen to 1 more liner

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0	19	200 Lbs.	dry pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+1	19	.250	steel	☒	☐	☐	☐
5"	20	240	.188	steel	☐	☒	☒	☐
					☐	☐	☐	☐

Model Liner Line

Length of Headpipe 1' Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
151 ft. below ground Artesian pressure ____ lb
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	top soil		
8	3	14	black lava		
8	14	17	cinders		
8	17	19	black lava		
6	19	42	black lava		
6	42	47	soft, broken lava & clay		
6	47	96	black lava		
6	96	98	broken lava		
6	98	107	black lava		
6	107	113	medium hard lava		
6	113	116	soft & broken lava		
6	116	126	hard lava		
6	126	130	soft, broken lava & clay		
6	130	144	hard lava		
6	144	146	broken lava		
6	146	211	hard lava		
6	211	218	medium hard lava		
6	218	220	soft & broken lava		
6	220	236	medium hard lava & breaks		
6	236	251	hard lava		
6	251	254	broken lava	X	
6	254	265	hard lava		
5	265	270	medium hard lava		
5	270	275	soft lava	X	
5	275	280	medium lava		
5	280	283	broken lava	X	
5	283	299	hard lava		
5	299	302	soft broken lava & cinders	X	

RECEIVED
MAY 15 2002
Department of Water Resources
Southern Region

Completed Depth 302' (Measurable)
Date: Started 4/1/2002 Completed 4/1/2002

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official Larry Eaton Date 4/1/2002
and
Driller or Operator [signature] Date 4/1/2002
(Signature of Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37
Agp 865987
Per 768740

IP 340733

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016336
DRILLING PERMIT NO.
Other IDWR No.

2. OWNER:
Name Four Bros. Dairy
Address 427 N. 250 W.
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 9 ____ 1/4 (10 acres) SW 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 420 N. 250 W.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other stockwater

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0	19	200 lbs.	dry pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
8"	+1	19	.250	steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1' Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☒ Screens Screen Type stainless steel

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
275	280	10		71/2	steel	☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
4 ft. below ground Artesian pressure ____ lb.
pth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
70+			

Water Temp <85 Bottom hole temp ____
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	4	top soil		
10	4	7	black lava		
10	7	8	broken		
10/8	8	49	black lava		
8	49	56	broken lava & brown clay		
8	56	78	black lava		
8	78	82	broken lava		
8	82	112	black lava		
8	112	116	medium hard black lava		
8	116	122	broken lava		
8	122	151	hard lava		
8	151	154	soft broken lava		
8	154	177	hard lava		
8	177		soft, broken, cinders &		
		183	rocks		
8	183	192	medium hard & breaks		
8	192	196	soft & broken		
8	196	206	hard lava		
8	206	222	cinder & loose rocks		
8	222	262	black lava		
8	262	266	soft, broken & cinders	X	
8	266	268	medium hard lava		
8	268	274	black lava		
8	274	281	sand & gravel	X	
8	281	289	hard lava		
8	289	292	broken lava		
8	292	349	hard & breaks		
8	349	362	medium hard & breaks		
8	362	405	hard lava		
			cement in hole 4'-225' 12		
			yrds. then drill out to 8"		

RECEIVED
JUL 17 2001
Department of Water Resources

RECEIVED
JUL - 6 2001
Department of Water Resources
Southern Region

Completed Depth 402' (Measurable)
Date: Started 6/1/2001 Completed 6/4/2001

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official ____ Date 7/5/01
and
Driller or Operator ____ Date 7/5/01
(Sign once if Firm Official & Operator)
Helper

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT 054460

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
_____ 1/4 _____ 1/4 _____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0008395
DRILLING PERMIT NO. 37-99-S-0078-000
Other IDWR No 37-07413B

2. OWNER:
Name 4-Bros Dairy Inc.
Address 427 N. 250 W.
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 9 NW 1/4 (10 acres) NE 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot _____ County Lincoln
Lat: Long:
Address of Well Site 500 N. 240 W.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt _____ Blk _____ Sub. Name _____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other dairy

5. TYPE OF WORK: check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☒ Other deepen

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS:
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
328 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
200+			

Water Temp. <85 Bottom hole temp _____
Water Quality test or comments: _____
Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	505	507	black lava		
8	507	511	medium hard lava		
8	511	514	black lava		
8	514	543	black ash & talc	X	
8	543	546	soft broken talc	X	
8	546	567	black ash		
8	567	616	black lava		
8	616	621	red/black ash & talc	X	
8	621	639	granite		
8	639	644	granite		
8	644	650	soft broken granite	X	

RECEIVED
OCT 19 1999
Department of Water Resources

RECEIVED
SEP 03 1999
Department of Water Resources
Southern Region

MICROFILMED
NOV 30 1999

Completed Depth 650' (Measurable)
Date: Started 7/28/99 Completed 7/29/99

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & Pump Service, Inc. Firm No. 26
Firm Official _____ Date 8/10/99
and
Driller or Operator _____ Date 8/9/99
(Sign once if Firm Official/Operator)

FORWARD WHITE COPY TO WATER RESOURCES

3758-S-0028-C) C

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES

East Well #2

WELL DRILLER'S REPORT

RECEIVED 065401

Office Use Only
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 006248 9

DRILLING PERMIT NO. 57

Other IDWR No. 37-074 ISD

JUL 0 1 1998

Department of Water Resource
Southern Region

11. WELL TESTS: ☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. 56 F Bottom hole temp. ____

Water Quality test or comments: ____

Depth first Water Encounter ____

2. OWNER:

Name G. Bros Dairy Inc

Address 427 256 W

City Shoshone State Id Zip 83352

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N / W / E / S — a

Twp. 5 North ☐ or South ☒

Rge. 17 East ☒ or West ☐

Sec. 19 ____ 1/4 (10 acres) NW 1/4 (40 acres) NW 1/4 (160 acres)

Gov't Lot ____ County Lincoln

Lat: : : Long: : :

Address of Well Site ____

City ____

(Give at least name of road + Distance to Road or Landmark)

Lt ____ Blk. ____ Sub Name ____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other Dairy

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Benton. Te	0	19	300 lbs	
Cement	12	400	5 yards	

Was drive shoe used? ☐Y ☒N Shoe Depth(s) ____

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8	+2	419	.25	Steel	☒	☐	☐	☐
	1				☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1 Length of Tailpipe ____

RECEIVED
SEP 23 1998

JUL 22 1998

Department of Water Resources

9. PERFORATIONS/SCREENS

Perforations Method ____

Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

26 ft. below ground Artesian pressure ____ lb.

Depth flow encountered ____ ft. Describe access port or control devices: Well Cap

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	6	Top soil		
	6	47	Black lava		
	47	52	Broken, Cinders		
	52	56	hard		
	56	57	Crevasse		
	57	59	Broken Cinders		
	59	179	Hard Black lava		
	179	187	Med hard Red lava		
	187	194	Black lava		
	194	196	Broken		
	196	302	Black lava		
	302	304	Broken		
	304	308	Med hard		
	308	311	Soft, Broken Cinders		
	311	314	Med hard		
	314	319	" " Cinders		
	319	322	Soft, Red white Sand		
	322	326	Brown Clay		
	326	328	Broken, Brown Sand		
	328	356	Black lava		
	356	359	Broken	X	
	359	366	Black lava		
	366	372	Soft Broken lava	X	
	372	379	Black lava		
	379	390	Med hard Breaks, Clay		
	390	419	Soft Br Silty Sands		
J	419	426	Bl Lava Ash		
8	420	458	Bl Ash MICROFILMED		
	458	444	Broken	X	
	444	449	Bl Ash		
	449	469	Bl Lava		
	469	471	Broken + Cinders	X	
	471	505	Hard + breaks + TALC	X	

Completed Depth 505 (Measurable)

Date: Started 5-7-98 Completed 5-9-98

13. DRILLER'S CERTIFICATION

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

Company Name Eaton Drilling Firm No. 26

Firm Official [signature] Date 6-12-98

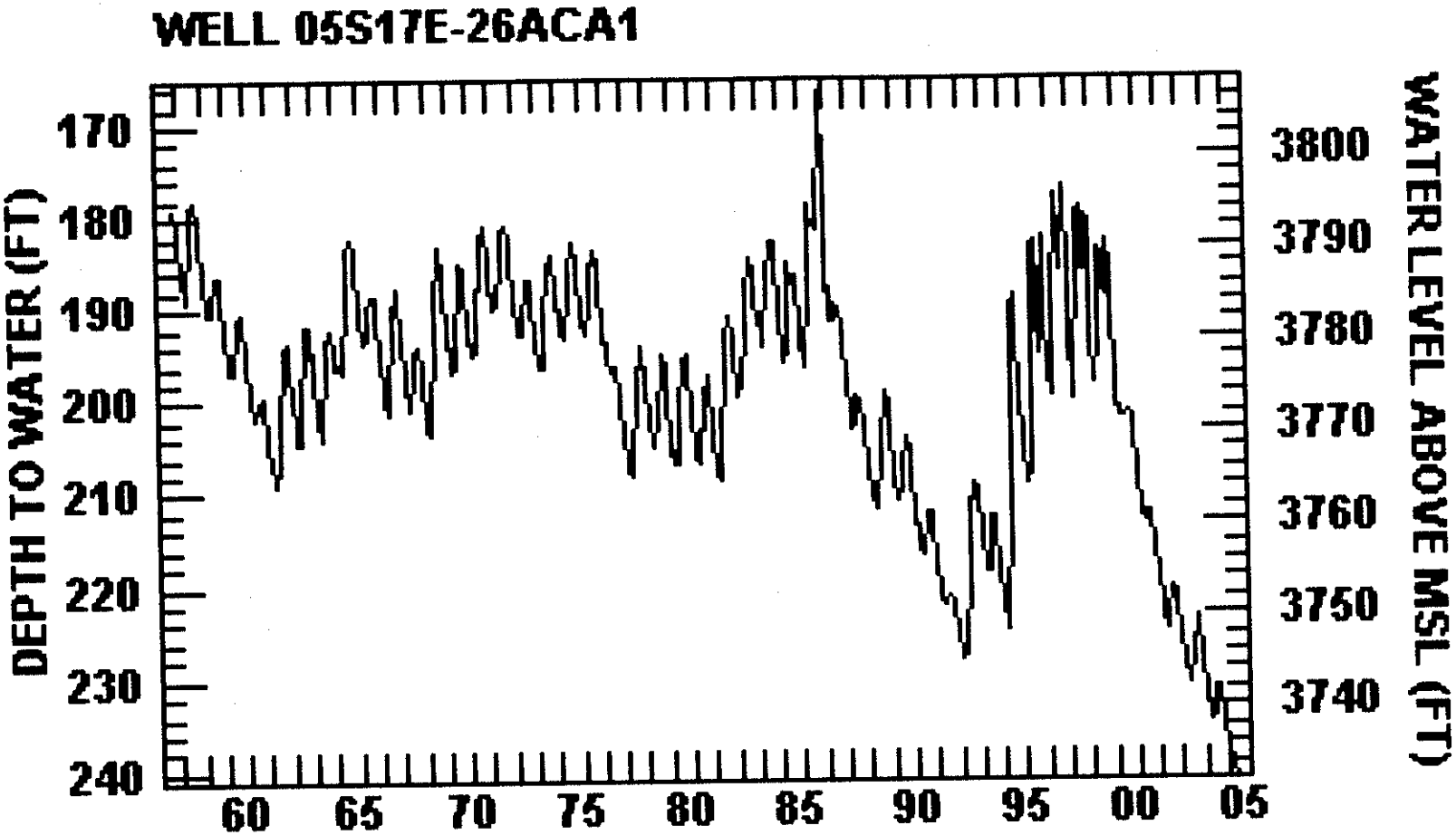
and

Driller or Operator [signature] Date 6-12-98

(Sign once if Firm Official & Operator)

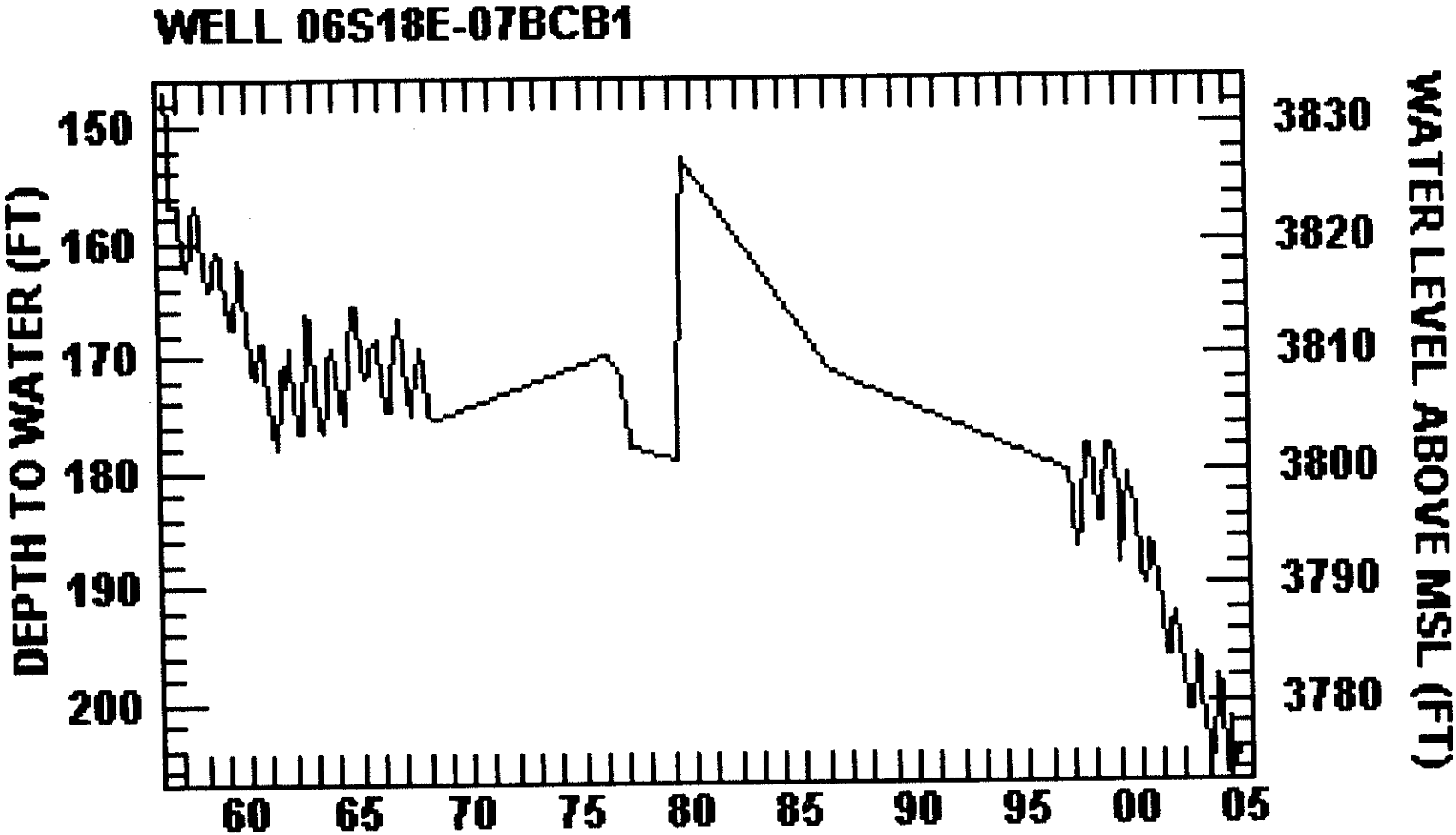
FORWARD WHITE COPY TO WATER RESOURCES

4-Bros Dairy Transfer Application 71607



Appendix D Ground Water Levels Monitoring Well 05S17E-26ACA1, Source USGS

4-Bros Dairy Transfer Application 71607



Appendix E Ground Water Levels Monitoring Well 06S18E-07BCB1, Source USGS

1816

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

RECEIVED
MAR 17 1975

State law requires that this report be filed with the Director, Department of Water Resources within 10 days after the completion or abandonment of the well.

Department of Water Resources
Southern District Office

WELL OWNER

Name HERB McCOWAN

Address RT 1 DIETRICH IDAHO

Owner's Permit No. 37-7413 superceded by SRBA decreed right 37-20613

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning) J.F. 7/19/05

3. PROPOSED USE

☐ Domestic ☑ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☑ Cable ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 12 inches Total depth 225 feet

Casing schedule: ☑ Steel ☐ Concrete

Thickness	Diameter	From	To
5/16 inches	12 inches	+1 feet	-20 feet
____ inches	____ inches	____ feet	____ feet
____ inches	____ inches	____ feet	____ feet
____ inches	____ inches	____ feet	____ feet
____ inches	____ inches	____ feet	____ feet

Was casing drive shoe used? ☐ Yes ☑ No

Was a packer or seal used? ☐ Yes ☑ No

Perforated? ☐ Yes ☑ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation ____ inches by ____ inches

Number	From	To
____ perforations	____ feet	____ feet
____ perforations	____ feet	____ feet
____ perforations	____ feet	____ feet

Well screen installed? ☐ Yes ☑ No

Manufacturer's name ____

Type ____ Model No. ____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet

Diameter ____ Slot size ____ Set from ____ feet to ____ feet

Gravel packed? ☐ Yes ☑ No Size of gravel ____

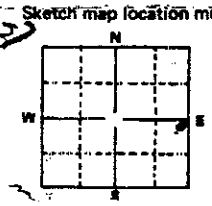
Placed from ____ feet to ____ feet

Surface seal depth -20 Material used in seal ☑ Cement grout ☐ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☑ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name ____

Lot No. ____ Block No. ____

County ____

NE ¼ SE ¼ Sec. 20, T. 6 N, R. 18 E

7. WATER LEVEL

Static water level 130 feet below land surface

Flowing? ☐ Yes ☑ No G.P.M. flow ____

Temperature ____ ° F. Quality ____

Artesian closed-in pressure ____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

39324

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
12"	0	17	OVERBURDEN		X
	17	65	GRAY BASALT		X
	65	67	SAND		X
	67	126	BROWN BASALT		X
	126	129	SAND LOST CUTTINGS	X	
	129	155	GRAY BASALT		X
	155	209	BROWN BASALT		X
	209	225	LOST CUTTINGS	X	

10.

Work started 19 JAN. 1975 finished 6 MAR 1975

11. DRILLER'S CERTIFICATION

Firm Name K & R LAND & WATER Firm No. 283

Address RT 1 BOX 6 DIETRICH IDAHO Date 10 MAR. 1975

Signed by (Firm Official) Norman Ridinger

and

(Operator) Norman Ridinger

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

WELL LOG AND REPORT TO THE STATE RECLAMATION ENGINEER OF IDAHO

RECEIVED
MAR 2 1956
Department of Reclamation

Log No. _____
Rec. _____, 19____
Well No. 36190
Permit No. _____
(DO NOT FILL IN)

Owner M. R. THORPE Address SHOSHONE, IDAHO

Driller J. EMMETT SMITH, INC. Address JEROME, IDAHO Lic. No. 11

Location of Well: NE ¼ NW ¼ Sec. 3, T. 5 N/S, R. 17 E/W LINCOLN County,

and _____ feet N/S, and _____ feet E/W from _____ Corner of _____ ¼ _____ ¼ Sec. _____

Size of Drilled Hole 6¼" Total depth of Well 307'

Give depth of standing water from surface 278' Water Temp _____ °Farenheit

On pumping test delivery was 15 g.p.m. or _____ c.f.s. Drawdown was _____ feet.

Size of pump and motor used to make the test _____

Length of time pumped during check was 1 hr., _____ minutes.

If flowing well, give flow in c.f.s. _____ or g.p.m. _____ and shut in pressure _____

If flowing well, describe control works _____
(TYPE AND SIZE OF VALVE, ETC.)

Water will be used for DOMESTIC Weight of casing per linear foot 19.18

Thickness of casing .280 Casing material STEEL PIPE
E.G., PIPE, CONCRETE, WOOD.

Diameter, length and location of casing 6", 8' 6", FROM 0 TO 8' 6"
(CASING 12" IN DIAMETER AND UNDER GIVE INSIDE DIAMETER; CASING OVER 12" IN DIAMETER GIVE OUTSIDE DIAMETER.)

Number and size of perforations _____ located _____ feet to _____ feet from surface of ground.

Other perforations _____

Date of commencement of well 10-28-55 Date of completion of well 11-15-55

Type of well rig CABLE TOOLED

CASING RECORD

DIAM. CASING	FROM FEET	TO FEET	LENGTH	REMARKS — SEALS GROUTING ETC
6"	0	8' 6"	8' 6"	CASING DRIVEN IN, COUPLING USED INSTEAD OF DRIVE SHOE

GS

GENERAL INFORMATION—Pumping Test, Quality of Water, Etc.

NENW 5.3 S 5.5 I7 E

WELL LOG

From Feet	To Feet	Type of Material	Drilling Time Hrs.	Drilling Time Min.	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
0	6	TOP SOIL				
6	40	LAVA GRAY CREVICE				
40	82	LAVA GRAY				
82	184	LAVA GRAY CREVICE				
184	221	LAVA GRAY POROUS				
221	230	CLAY AND ROCK				
230	284	LAVA GRAY SOFT			284	
284	307	CINDERS AND BROKEN ROCK				
		If more space is required use Sheet No. 2				

WELL DRILLERS STATEMENT

This well was drilled under my jurisdiction and the above information is true and correct to the best of my knowledge and belief.

Signed J. EMMETT SMITH, INC.

By J. Emmett Smith

License No. 11

Dated DECEMBER 14, , 19 55

RECEIVED
DEC 11 1961
Department of Reclamation

WELL LOG AND REPORT OF THE STATE RECLAMATION ENGINEER OF IDAHO

36191

Permit No. _____ Well No. _____ County LINCOLN

Owner MRS. M. R. (EUNICE) THORPE

Address SHOSHONE, IDAHO

Driller SMITH DRILLING & PUMP, INC.

Address 365 WEST MAIN JEROME, IDAHO

Well location LOT 3 SE ¼ NW ¼ Sec. 3, T 5S N/S, R 17 E/W EBM

Size of drilled hole HOLE WAS 6½" WE RE-DRILLED ON DOWN WITH 5 5/8" HOLE. WE DRILLED HOLE THE FIRST TIME IN 1955. Total depth of well 338'

Locate well in section

NW¼	NE¼
SW¼	SE¼

Give depth to standing water from the ground 299' Water temp. _____ °Fahr.

On "Pumping Test" delivery was _____ g.p.m. or _____ c.f.s. Drawdown was _____ feet

Size of pump and motor used to make test _____

Length of time of test 1 hours _____ minutes.

If flowing well, give flow _____ c.f.s. or _____ g.p.m. and of shut off pressure _____

If flowing well, described control works _____
(TYPE AND SIZE OF VALVE, ETC.)

Water will be used for _____ Weight of casing per lineal foot _____

Thickness of casing _____ Casing material _____
(STEEL, CONCRETE, WOOD, ETC.)

Diameter, length and location of casing _____
(CASING 12" IN DIAMETER OR LESS, GIVE INSIDE DIAMETER; CASING OVER 12" IN DIAMETER, GIVE OUTSIDE DIAMETER)

CASING RECORD

Diam. Casing	From Feet	To Feet	Length	Remarks—seals, grouting, etc.

Number and size of perforations _____ located _____ feet to _____ feet from ground

_____ _____ _____

_____ _____ _____

Date of commencement of well 11-27-61 Date of completion of well 11-29-61

SENW S.3 5S 17E

wds

WELL LOG

From Feet	To Feet	Type of Material	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
0	307	OLD HOLE WHICH WE DRILLED IN 1955. OLD WELL WAS 307' DEEP AND THE WATER LEVEL WAS 278' DEEP. WE DRILLED ON DOWN TO 338' AND WATER LEVEL IS NOW 299'. HOLE IS 6¼" TO 307' AND 5 5/8" FROM 307' TO 338'.		
307	324	LOOSE LAVA	YES	
324	338	GRAY LAVA	NO	
		If more space is required use Sheet No. 2		

WELL DRILLER'S STATEMENT

This well was drilled under my supervision and the above information is true and correct to the best of my knowledge and belief.

Signed Smith Drilling & Pump Co. Inc

By J. Emmett Smith

License No. 11

Dated NOVEMBER 30, 1961

Form 238-7
4/92

APR 23 1993

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name JOSEPH BUCKWALD
Address 584 N. 250 W SHOSHONE ID
Drilling Permit No. 37-93-S-0042-000
Water Right Permit No. A37-10237

2. NATURE OF WORK
☐ New well ☐ Deepened ☒ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1½ feet	404 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

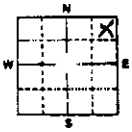
Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 9 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL
Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County LINCOLN
Address of Well Site 584 N 250 W SHOSHONE
(give at least name of road)
NE ¼ NE ¼ Sec. 5, T. 5 N ☐ or S ☒, R. 17 E ☒ or W ☐

ARCHIVE FILMED
AUG 09 1993

7. WATER LEVEL
Static water level 268 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
30	330	1

9. LITHOLOGIC LOG 103772

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	7	TOP SOIL		✓
8	7	16	HARD BLACK LAVA		✓
8	16	60	BLACK LAVA		✓
6	60	106	RED CLAY & LAVA		✓
6	106	84	BROWN CLAY & BLK LAVA		✓
6	84	112	RED LAVA		✓
6	112	140	BROWN CLAY & BLK LAVA		✓
6	140	150	BLACK LAVA		✓
6	150	200	BRN CLAY & BLK LAVA		✓
6	200	217	RED LAVA		✓
6	217	230	BRN CLAY & BLK LAVA		✓
6	230	255	BLK LAVA		✓
6	255	290	RED LAVA, SAND & BRN CLAY		✓
6	290	300	GREY LAVA		✓
6	300	320	RED LAVA & BRN CLAY		✓
6	320	360	BLK LAVA, BROWN CLAY, RED LAVA, RED SAND	✓	
6	360	370	RED LAVA	✓	
6	370	378	BLK LAVA	✓	
6	378	388	BRN CLAY RED LAVA	✓	
6	388	394	BLK LAVA	✓	
6	394	400	RED LAVA CAVE NO RETURN	✓	
6	400	440	BLK LAVA & TALC	✓	

RECEIVED
APR 06 1993
Department of Water Resources
Southern Region Office

10.
Work started 3-24-93 finished 3-30 93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name WOOD RIVER DRILLING & PUMP Firm No. 265
Address BOX 837 BELLEVUE, ID 83313 Date
Signed by Drilling Supervisor Ken Smith
and
(Operator) RON McDONALD
(If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Basin 37 D 352164
App 87266
Per 781081

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

CA

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0023232
DRILLING PERMIT NO _____
Other IDWR No. _____

2. OWNER:
Name Oscar Gonzalas
Address 535 Picabo Rd.
City Bellevue State ID Zip 83313

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 5 ____ 1/4 NE 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 150 East Rd
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. 33 Blk. ____ Sub. Name Vista Alegre

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	-20	198	20 bags	dry pour

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 198
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+2	198	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 2' Length of Tailpipe _____

9. PERFORATIONS/SCREENS:
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
220 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: _____
Depth first Water Encounter 236'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	7	top soil, sand & clay		
8	7	18	medium hard lava		
8	18	30	medium lava		
8	30	47	soft lava, breaks & cinders		
8	47	58	medium lava		
8	58	64	soft lava, ash & clay		
8	64	72	medium lava		
8	72	77	soft lava & breaks		
8	77	88	medium lava		
8	88	90	breaks & cinders		
8	90	97	medium lava		
8	97	110	soft lava, breaks & cinders		
8	110	130	soft lava		
8	130		soft fractured lava,		
		197	breaks, cinders & clay		
8	197	236	medium lava		
6	236	244	soft lava, breaks & cinders	X	
6	244	250	medium lava		
6	250	283	soft lava & breaks	X	

RECEIVED
AUG 23 2002
Department of Water Resources
Southern Region

Completed Depth 283' (Measurable)
Date: Started 7/22/2002 Completed 7/23/2002

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official Larry Eaton Date 7/23/2002
and
Driller or Operator Marvin Eaton Date 7/23/2002
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37
App #72666
Rev 78(08)

ID 352164

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

CA

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0023232
DRILLING PERMIT NO. _____
Other IDWR No. _____

2. OWNER:
Name Oscar Gonzalas
Address 535 Picabo Rd.
City Bellevue State ID Zip 83313

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 13 ____ 1/4 (10 acres) NE 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 150 East Rd.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. 33 Blk. ____ Sub. Name Vista Alegre

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	-20	198	20 bags	dry pour

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 198
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+2	198	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 2' Length of Tailpipe _____

9. PERFORATIONS/SCREENS:
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
220 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: _____
Depth first Water Encounter 236'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Stone Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	7	top soil, sand & clay		
8	7	18	medium hard lava		
8	18	30	medium lava		
8	30	47	soft lava, breaks & cinders		
8	47	58	medium lava		
8	58	64	soft lava, ash & clay		
8	64	72	medium lava		
8	72	77	soft lava & breaks		
8	77	88	medium lava		
8	88	90	breaks & cinders		
8	90	97	medium lava		
8	97	110	soft lava, breaks & cinders		
8	110	130	soft lava		
8	130		soft fractured lava,		
		197	breaks, cinders & clay		
8	197	236	medium lava		
6	236	244	soft lava, breaks & cinders	X	
6	244	250	medium lava		
6	250	283	soft lava & breaks	X	

RECEIVED
AUG 23 2002
Department of Water Resources
Southern Region

Completed Depth 283' (Measurable)
Date: Started 7/22/2002 Completed 7/23/2002

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official _____ Date 7/23/2002
and
Driller or Operator Marvin Day Date 7/23/2002
(Sign on all Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37 Well ll 350604 Permit 778 App# 872012

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

CA

Office Use Only
Well ID No.
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D _____
DRILLING PERMIT NO. _____
Water Right or Injection Well No. M78913

2. OWNER:
Name Pantone, Russell
Address 325 W 620 N
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec. 5 ____ 1/4 NW 1/4 NW 1/4
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site 325 W 620 N
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☒ Abandonment ☐ Other ____

6. DRILL METHOD:
☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Cement	0	175	9 cb ft	drypour

Was drive shoe used? ☐Y ☐N Shoe Depth(s) ____
Was drive shoe seal tested? ☐Y ☐N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐Y ☐N Type ____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method ____
Screen Type & Method of Installation ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
____ft. below ground Artesian pressure ____lb
Depth flow encountered ____ft Describe access port or control devices: ____

12. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
____ Depth first Water Encounter ____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
			Customer abandoned hole		
	0	175	Filled w/ cement		
			weld steel plate on top		

RECEIVED
JUL 02 2003
Department of Water Resources
Southern Region

Completed Depth 175 (Measurable)
Date: Started 06/18/03 Completed 06/18/03

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were compiled with at the time the rig was removed.

Company Name Walker Water Systems, Inc Firm No. 15
Principal Driller Ed Walk Date 6/30/03
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37 APP872011 Per 778912 Tw 50603

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

CA

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0023161
DRILLING PERMIT NO ____-____-____
Other IDWR No. _____

2. OWNER:
Name Pantone, Russell
Address 325 W 620 N
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 5, ____ 1/4 NW 1/4 NW 1/4
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site 325 W 620 N
City Shoshone
(Give at least name of road + Distance to Road or Landmark)

Lt _____ Blk _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☒ Other _____

DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	58	10 bags	Overbore

Was drive shoe used? ☐Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6.625	1.5	58.5	250	steel	☒	☐	☒	☐
5.5625	-55	375	188	steel	☐	☒	☒	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
Perforations Method _____
Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
275	375	.125	x3			☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
255 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
U/N			

Water Temp 56 Bottom hole temp. ____
Water Quality test or comments: _____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	Surface		
	3	13	Grey Basalt		
	13	14	Fracture Lst Circulation		
	14	16	Solid		
	16	23	Broken Caving		
	23	32	Solid		
	32	41	Clay & Gravel		
	41	52	Solid Grey Basalt		
	52	54	Broken		
	54	60	Grey Basalt		
	60	71	Grey Basalt		
	71	73	Brown Basalt		
	73	84	Brown Basalt		
	84	85	Fracture Lst Circulation		
	85	105	Solid		
	105	108	Red Ash		
	108	127	Solid		
	127	132	Broken Some Loose Rock		
	132	144	Solid		
	144	145	Soft		
	145	199	Solid Very Hard		
	199	215	Softer		
	215	240	Very Hard		
	240	250	Softer		
	250	265	Solid		
	265	268	Soft		
	268	273	Solid		
	273	295	Softer		
	295	320	Solid		
	320	330	Softer		
	330	355	Solid		
	355	375	Fractured		

RECEIVED
JUL 12 2002
Department of Water Resources
Southern Region

Completed Depth 375 (Measurable)
Date: Started 06-21-02 Completed 07-05-02

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Walker Water Systems, IN Firm No. 15
Firm Official _____ Date 7/11/02
and
Driller or Operator _____ Date _____
(Sign once if Firm Official's Operator)

FORWARD WHITE COPY TO WATER RESOURCES

App 84811

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0034320
DRILLING PERMIT NO. 824202
Other IDWR No. ID 394849

2. OWNER:
Name Mike Woodall
Address P.O. Box 3101
City Hailey State ID Zip 83333

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec 6 ____ 1/4 (10 acres) SW 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 531 N. 170 E. Desi Ln.
(Give at least name of road + Distance to Road or Landmark)
City Shoshone
Lt. ____ Blk. ____ Sub. Name Sky High Estates

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK: check all that apply
☒ New Well ☐ Modify ☐ Abandonment ☐ Other (Replacement well, etc.) ____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

RECEIVED
OCT 15 2004
Department of Water Resources
Southern Region

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0	18	200 lbs.	dry pour

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 321
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+2	321	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 2' Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
312 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp <85 Bottom hole temp. <85
Water Quality test or comments: ____
Depth first Water Encounter 240

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	top soil		
8	3	4	broken lava & rock		
8	4	18	medium hard lava		
8	18	24	medium lava		
8	24	25	soft lava & cinders		
8	25	30	medium lava		
8	30	33	breaks		
8	33	40	medium lava		
8	40	46	soft lava		
8	46	59	medium lava		
8	59	63	soft lava, breaks & cinders		
8	63	98	medium lava		
8	98	102	breaks		
8	102	104	medium lava		
8	104	111	medium soft lava		
8	111	114	medium hard lava		
8	114	147	medium lava		
8	147	152	medium soft lava & breaks		
8	152	172	soft lava, ash & clay		
8	172	185	medium lava		
8	185	194	soft lava		
8	194	201	medium soft lava		
8	201	230	medium lava		
8	230		soft lava, ash, clay &		
		251	cinders	X	
8	251	254	medium lava		
8	254	255	soft lava & ash	X	
8	255	265	medium lava		
8	265	283	clay, ash & cinders	X	
8	283	290	clay		
6	290	333	clay		
6	333	347	medium lava		
6	347	349	soft lava & breaks	X	
6	349	397	medium lava		
6	397	401	soft lava	X	
6	401	465	medium lava		

Continued on next page

Completed Depth 470' (Measurable)
Date: Started 9/8/2004 Completed 9/29/2004

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official Larry Hudson Date 10/1/2004
and
Driller or Operator Aaron Stout Date 10/1/2004
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

Page 2

1. WELL TAG NO. D 0034320
DRILLING PERMIT NO _____
Other IDWR No. _____

2. OWNER:
Name Mike Woodall
Address P.O. Box 3101
City Hailey State ID Zip 83333

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 6 ____ 1/4 (10 acres) SW 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 531 N. 170 E. Desi Ln.
(Give at least name of road + Distance to Road or Landmark) City Shoshone
Lt ____ Blk. ____ Sub. Name Sky High Estates

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☐ 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	

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS:
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
____ ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	465	470	talc, black ash & sand	X	

RECEIVED
OCT 15 2004
Department of Water Resources
Southern Region

Completed Depth 470' (Measurable)
Date: Started 9/8/2004 Completed 9/29/2004

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official _____ Date 10/1/2004
and
Driller or Operator _____ Date 10/1/2004
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

C

Form 238-7
6/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT 065984

Use Typewriter or Ballpoint Pen

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 0 000 207
Other IDWR No. 37-97-S-0106-000

2. OWNER:
Name Derrick Peak
Address 408 W. 520 N.
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 6 ____ 1/4 SE 1/4 SW 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site 408 W 520 N
City Shoshone
(Give at least name of road + Distance to Road or Landmark)

Lt ____ Blk ____ Sub Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Cement Pounds	METHOD
Bentonite	-1	19	300	Overbore

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	19	.025	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
		N/A				☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
200 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. < 85 Bottom hole temp ____
Water Quality test or comments: ____
Depth first Water Encountered ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8 5/8	0	4	top Soil		
8 5/8	4	6	Hard pan		
8 5/8	6	18	Lava Black		
6"	18	32	Lava Black		
6"	32	33	Red Ash		
6"	33	47	Gray Clay		
6	47	185	Lava		
6	185	255	No Cutting	X	

RECEIVED
SEP 04 1997
Department of Water Resources
Southern Region
RECEIVED
OCT 10 1997
Department of Water Resources

Completed Depth 254' (Measurable)
Date: Started 8-21-97 Completed 8-22-97

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Firm Name Eaton Drilling Firm No. 26
Firm Official [signature] Date 8-26-97
and
Supervisor or Operator [signature] Date 8-25-97
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

App # 3429

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0034144
DRILLING PERMIT NO. 817928
Other IDWR No. 388596

2. OWNER:
Name Y-R Homes
Address 5655 HWY 93
City Jerome State ID Zip 83338

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 6 ____ 1/4 (10 acres) SE 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site Heather Ln. app 520 N.
150 E. (Give at least name of road + Distance to Road or Landmark) City Shoshone
Lt. ____ Blk ____ Sub. Name Sky High Estates

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ 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	
bentonite	6	184	1000 lbs	dry pour

Was drive shoe used? ☒Y ☐N Shoe Depth(s) ____
Was drive shoe seal tested? ☐Y ☒N How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+2	238	.280	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1 Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
184 ft. below ground Artesian pressure ____ lb
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	top soil & clay		
8	3	18	medium hard lava		
8	18	37	medium lava		
8	37	42	soft broken lava & cinders		
8	42	54	medium soft lava		
8	54	55	soft broken lava		
8	55	70	medium lava		
8	70	73	soft broken lava & cinders		
8	73	102	medium hard lava		
8	102	115	medium soft lava		
8	115	134	medium lava		
8	134	145	soft lava & ash		
8	145	156	medium soft lava & breaks		
8	156	175	medium hard lava		
8	175	187	medium lava & breaks		
8	187	199	medium hard lava		
8	199	203	soft lava & breaks	X	
8	203	217	medium hard lava		
8	217	221	soft lava, breaks & ash	X	
8	221	234	clay, cinders & ash	X	
8	234	243	medium soft lava & breaks	X	
6	243	251	medium lava & breaks		
6	251		clay, ash, pea gravel &		
		277	sand	X	
6	277	283	medium lava		

RECEIVED
JUL 30 2004
Department of Water Resources
Southern Region

Completed Depth 258' (Measurable)
Date: Started 6/25/2004 Completed 6/28/2004

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official ____ Date 7/1/2004
and
Driller or Operator ____ Date 7/1/2004
(Signatures if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
7/94

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ball Point Pen

49705

1. DRILLING PERMIT NO. 37-95-S-0058-000
Other IDWR No.

2. OWNER:
Name Kenneth J + Kathy G. Peterson
Address 495 N. - 375 W.
City Shoshone State Id Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 7 ____ 1/4 SW 1/4 NE 1/4
(10 acres / 40 acres / 160 acres)
Gov't Lot ____ County Lincoln

Address of Well Site Same
City Shoshone
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. PROPOSED USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK
☒ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD
☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Ben Tonite	0	19	300 lb	

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? Y ☐ N ☒ How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	1	19	.28	Steel	☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
214 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: Well Cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. ~85° Bottom hole temp. ____
Water Quality test or comments: ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	5	Top Soil		
6	5	19	Bl Lava		
6	19	22	" "		
	22	49	Gray "		
	49	50	Broken Bl Lava		
	50	56	Red Ash		
	56	69	Bl Lava		
	69	74	Br Clay		
	74	151	Bl Lava		
	151		Red + bl Lava		
	157	201	Bl Lava		
	201	231	Gray Lava		
	231	234	Broken		
✓	234	245	Gravel	X	

RECEIVED
JUN 19 1995
Department of Water Resources

RECEIVED
JUN 02 1995
AUG 15 1995
Department of Water Resources
Southern Region

Completed Depth 234 (Measurable)
Date: Started 5-24-95 Completed 5-24-95

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Eaton Drilling Firm No. 26
Firm Official ____ Date 5-29-95
and
Supervisor or Operator Dave Craig Date 5-29-95
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37
App 86973
Per 77247

0344291

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016844
DRILLING PERMIT NO. _____
Other IDWR No. _____

2. OWNER:
Name Terry Sherman
Address 435 N. 375 W.
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec. 7 ____ 1/4 (10 acres) SE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 435 N. 375 W.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☐ New Well ☒ Modify ☐ Abandonment ☒ Other deepen

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
191 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
30+			

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	225	241	black lava		
6	241	244	broken lava		
6	244	257	black lava		
6	257	262	broken lava & cinders	X	
6	262	276	black lava		
6	276		soft broken lava & brown		
		280	clay	X	
6	280	285	black lava		

RECEIVED
JAN - 9 2002
Department of Water Resources
Southern Region

Completed Depth 285' (Measurable)
Date: Started 12/9/2001 Completed 12/9/2001

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official _____ Date 12/9/2001
and
Driller or Operator _____ Date 12/9/2001
(Sign once if Firm Official is Operator)

FORWARD WHITE COPY TO WATER RESOURCES

62508

RECEIVED

JAN 12 1996

Department of Water Resources
Southern Region

Form 238-7
7/94

Use Typewriter or Ball Point Pen

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. DRILLING PERMIT NO. 37 - 95 - S - 0214 - 200
Other IDWR No.

2. OWNER:
Name David O'Dell orpatricia O'Dell
Address 435 N 375W Smiling A Ranch
City Shoshone State Id Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S — X

Twp 5S North ☐ or South ☐
Rge 17E East ☐ or West ☐
Sec 7 1/4 SE 1/4 SE 1/4
Gov't Lot ____ County Lincoln

Address of Well Site 435 N 375W
City Shoshone
(Give at least name of road + Distance to Road or Landmark)

Lt ____ Blk ____ Sub. Name ____

4. PROPOSED USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK
☒ New Well ☐ Modify or Repair ☒ Replacement ☐ Abandonment

6. DRILL METHOD
☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	19		Overbore

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s)
Was drive shoe seal tested? Y ☐ N ☒ How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6 5/8OD+2		192	.250	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS MAY 06 1996
☐ Perforations Method
☐ Screens Screen Type

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
156 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:

11. WELL TESTS: NONE
☐ Pump ☐ Baller ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

RECEIVED
FEB 13 1996
Department of Water Resources

Water Temp. ____ Bottom hole temp ____
Water Quality test or comments:

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	15"	Top Soil		X
	15'	16	Gray Basalt		
	16	19	Gray Basalt Small Break		
	19	30	Gray Basalt		
	30	36	Gray Baslt Break Brown Clay		
	36	40	Gray Basalt		
	40	54	Reddsh & Gray Basalt Brk Porouse		
	54	61	Gray Basalt Porouse		
	61	64	Red Basalt Clay		
	64	75	Gray Basalt		
	75	77	Pinksh Basalt Small Break		
	77	79	Gray Basalt		
	79	81	Crevice		
	81	91	Gray Basalt		
	91	94	Med Hard		
	94	111	Gray Basalt		
	111	116	Pinkish Basalt		
	116	125	Pinksh Basalt Small Break		
	125	146	Gray Basalt		
	146	149	Pinksh Basalt Soft Red Clay		
	149	162	Gray Basalt Brak Tan Clay	X	
	162	169	Med Hard Gray Basalt		X
	169	175	Med Hard Gray Basalt Sm Brk	X	
	175	179	Pinksh Basalt		X
	179	184	Gray basalt		X
	184	189	Gr Bsalt Break Porouse	X	
6	189	194	Gray Basalt		
6	194	205	Gr & Pink Basalt Brak	X	
	205	210	Gray Basalt Trace Brwn Clay		
	210	216	Gray & Brwn BAsalt		
	216	226	Gr Basalt med Hard Sm Break	X	

Completed Depth 226 (Measurable)
Date: Started 12-19-95 Completed 12-21-95

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name SMITH DRILLING & PUMP CO., INC. Firm No. 11
Firm Official [signature] Date 1-5-96
and
Supervisor or Operator [signature] Date
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7 11/91

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

TYPE OR PRINT WITH INK OR BALLPOINT PEN

RECEIVED
JAN 05 1994
Department of Water Resources

1. WELL OWNER
Name RANDY CARPENTER
Address 419 FOUR MILE RD SHOSHONE
Drilling Permit No. 37-93-S-0048-000
Water Right Permit No.

2. NATURE OF WORK
☐ New well ☐ Deepened ☑ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☑ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☑ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

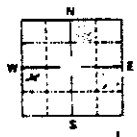
5. WELL CONSTRUCTION
Casing schedule: ☑ Steel ☐ Concrete ☐ Other
Thickness / Diameter / From / To
.250 inches 6 inches + 1½ feet 304 feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
Was casing drive shoe used? ☐ Yes ☑ No
Was a packer or seal used? ☐ Yes ☑ No
Perforated? ☐ Yes ☑ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches
Number / From / To
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
Well screen installed? ☐ Yes ☑ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☑ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 19 Material used in seal: ☐ Cement grout
☑ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☑ Overbore to seal depth
Method of joining casing: ☐ Threaded ☑ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL
Sketch map location must agree with written location.



Subdivision Name _____
419 FOUR MILE RD
Lot No. _____ Block No. _____
County LINCOLN
NE ¼ SW ¼ Sec. 7 T. 05 S ☑ N ☐ R 17 ☑ E ☐ W

7. WATER LEVEL
Static water level 198 feet below land surface.
Flowing? ☐ Yes ☑ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☑ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
30	260	1

9. LITHOLOGIC LOG 107481

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	5	TOP SOIL		✓
86	5	43	BLK LAVA		✓
6	43	66	BRN CLAY & BLK LAVA		✓
6	66	80	BLK LAVA		✓
6	80	100	RED LAVA & BRN CLAY		✓
6	100	110	BLK LAVA & BRN CLAY		✓
6	110	300	NO RETURNS	✓	
6	300	340	BLK LAVA & TUFF	✓	
			CAVEY 160-200		
			240-260		

RECEIVED
APR 06 1993
Department of Water Resources
Southern Region Office

JUN 10 1994

10. Work started 3-30-93 finished 4-2-93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed
Firm NOOB RIVER DRILLING & PUMP Firm No. 265
Address BOX 837 BELLEVUE, ID 83313 Date _____
Signed by Drilling Supervisor Ken Smith
and
(Operator) [illegible] MCDONALD
(If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

RECEIVED
DEC 30 1977
Department of Water Resources
Southern District Office

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name R. B. Kelly

Address Shoshone, Idaho

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☐ Cable ☒ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 260 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 5/8 inches	+1 feet	-155 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

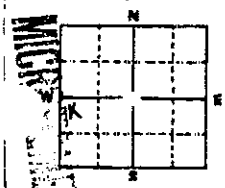
Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☒ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location. 37



Subdivision Name _____

Lot No. _____ Block No. _____

County Lincoln

NW ¼ SW ¼ Sec. 8, T. 5S N/S, R. 17EBM E/W

7. WATER LEVEL

Department of Water Resources
Southern District Office

Static water level 189 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA NONE

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	3	Top Soil		X
	3	7	Broken Gray Basalt w/top soil		
	7	13	Hard Gray Basalt		
	13	15	Broken Gray Basalt w/yellow clay		
	15	24	Hard Gray Basalt		
	24	34	Hard Gray Basalt w/small breaks		
	34	39	Med Hard w/large breaks lost return		
	39	47	Hard w/small breaks		
	47	56	Hard w/large breaks		
	56	61	Hard		
	61	66	Hard w/small breaks		
	66	76	Hard		
	76	98	Hard w/small breaks		X
	98	103	Med Hard/large breaks/clay trace water		
	103	109	Hard w/large breaks		X
	109	122	Hard Gray Basalt		X
	122	129	Hard Brown Basalt w/lg. breaks trace water		X
	129	137	Hard gray Basalt		X
	137	149	Hard redish Brown Basalt w/lg. break		
	149	151	Hard Gray Basalt w/small breaks		X
8/6	151	158	Hard Gray Basalt		X
6	158	162	Hard Gray Basalt w/small breaks		
	162	170	Hard Brown clayw/Broken Gray Basalt		
	170	180	Hard Gray Basalt w/sm. breaks		
	180	187	Med Hard Brown Basalt w/lg. breaks		
	187	190	Hard w/small breaks lost return		
	190	195	Hard Gray Basalt		X
	195	200	Hard Gray Basalt w/sm. breaks	X	
	200	211	Hard Gray Basalt w/lg. breaks	X	
	211	240	Med Hard w/small breaks	X	
	240	253	Hard w/small breaks	X	
	253	260	Med Hard w/small breaks	X	

10.

Work started 12/27/77 finished 12/29/77

11. DRILLERS CERTIFICATION

Firm Name SMITH DRILLING & PUMP CO., INC. Firm No. 11

Address 328 West Avenue A, Jerome Date 12/30/77

Signed by (Firm Official) _____

and

(Operator) _____

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

R7-135

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WELL SCHEDULE

Work Unit Southern Idaho Lincoln County

Land Owner Albert L. Knigge Address Shoshone, Idaho Well No. 1

Location: State Idaho County Lincoln E½NE¼, NW¼NE¼ NE¼ SE¼ ¼ Sec 8 SW¼NW¼ NW¼SW¼

Source Driller Confidential No

Drilling Commenced 11-10-41 Completed 11-22-41

Driller A. H. Heigh Address Shoshone, Idaho

Topography Rolling

Elevation ft. Datum Meas. point

Type of Well Drilled Method of Drilling Cable Tools

Depth 269 Diameter: top 6" bottom 6"

Chief Aquifer Porous lava from 250 to 269

Others

T 5 S, R 17 E

Casing: Type Depth Diameter Screen

Water Level 245 ft. below Top ; ft. above below

Pump Power

Yield Drawdown ft. pumping G.P.M. Time

Use Quality Samples

Graphic Log

Geological Formation Record

Written Log by:
Correlation by:

Casing Record

From Feet	To Feet	Thickness ft.	Character of formation and remarks
0	5	5	Top soil
5	27	22	Gray lava broken
27	40	13	Light brown lava
40	50	10	Hard gray lava
50	64	14	Brown lava
64	70	6	Red lava very soft cemented
70	80	10	Light brown lava
80	90	10	Dark gray lava
90	93	3	Brown lava broken
93	98	5	Red lava hard
98	118	20	Gray lava
118	128	10	Light gray lava
128	140	12	Light brown lava
140	145	5	Soft gray lava
145	160	15	Brown lava
160	170	10	Gray lava
170	190	20	Dark gray lava
190	250	60	Hard gray lava
250	269	19	Black porous lava with a very good water flow

The water raised 5' when we hit the flow

Form 238-7
4/92

C

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

APR - 8 1993

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

Department of Water Resources

1. WELL OWNER
Name Andrew Fitzgerald Four Brothers Dairy
Address 425 N. 250 W Shoshone Id 83352
Drilling Permit No. 37-93S-0024-000
Water Right Permit No. _____

2. NATURE OF WORK
☒ New well ☐ Deepened ☒ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☒ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.25 inches	8 inches +	3 feet	19 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

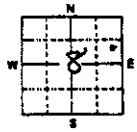
Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 19' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port Sanitary Well Cap

6. LOCATION OF WELL
Sketch map location must agree with written location



Subdivision Name _____
Lot No. _____ Block No. _____
County Lincoln
Address of Well Site Same as above
(give at least name of road)
SE ¼ NE ¼ Sec. 8 T. 5 N ☐ or S ☒ R. 17 E ☒ or W ☐

7. WATER LEVEL
Static water level 253 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ~~60~~ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 103773

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
10	0	5	Top Soil		X
10	5	6	Broken Bl Lava		
10	6	8	Br Clay		
10	8	19	Gray ~~Clay~~ Lava		
8	19	61	"		
8	61	62	Br Lava		
	62	63	Crevasse		
	63	70	Br Lava		
	70	161	Gray Lava		
	161	167	Red Lava		
	167	217	Gray Lava		
	217	221	Br Sand + Clay		
	221	237	Gray Lava		
	237	240	Broken Red + bl Lava		
	240	261	Gray Lava		
	261	285	Br Lava		
	285	291	Bl + Red Lava		
	291	294	Broken Bl + Red Lava + Br Talc	X	
	294	302	Red + bl Lava		
	302	310	Salt + broken Red Lava + Br Clay	X	
	310	348	Bl Lava		
	348	391	Gran. T		
	391	394	Broken Gran. T	X	
	394	396	Granite		
	396	397	Crevasse	X	
	397	405	Gran. T		

RECEIVED
MAR 04 1993
Department of Water Resources
Southern Region Office

10.
Work started 2-15-93 finished 2-18-93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name Eaton Drilling Firm No. 26
Address Wendell Date 2-21-93
Signed by Drilling Supervisor Ray Eaton
and
(Operator) Dave Eaton
(If different than the Drilling Supervisor)

MICROFILMED AUG 09 1993

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
9/82

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

JAN 13 1989

1. WELL OWNER

Name Andrew FitzGerald

Address Shoshone

Owner's Permit No. 39-88-5-0077

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☒ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.025 inches	6 5/8 inches +	1½ feet	18½ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

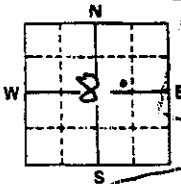
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No _____
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 18 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing
☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
or NESE
County Lincoln
SE ¼ NE¼ Sec. 8, T. 5 N/S, R. 17 E/W

7. WATER LEVEL

Department of Water Resources

Static water level 240 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

072480

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	1	TOP Soil		X
8	1	6	Gray Lava		X
8	6	10	Black Lava		X
8	10	13	Gray Lava		X
6	13	34	Gray Lava		X
6	34	46	Black Lava		X
	46	385	No Returns	X	

RECEIVED
JAN - 3 1989
Department of Water Resources
Southern Region Office

10.

Work started Aug 24 finished Aug 30 88

11. DRILLERS CERTIFICATION

DL

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

Firm Name Eaton Drilling Firm No. 26
Address Dendell Date 12-26-88
Signed by (Firm Official) _____
and
(Operator) _____

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

6-6-74 D WD

State law requires that this report be filed with the Director, Department of Water Administration within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name DEAN BARNEY

Address RT #1 SHOSHONE IDAHO

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or injection

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 243 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+2 feet	30 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

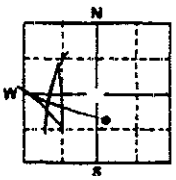
Placed from _____ feet to _____ feet

Surface seal depth 30 Material used in seal ☒ Cement grout ☐ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☒ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



35

Subdivision Name _____

Lot No. _____ Block No. _____

County LINCOLN

SW ¼ SE ¼ Sec. 8, T. 5 N/S, R. 17 E/W

7. WATER LEVEL

Static water level 188 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
	UNTESTED	

9. LITHOLOGIC LOG

045661

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8"	0	7	BROWN SOIL		
8"	7	16	LIGHT GREY LAVA		
8"	16	30	DARK GREY LAVA - SCORIA		
6"	30	33	LIGHT GREY LAVA		
"	33	35	SOFT BROWN LAVA		
"	35	44	BROWN LAVA		
"	44	45	" " - SCORIA		
"	45	67	DARK GREY LAVA		
"	67	69	" " - SCORIA		
"	69	71	DARK GREY LAVA		
"	71	87	" " " - SCORIA		
"	87	95	" " "		
"	95	100	" " " - SCORIA		
"	100	103	" " "		
"	103	108	BROWN CLAY		
"	108	143	HARD DARK GREY LAVA		
"	143	144	" " " - SCORIA		
"	144	162	BROWN LAVA		
"	162	168	BROWN CLAY		
"	168	206	BROWN LAVA		
"	206	208	" " SCORIA	X	
"	208	240	BLACK LAVA		
"	240	242	" " - SCORIA	X	
"	242	243	BURNT RED LAVA		
			WATER SEEPAGE FROM 16-30 SCALED OFF BY CEMENTED IN 6" PIPE		

10.

Work started 23 MAY 74 finished 4 JUNE 74

11. DRILLERS CERTIFICATION

RAY ROKESLER

Firm Name WELL DRILLING 129 5TH AVE E Firm No. 262

Address GOODING IDA 83330 Date 5 JUN 74

Signed by (Firm Official) Ray Rokesler

and

(Operator) Ray Rokesler

MICROFILMED

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE COPY TO THE DEPARTMENT

Bpf 861413
Per 764157
Basin 37 764157

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0008528
DRILLING PERMIT NO. _____
Other IDWR No. _____

2. OWNER:
Name Dorthy Hubb
Address 5209 Decanter Drive
City Boise State ID Zip 83704

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S — X

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 9 ____ 1/4 SW 1/4 SE 1/4
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site 156 N 4 Mile Rd
City Shoshone
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☒ Other Replacement

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	9sacks	Overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 343'
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1½	343	.250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
Perforations Method _____
Screens Screen Type 2 Shale Traps

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
225 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
22			1Hour

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8"	0	7	Top Soil		X
8"	7	18	Black Lava		X
8"	18	31	Brown Lava & Subsoil		X
8"	31	75	Gray Lava		X
8"	75	84	Black Lava		X
8"	84	270	No Returns	X	
8"	270	277	Black Lava	X	
8"	277	280	Red Sand	X	
8"	280	284	Brown Sand & Clay	X	
8"	284	300	Black Lava	X	
8"	300	306	Black Lava	X	
8"	306	320	Red & Brown Sand	X	
8"	320	330	Brown Sand	X	
8"	330	343	Black Lava		X
6"	343	360	Black Lava		X
6"	360	380	Black Lava & Water Tale	X	

RECEIVED
MAY 12 2000
Department of Water Resources
RECEIVED
MAY 16 2000
Department of Water Resources

Completed Depth 380' (Measurable)
Date: Started 04-26-00 Completed 05-05-00

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Wood River Drilling &Pump Inc. Firm No. 265
Firm Official Ken Smith Date 5-11-00
and
Driller or Operator _____ Date 5-11-00
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Beg 37
App 865487
Per 768740

IP 340733

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016336
DRILLING PERMIT NO _____
Other IDWR No _____

2. OWNER:
Name Four Bros. Dairy
Address 427 N. 250 W.
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge. 17 East ☒ or West ☐
Sec 9 ____ 1/4 (10 acres) SW 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 420 N. 250 W.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other stockwater

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0	19	200 lbs.	dry pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+1	19	.250	steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1' Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☒ Screens Screen Type stainless steel

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
275	280	10		71/2	steel	☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
244 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
70+			

Water Temp. <85 Bottom hole temp ____
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	4	top soil		
10	4	7	black lava		
10	7	8	broken		
10/8	8	49	black lava		
8	49	56	broken lava & brown clay		
8	56	78	black lava		
8	78	82	broken lava		
8	82	112	black lava		
8	112	116	medium hard black lava		
8	116	122	broken lava		
8	122	151	hard lava		
8	151	154	soft broken lava		
8	154	177	hard lava		
8	177	183	soft, broken, cinders & rocks		
8	183	192	medium hard & breaks		
8	192	196	soft & broken		
8	196	206	hard lava		
8	206	222	cinder & loose rocks		
8	222	262	black lava		
8	262	266	soft, broken & cinders	X	
8	266	268	medium hard lava		
8	268	274	black lava		
8	274	281	sand & gravel	X	
8	281	289	hard lava		
8	289	292	broken lava		
8	292	349	hard & breaks		
8	349	362	medium hard & breaks		
8	362	405	hard lava		
			cement in hole 4'-225' 12 yrds, then drill out to 8"		

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RECEIVED JUL - 6 2001 Department of Water Resources Southern Region

Completed Depth 402' (Measurable)
Date: Started 6/1/2001 Completed 6/4/2001

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official [signature] Date 7/5/01
and
Driller or Operator [signature] Date 7/5/01
(Sign once if Firm Official & Operator)
Helper [signature]

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37
App 68642
Rec 771393
ID 343317

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by
Twp Rge Sec
1/4 1/4 1/4
Lat: : : Long: : :

1. WELL TAG NO. D0016654
DRILLING PERMIT NO
Other IDWR No.

2. OWNER:
Name Andrew Fitzgerald
Address 180 4 Mile Rd.
City Shoshone State ID Zip 83330

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 9 1/4 (10 acres) SE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot County Lincoln
Lat: Long:
Address of Well Site 160 4 Mile Rd.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt Blk Sub. Name

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0	19	200 Lbs.	dry pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s)
Was drive shoe seal tested? ☐ Y ☒ N How?

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+1	19	.250	steel	☒	☐	☐	☐
5"	20	140	.188	steel	☐	☒	☒	☐
					☐	☐	☐	☐

Length of Headpipe 1' Length of Tailpipe

9. PERFORATIONS/SCREENS:
☐ Perforations Method
☐ Screens Screen Type

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
151 ft. below ground Artesian pressure lb.
Depth flow encountered ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp <85 Bottom hole temp. <85
Water Quality test or comments:
Depth first Water Encounter

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	top soil		
8	3	14	black lava		
8	14	17	cinders		
8	17	19	black lava		
6	19	42	black lava		
6	42	47	soft, broken lava & clay		
6	47	96	black lava		
6	96	98	broken lava		
6	98	107	black lava		
6	107	113	medium hard lava		
6	113	116	soft & broken lava		
6	116	126	hard lava		
6	126	130	soft, broken lava & clay		
6	130	144	hard lava		
6	144	146	broken lava		
6	146	211	hard lava		
6	211	218	medium hard lava		
6	218	220	soft & broken lava		
6	220	236	medium hard lava & breaks		
6	236	251	hard lava		
6	251	254	broken lava	X	
6	254	265	hard lava		

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NOV 27 2001
Department of Water Resources
Southern Region

Completed Depth 263' (Measurable)
Date: Started 10/2/2001 Completed 10/3/2001

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official Date 11/8/01
and
Driller or Operator Date 11/8/01
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37 App 868662 IP 343317 Pe 71393

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016654
DRILLING PERMIT NO _____
Other IDWR No. _____

2. OWNER:
Name Andrew Fitzgerald
Address 160 4 Mile Rd.
City Shoshone State ID Zip 83330

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 9 ____ 1/4 (10 acres) SE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 160 4 Mile Rd.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt ____ Blk ____ Sub Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☐ New Well ☒ Modify ☐ Abandonment ☐ Other deepen add more liner

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0	19	200 Lbs.	dry pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
6"	+1	19	.250	steel	☒	☐	☐	☐
5"	20	240	.188	steel	☐	☒	☒	☐
					☐	☐	☐	☐

Added more Liner

Length of Headpipe 1' Length of Tailpipe _____

9. PERFORATIONS/SCREENS:
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
151 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: _____
Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	top soil		
8	3	14	black lava		
8	14	17	cinders		
8	17	19	black lava		
6	19	42	black lava		
6	42	47	soft, broken lava & clay		
6	47	96	black lava		
6	96	98	broken lava		
6	98	107	black lava		
6	107	113	medium hard lava		
6	113	116	soft & broken lava		
6	116	126	hard lava		
6	126	130	soft, broken lava & clay		
6	130	144	hard lava		
6	144	146	broken lava		
6	146	211	hard lava		
6	211	218	medium hard lava		
6	218	220	soft & broken lava		
6	220	236	medium hard lava & breaks		
6	236	251	hard lava		
6	251	254	broken lava	X	
6	254	265	hard lava		
5	265	270	medium hard lava		
5	270	275	soft lava	X	
5	275	280	medium lava		
5	280	283	broken lava	X	
5	283	299	hard lava		
5	299	302	soft broken lava & cinders	X	

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MAY 15
Department of Water Resources
Southern Region

Completed Depth 302' (Measurable)
Date: Started 4/1/2002 Completed 4/1/2002

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official Larry Nielsen Date 4/1/2002
and
Driller or Operator _____ Date 4/1/2002
(Signature of Firm Official & Operator)

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Form 238-7
6/93

KC C

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ball Point Pen

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DEC 20 1993
Department of Water Resources

108629

1. DRILLING PERMIT NO. 37-93-S-0160-000
Other IDWR No. 37-08813

2. OWNER:
Name North Valley Milk, Inc.
Address 425 250 W
City Shoshone State Id Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

T. 5 North ☐ or South ☒
R 17 East ☒ or West ☐
Sec 9 , 10 acre 1/4 40 acre SW 1/4 160 acre SW 1/4
Gov't Lot ____ County Lincoln

Address of Well Site 180 4-Mile Rd Shoshone
(Give at least Direction + Distance to Road or Landmark)

Lot No ____ Block No ____ Subd. Name ____

4. PROPOSED USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other Stock

5. TYPE OF WORK
☒ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD
☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	19	300/165	

Was drive shoe seal tested? Yes ☐ No ☒ How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Casting	Liner	Steel	Plastic	Welded	Threaded
8	1	19	25			☒	☐	☐	☐
						☐	☐	☐	☐
						☐	☐	☐	☐
						☐	☐	☐	☐

Final location of shoes ____
Top Packer or Headpipe ____ Bottom Tailpipe ____

9. PERFORATIONS/SCREENS
☐ Perforations Method ____
☐ Screens Type ____ Material ____

From	To	Slot Size	Number	Diameter	Tele/Pipe Size	Casting	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐

10. WELL TESTS: ☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Depth	Time

Temperature of water 85 Was a water analysis done? Yes ☐ No ☒
By whom? ____
Water Quality (odor, etc.) ____
Bottom Hole Temperature ____

11. STATIC WATER LEVEL:
192 ft below surface Depth artesian flow found ____
Artesian pressure ____ lb. Describe access port Well Cap
Describe Controlling Devices: ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	GPM	SWL
10	0	4	Top Soil		
10	4	9	Br Lava		
10	9	11	Br Clay		
10	11	19	Gray Lava		
8	19	36	" "		
	36	39	Broken bl Lava		
	39	74	Bl Lava		
	74	76	Red + bl Cinders		
	76	157	Bl. Lava		
	157	162	Red Lava		
	162	187	Bl Lava		
	187	193	Cinders		
	193	195	Hard		
	195	197	Crevasse	X	
	197	199	Broken	X	
	199	216	Hard	X	
	216	222	Broken	X	
	222	246	Hard		
	246	252	Soft Broken (Sand)	X	
	252	266	Hard		
	266	268	Soft Sand		
	268	273	Soft Broken	X	
	273	241	Hard		
	241	244	Broken	X	
	244	280	Med. Hard		

Date: Started 11-3-93 Completed 11-6-93

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Eaton Drilling Firm No. 26
Firm Official [signature] Date 11-8-93
and
Supervisor or Operator Dave Craig Date 11-9-93
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Bsn37
App 868723
Per 771454

S. 343377

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

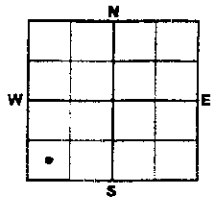
C

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016655
DRILLING PERMIT NO _____
Other IDWR No _____

2. OWNER:
Name Clement Fitzgerald
Address 425 N. 250 W.
City Shoshone State ID Zip 83330

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.



Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec. 9 ____ 1/4 (10 acres) SW 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 428 N. 250 W.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK: check all that apply (Replacement etc.)
☒ 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	
bentonite	0	19	200 lbs.	dry pour

Was drive shoe used? ☐Y ☒N Shoe Depth(s) ____
Was drive shoe seal tested? ☐Y ☒N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	19	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1' Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
326 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
20+			

Water Temp. <85 Bottom hole temp. <85
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	3	top soil		
8	3	11	black lava		
8	11	13	black cinders		
8	13	19	black lava		
6	19	61	black lava		
6	61	64	cinders		
6	64	71	black lava		
6	71	106	medium hard lava		
6	106	123	cinders		
6	123	127	medium hard lava		
6	127	129	broken lava		
6	129	149	black lava		
6	149	151	broken lava		
6	151	175	black lava		
6	175	194	red ash		
6	194	196	cinders		
6	196	226	black lava		
6	226	230	brown ash		
6	230	254	black lava		
6	254	257	cinders	X	
6	257	273	black lava		
6	273	278	cinders	X	
6	278	280	black lava		
6	280	282	cinders	X	
6	282	285	black lava		

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NOV 27 2001
Department of Water Resources
Southern Region

Completed Depth 285' (Measurable)
Date: Started 10/3/2001 Completed 10/5/2001

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official [signature] Date 11/8/01
and
Driller or Operator [signature] Date 11/8/01
(Sign once if Firm Official & Operator)

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37-58-S-0028-0C

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

RECEIVED 065401

East Well #2

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0062489
DRILLING PERMIT NO. 37-
Other IDWR No. 37-0714,150

JUL 01 1998
Department of Water Resource
Southern Region

WELL TESTS: ☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. 56 Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encounter _____

2. OWNER:
Name 4 - Bros Dairy Inc
Address 427 256 W
City Shoshone State Id Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 19 ____ 1/4 (10 acres) NW 1/4 (40 acres) NE 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: : : Long: : :
Address of Well Site _____
City _____
(Give at least name of road + Distance to Road or Landmark)

Lt _____ Blk _____ Sub Name _____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other Dairy

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	19	300 lbs	
Cement	12	400	50 sacks	

Was drive shoe used? ☐Y ☒N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8	1	419	.25	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1 Length of Tailpipe _____

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JUL 22 1998
Department of Water Resources

9. PERFORATIONS/SCREENS
Perforations Method _____
Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
26 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft Describe access port or control devices: Well Cap

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	6	Top soil		
	6	47	Black lava		
	47	52	Broken, Cinders		
	52	56	hard		
	56	57	Crevasse		
	57	59	Broken Cinders		
	59	179	Hard Black lava		
	179	187	Med hard Red lava		
	187	194	Black lava		
	194	196	Broken		
	196	302	Black lava		
	302	304	Broken		
	304	308	Med. hard		
	308	311	Soft, Broken Cinders		
	311	314	Med hard		
	314	319	" " Cinders		
	319	322	Soft, Red with te Sand		
	322	326	Brown Clay		
	326	328	Broken, Brown Sand		
	328	356	Black lava		
	356	359	Broken	X	
	359	366	Black lava		
	366	372	Soft Broken lava	X	
	372	379	Black lava		
	379	390	Med hard Breaks, Clay		
	390	409	Soft Br Silty Sands		
	409	420	Red Lava Ash		
8	420	438	Red Ash MICROFILMED		
	438	444	Broken	X	
	444	449	Red Ash		
	449	469	Red Lava		
	469	471	Broken + Cinders	X	
	471	505	Hard + breaks + Talc	X	

Completed Depth 505 (Measurable)
Date: Started 5-7-98 Completed 5-9-98

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Company Name Eaton Drilling Firm No. 26
Firm Official [signature] Date 6-12-98
and
Driller or Operator [signature] Date 6-12-98
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97 JGE

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT 054460

Office Use Only
Inspected by: _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0008395
DRILLING PERMIT NO 37-99-S-0078-000
Other IDWR No 37-07413B

2. OWNER:
Name 4-Bros Dairy Inc.
Address 427 N. 250 W.
City Shoshone State ID Zip 83352

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 9 NW 1/4 (10 acres) NE 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot ____ County Lincoln
Lat: Long:
Address of Well Site 500 N. 240 W.
City Shoshone
(Give at least name of road + Distance to Road or Landmark)
Lt ____ Blk ____ Sub. Name ____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other dairy

5. TYPE OF WORK: check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☒ Other deepen

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES:

Seal/Filter Pack Material	From	To	AMOUNT Sacks or Pounds	METHOD

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☒ N How? ____

8. CASING/LINER:

Diameter	From	To	Guage	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS:
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
328 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
200+			

Water Temp. <85 Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encountered ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	505	507	black lava		
8	507	511	medium hard lava		
8	511	514	black lava		
8	514	543	black ash & talc	X	
8	543	546	soft broken talc	X	
8	546	567	black ash		
8	567	616	black lava		
8	616	621	red/black ash & talc	X	
8	621	639	granite		
8	639	644	granite		
8	644	650	soft broken granite	X	

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SEP 03 1999
Department of Water Resources
Southern Region

MICROFILMED
NOV 30 1999

Completed Depth 650' (Measurable)
Date: Started 7/28/99 Completed 7/29/99

13. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & Pump Service, Inc. Firm No. 26
Firm Official ____ Date 8/10/99
and
Driller or Operator ____ Date 8/9/99
(Sign once if Firm Official & Operator)

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App 882 21 ID 386232

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No.
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0034024
DRILLING PERMIT NO. 815554
Water Right or Injection Well No.

2. OWNER:
Name GARY N. NELSON
Address 1031 EASTLAND DR.
City TWIN FALLS State ID Zip 83301

3 LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp 5 North ☐ or South ☒
Rge 17 East ☒ or West ☐
Sec 10, ____ 1/4 SE 1/4 SW 1/4
Gov't Lot ____ County LINCOLN
Lat: : : Long: : :
Address of Well Site ~~Star~~ 114 4 MILE ROAD,
City SHOSHONE
(Give at least name of road + Distance to Road or Landmark)
Lt ____ Blk ____ Sub. Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
BENTONITE	19	0	200#	POUR/OVERBORE

Was drive shoe used? ☐Y ☒N Shoe Depth(s) ____
Was drive shoe seal tested? ☐Y ☐N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+1	19	250	STEEL	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐Y ☒N Type ____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method ____
Screen Type & Method of Installation ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
160 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____
WELL CAP

12. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
46			1 HOUR

Water Temp. ~80° Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter 265

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
8	0	2	TOPSOIL		
	2	15	LAVA		
	15	17	BROKEN LAVA		
	17	19	LAVA		
6	19	110	LAVA		
	110	120	BLACK & RED LAVA		
	120	135	BLACK BASALT		
	135	160	CINDERS		
	160	206	LAVA		
	206	217	LAVA WITH CLAY		
	217	265	LAVA		
	265	268	BROKEN LAVA W/ RED CINDERS	X	
	268	283	LAVA	X	
	283	337	LAVA W/ WATER-TALC	X	
	337	342	GRAVEL	X	

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JUN 07 2004
Department of Water Resources
Southern Region

Completed Depth 337' (Measurable)
Date: Started 05/21/04 Completed 05/27/04

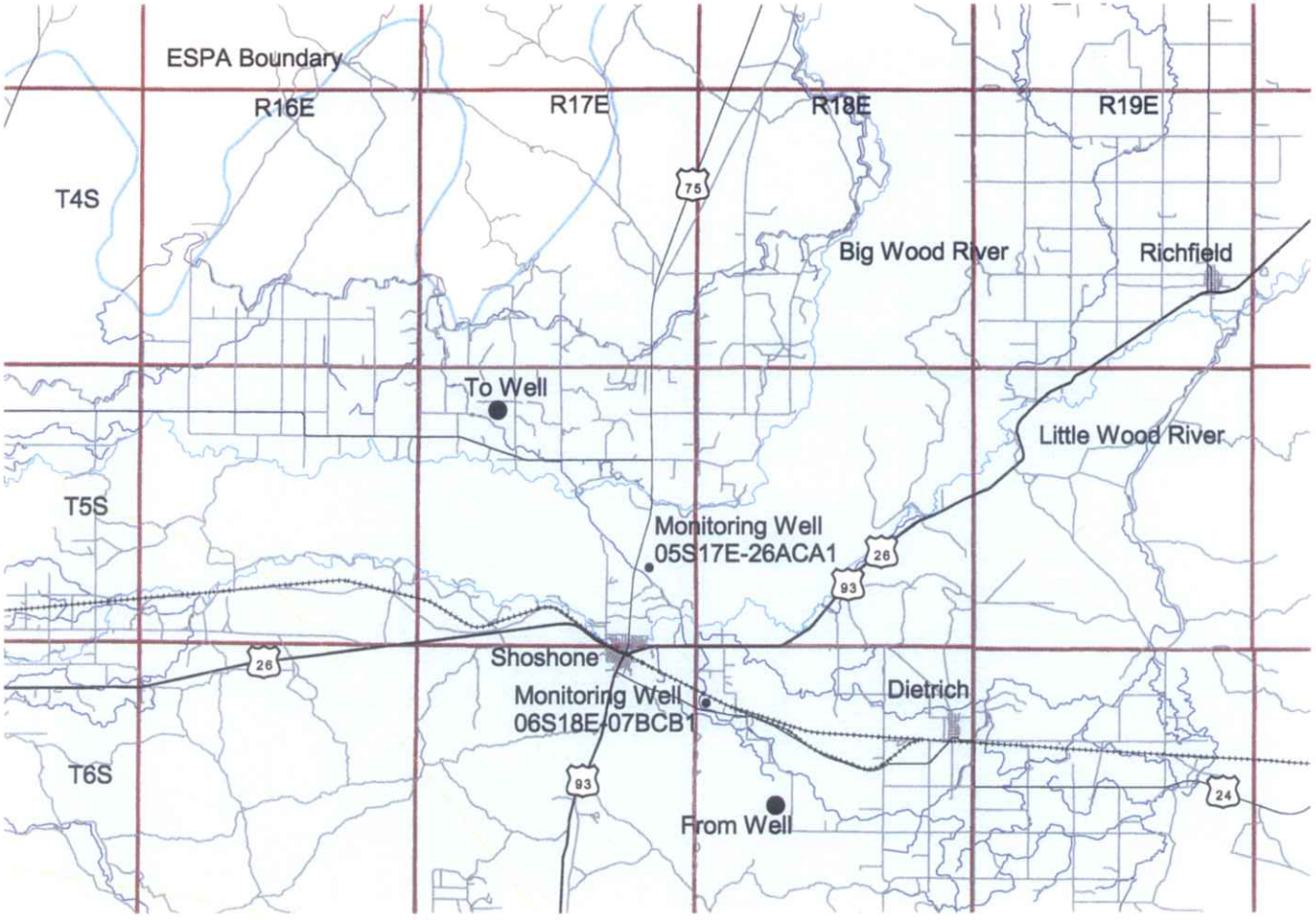
14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Company Name BISHOP WELL DRILLING, INC Firm No. 647
Principal Driller ____ Date 06/04/04
and
Driller or Operator II ____ Date ____
Operator I Heidi Bishop Date 06/04/04

Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II

FORWARD WHITE COPY TO WATER RESOURCES

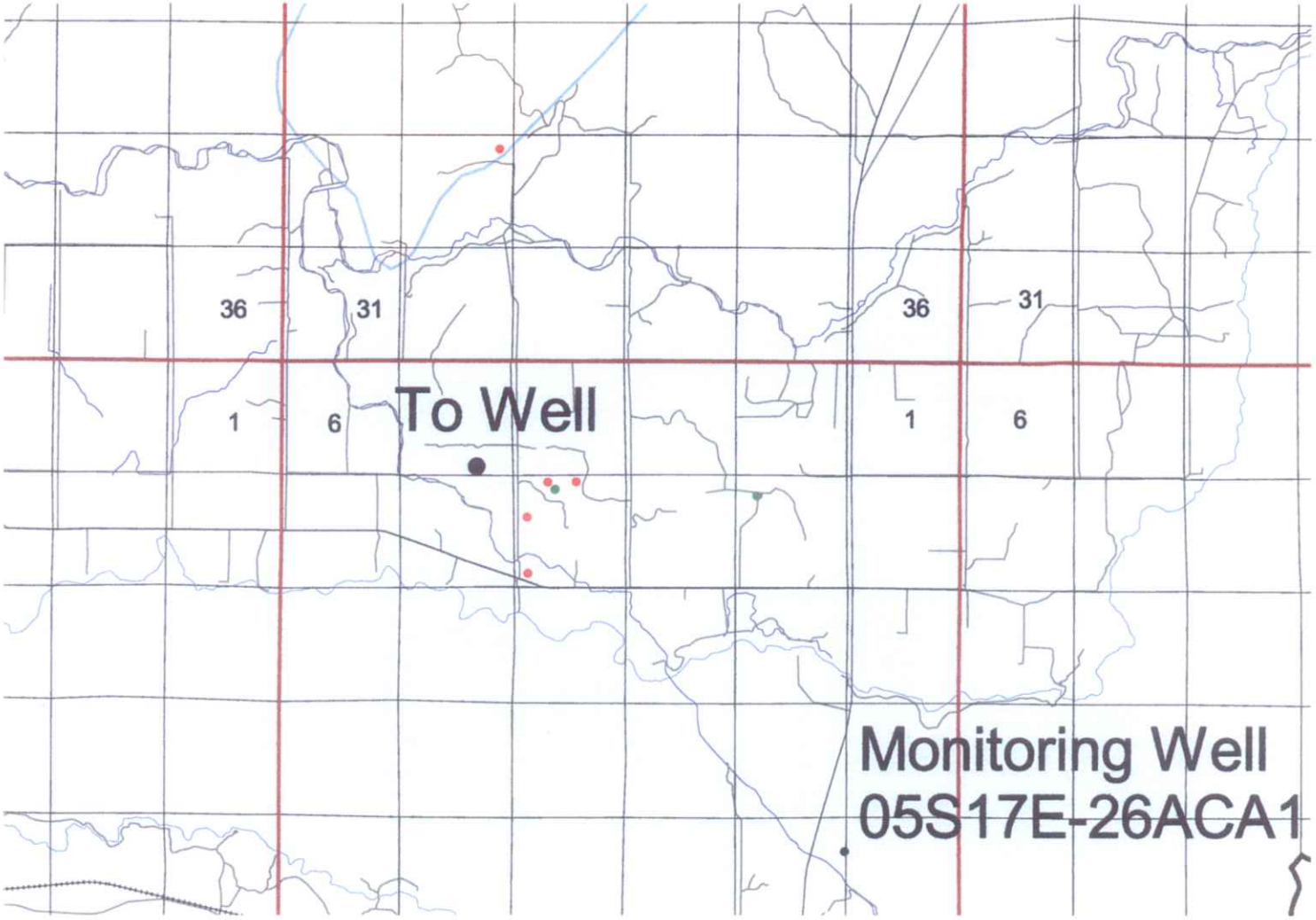
4-Bros Dairy Transfer Application 71607



Scale: NTS

Exhibit A Vicinity Map Showing From Well, To Well and Monitoring Wells

4-Bros Dairy Transfer Application 71607



Major Road
Local Road
Railroad
Township Boundaries
Section Lines
Large Wells
GW Rights > 0.5 cfs
Canal
River
Eastern Snake Plain Aquifer

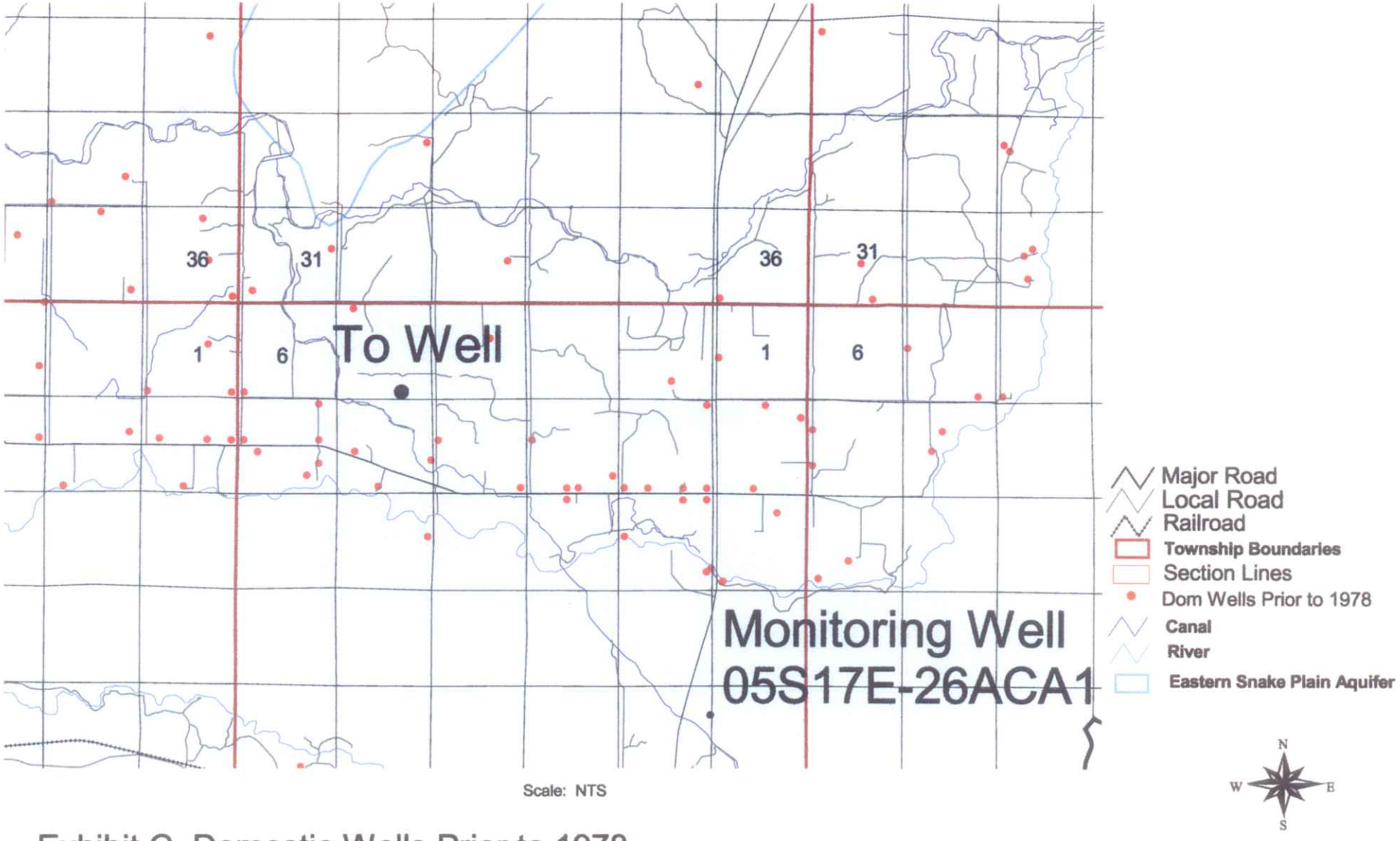
N
W
E
S

Scale: NTS

Exhibit B Large Wells and GW Rights > 0.5 cfs

Source IDWR GIS Data Base

4-Bros Dairy Transfer Application 71607

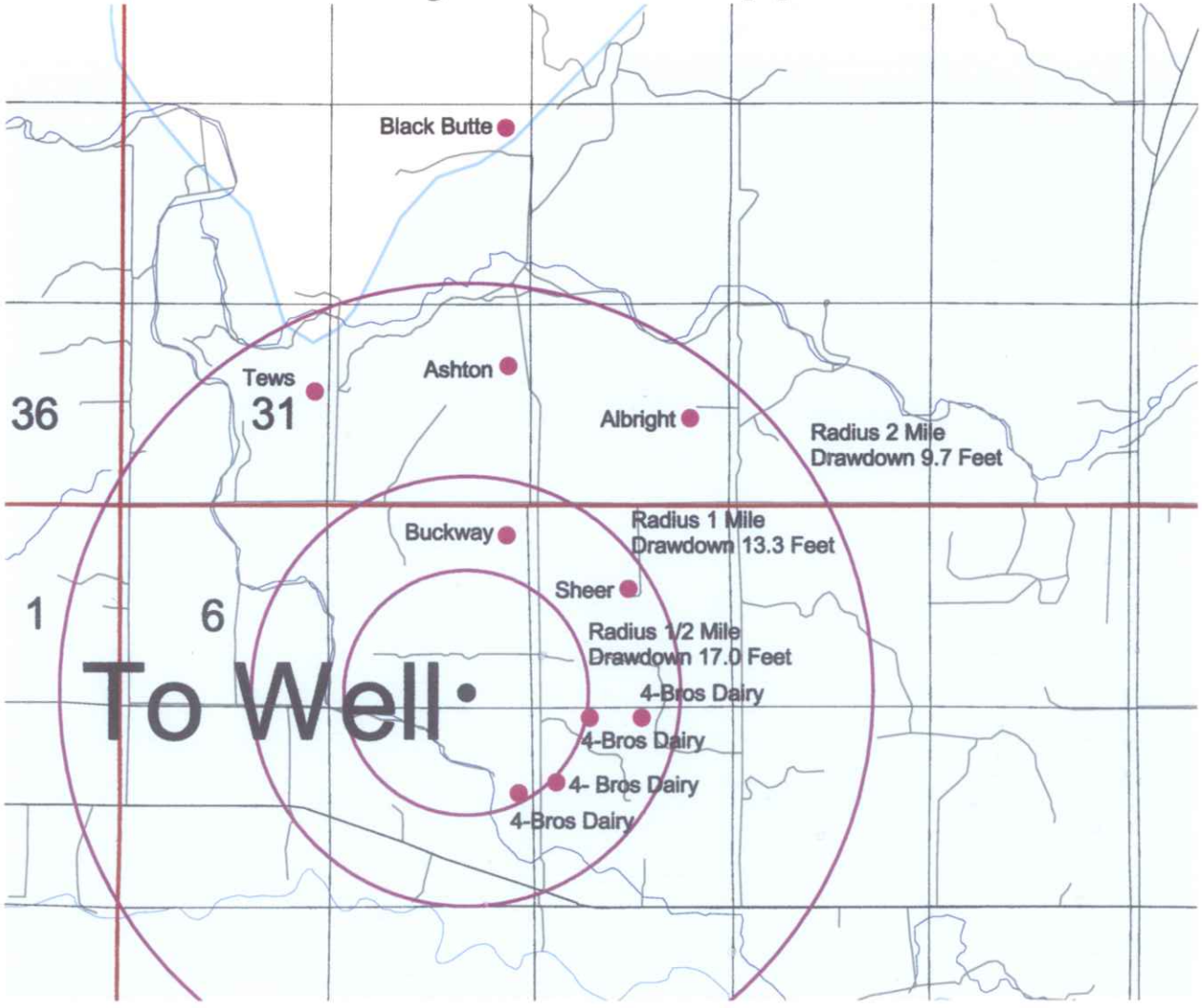


Scale: NTS

Exhibit C Domestic Wells Prior to 1978

Source IDWR GIS Data Base

4-Bros Dairy Transfer Application 71607



Notes:

1. Radius of Influence determined from Black Butte pump test data applied to the proposed To Well.

2. Confined or Semi-Confined aquifer
   T = 6915 gpd / ft
   S = 0.000162

Major Road
Local Road
Township Boundaries
Section Lines
Subject Wells
Canal
River
Eastern Snake Plain Aquifer

N
W
E
S

Scale: NTS

Exhibit D Protestors Wells in Relation to 4-Bros Dairy with Potential Drawdown

4-Bros Dairy Transfer Application 71607

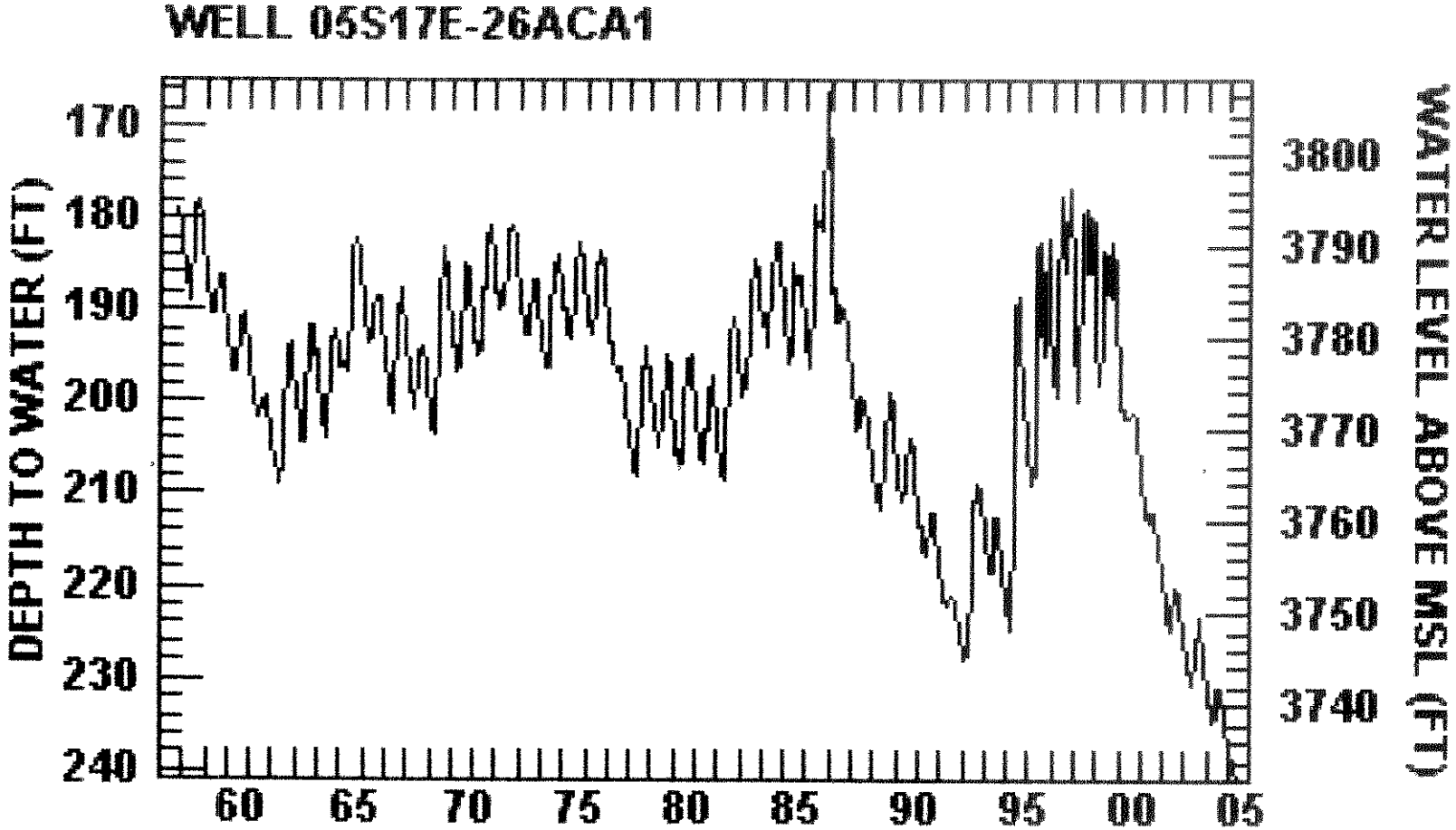


Exhibit E Ground Water Levels Monitoring Well 05S17E-26ACA1, Source USGS

4-Bros Dairy Transfer Application 71607

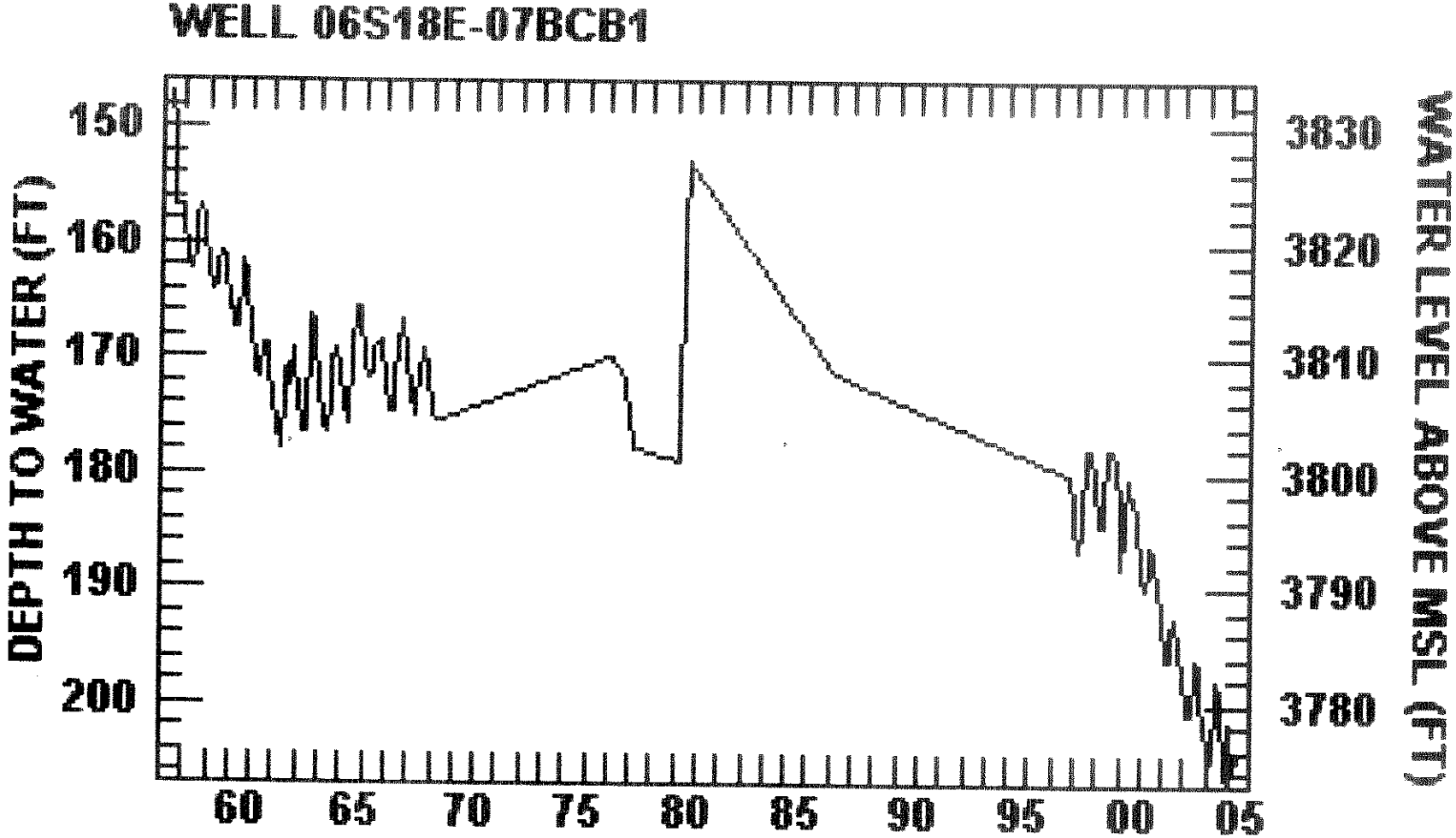


Exhibit F Ground Water Levels Monitoring Well 06S18E-07BCB1, Source USGS

RICHARD A. CARLSON
Attorney at Law
ISB #5971 OSB #79-180

P.O. Box 21
Filer, ID 83328

Telephone and fax: (208) 326-3686
E- mail: carlsonr@filertel.com

FACSIMILE TRANSMITTAL

TO: Cindy Yenter FAX NO.: 736-3037
Watermaster District 130
FROM: R.A. Carlson
DATE: 7-15-05
RE: 4 Bros Dairy, Inc. (aka Fitzgerald Dairy – Andrew, Clem, Jerome Fitzgerald et al)
PAGES (incl. cover): 1

Dear Ms. Yenter:

This is a public records request for your ground water measurement records relating to:

- the "from" well(s) involved in the pending transfer no. 71607. The water right no. for the "from" well is 37-20613;
- all existing wells owned by the 4 Bros. Dairy (or any of the Fitzgerald brothers) in sections 3 through 10, T5S,R17E whether designated for stockwater, commercial, or irrigation purposes (or any combination of the above);
- this request is for records going back as far in time as they are available.

As we discussed by phone this afternoon I need this information for a transfer hearing scheduled for later this month but have to share it with Rob Williams, the Fitzgerald's attorney, no later than 7-22-05. I'd like to be able to pick it up next Wednesday if at all possible.

Please call if you have any questions.

If you do not receive all the pages please call (208) 326-3686. The documents that have been transmitted are confidential and/ or privileged. The information is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying, distribution or use of the contents of this telecopied information is strictly prohibited. If you have received this transmittal in error, please notify me by telephone immediately.

Thank you,

Richard A. Carlson

NSG POD Data 06S 18E 20 SENESE

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
06S 18E 20 SENESE	A0004995			700069

Latitude 000:00:00.000 Longitude 000:00:00.000 GPS File PCC (2)

Comments Tag number added based on 10/31/2003 field survey. This tag number is incorrectly assigned to POD 700081 in NSGWD records. (J. Berkey)

Reporters

From well

Type	Name / Address	Phone(s)
Owner	MCCOWAN, HERBERT J 539 E 330 S DIETRICH, ID 83324	208-544-2501 (Hom

PCC Data

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
1998	103705.00	93.1	1	1114.4	07/29/1998	IP	52014556	
1999	110345.00	99	1	1114.4	07/29/1998	IP	52014556	
2000	127923.00	114.8	1	1114.4	07/29/1998	IP	52014556	
2002	128706.00	115.5	1	1114.4	07/29/1998	IP		513299687
2003	122844.00	110.2	1	1114.4	07/29/1998	IP		513299687

Comments: Tracking: Preferred: ☐ Validated: ☐ Change Date:

PCC Calibration

Date 07/29/1998 PCC: 1114.4 Change Date:

Kilowatt-Hour Meter

Utility IP
Pole No 295
Meter Mfgr A
Meter S/N 1884442
Disk Const
Multiplier

	KW	GPM	PCC	PSI	Percent	Descrip
Condition #1	296.9	1447		84	70	
Condition #2	0	0		0	0	
Condition #3	0	0		0	0	

NSG POD Data 05S 17E 08 SENESE

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
05S 17E 08 SENESE	A0002868	BARN #1 EAST WELL		401857

Latitude 043:00:07.005 Longitude -114:27:15.968 GPS File R101517B Flowmeter (8)

Comments Record annual use on the west well (GPM 2-28-00) See A0002859.

Reporters

Type	Name / Address	Phone(s)
Owner	FITZGERALD, ANDREW 4 BROTHERS DAIRY INC 427 NORTH 250 WEST SHOSHONE, ID 83352	(Fax)

Flowmeter Data

Year	Date	Calibration Factor	Max CFS	Adj Max CFS	Acre-Ft	Adj Acre-Ft	Acre-Ft Qualif	Valid	Prefrd
2003	6/9/2000	0.96					OW	☐	☐
	Comments	See A0002859							
2002	6/9/2000	0.96					OW	☐	☐
	Comments								
2001	6/9/2000	0.96					OW	☐	☐
	Comments	See A0002859							
2000		1					OW	☐	☐
	Comments	2 wells 1 meter See A0002859							
1999		1					ND	☐	☐
	Comments	2 wells 1 meter recorded on the west well (GPM 2-28-00)							

Flowmeter Calibratio

Calibration Date: 6/9/2000 Calibration Factor: 0.96 401857

Installed Meter

Meter Type:	PROPELLER
Manufacturer:	MASTER
Model:	
Serial Number:	2659046
Rate Units:	
Rate Multiplier:	1
Volume Units:	GAL
Volume Multiplier:	100
Location:	FAIR
Indicated Flow:	24.6

Standard Meter

Pipe Material:	STEEL
Outside Diameter:	2.4
Wall Thickness:	0.153
Upstream Straight:	0.8
Downstream Straignt:	1.3
Meter Type:	SONIC
Measured Flow Units:	GPM
Measured Flow:	23.5
Confidence:	GOOD

Other well(s): A0002859

Other meter(s): ☐

Comments:

One meter two wells. See A0002859 for data.

Changed: 11/16/2001

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD

Site Visits

Site Visit Date	Site Examiner	Reason	Change Date:
6/9/2000	GMOODY	Flowmeter Calibration	11/16/2001

Notes: Two wells one meter. All flow data in A0002859

10/15/1997	DNELSON	Inventory

Notes: Owners were very upset about a transfer that was denied. They ì□were almost to the point of violence. One used the example of ì□pulling the tires of my car is the same as denying their ì□transfer. They swore heavliy and were very angry. BE CAUTIOUS ì□ON RETURN VISIT POTENTIALLY DANGEROUS SITUATION.

The owners are supposed to intall one meter for both wells. □ì□DAN 3-12-98

NSG POD Data 05S 17E 08 SENESE

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
05S 17E 08 SENESE	A0002859	BARN #1 WEST WELL		401618

Latitude 043:00:06.016 Longitude -114:27:16.672 GPS File R101517A Flowmeter (8)

Comments One Meter, installed Feb 2000 for both wells. See also A0002868. Flow data in this record.

Reporters

Type	Name / Address	Phone(s)
Owner	FITZGERALD, ANDREW 4 BROTHERS DAIRY INC 427 NORTH 250 WEST SHOSHONE, ID 83352	(Fax)

Flowmeter Data

Year	Date	Calibration Factor	Max CFS	Adj Max CFS	Acre-Ft	Adj Acre-Ft	Acre-Ft Qualif	Valid	Prefrd
2003	6/8/2000	0.96			39.93	38.33	NM	☐	☐
	Comments	end totalizer from audit.							
2002	6/8/2000	0.96			33.96	32.6	NM	☐	☐
	Comments	IDWR audit work for reporting year. CRK 1-15-03							
2001	6/8/2000	0.96			29.63	28.44	MR	☐	☐
	Comments	No report received. End of year odometer from IDWR audit. Received report on 3-28-02 I							
2000	6/8/2000	0.96			30.27	29.06	PM	☐	☐
	Comments	Readings for the year only provided 11 months of the year. Owners End of the year readin							
1999		1					ND	☐	☐
	Comments	meter installed 02-01-00 (GPM 2-28-00)							

Flowmeter Calibratio

Calibration Date: 6/8/2000 Calibration Factor: 0.96 401618

Installed Meter

Meter Type:	PROPELLER
Manufacturer:	MASTER
Model:	
Serial Number:	2659046
Rate Units:	GPM
Rate Multiplier:	1
Volume Units:	GAL
Volume Multiplier:	100
Location:	FAIR
Indicated Flow:	24.6

Standard Meter

Pipe Material:	STEEL
Outside Diameter:	2.4
Wall Thickness:	0.153
Upstream Straight:	0.8
Downstream Straignt:	1.25
Meter Type:	SONIC
Measured Flow Units:	GPM
Measured Flow:	23.5
Confidence:	GOOD

Other well(s): A0002868

Other meter(s): ☐

Comments:

two wells one meter reported on this form.
Meter rep[laced 2/00

Changed: 11/16/2001

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD

Site Visits

Site Visit Date	Site Examiner	Reason	Change Date:
6/9/2000	GMOODY	Flowmeter Calibration	11/16/2001

Notes: One Meter two wells. Flow data in A0002859, West Well

10/15/1997	DNELSON	Inventory

Notes: SEE EAST WELL FOR COMMENTS ON HOSTILE SITUATION! DAN 3-12-98

NSG POD Data 05S 17E 09 NENW

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
05S 17E 09 NENW	A0007958	BARN #2 WEST WELL		401901

Latitude 000:00:00.000 Longitude 000:00:00.000 GPS File R060818A Flowmeter (8)

Comments Transfer 5183, 37-07413B - renumbered to 37-20614

Reporters

Type	Name / Address	Phone(s)
Owner	FITZGERALD, ANDREW 4 BROTHERS DAIRY INC 427 NORTH 250 WEST SHOSHONE, ID 83352	(Fax)

Flowmeter Data

Year	Date	Calibration Factor	Max CFS	Adj Max CFS	Acre-Ft	Adj Acre-Ft	Acre-Ft Qualif	Valid	Prefrd
2003	6/8/2000	1.11			14.12	15.67	NM	☐	☐
	Comments	end totalizer from audit.							
2002	6/8/2000	1.11			9.95	11.04	NM	☐	☐
	Comments	IDWR audit on 12-31-02. CRK 5-6-03							
2001	6/8/2000	1.11			13.62	15.12	MR	☐	☐
	Comments	No report received. End of year odometer from IDWR audit. Report received on 3-28-02 I							
2000	6/8/2000	1.11			10.97	12.18	PM	☐	☐
	Comments	Only provided 11 months due to the meter being broke for the first month of the year. Own							
1999		1			24.25	24.25	FE	☐	☐
	Comments	meter broke near end of year. Annual volume estimated by WMD							
1998		1	0	0	8.9	0	PM	☐	☐
	Comments	METER WAS INSTALLED IN 1998 ARNIE 7/1/99							

Flowmeter Calibratio

Calibration Date: 6/8/2000 Calibration Factor: 1.11 401901

Installed Meter

Meter Type:	PROPELLER
Manufacturer:	MCCROMETER
Model:	
Serial Number:	99983525
Rate Units:	GPM
Rate Multiplier:	1
Volume Units:	GAL
Volume Multiplier:	10
Location:	FAIR
Indicated Flow:	19.5

Standard Meter

Pipe Material:	STEEL
Outside Diameter:	3.54
Wall Thickness:	0.213
Upstream Straight:	1.08
Downstream Straignt:	0.58
Meter Type:	SONIC
Measured Flow Units:	GPM
Measured Flow:	21.6
Confidence:	POOR

Other well(s):

Other meter(s): ☐

Comments:

Changed: 8/25/2000

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD

Site Visits

Site Visit Date	Site Examiner	Reason	Change Date:
6/9/2000	GMOODY	Flowmeter Calibration	11/16/2001

Notes: Accuracy on upper end of acceptable limit. Examiner used 20 minute average for calibration in order to get a test within range.

NSG POD Data 05S 17E 09 NENW

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
05S 17E 09 NENW	A0007959	BARN #2 EAST WELL		401902

Latitude 000:00:00.000 Longitude 000:00:00.000 GPS File R060818B Flowmeter (8)

Comments Transfer 5183, 37-7413B - RENUMBERED TO 37-20614

Reporters

Type	Name / Address	Phone(s)
Owner	FITZGERALD, ANDREW 4 BROTHERS DAIRY INC 427 NORTH 250 WEST SHOSHONE, ID 83352	(Fax)

Flowmeter Data

Year	Date	Calibration Factor	Max CFS	Adj Max CFS	Acre-Ft	Adj Acre-Ft	Acre-Ft Qualif	Valid	Prefrd
2003	6/8/2000	1.08			39.29	42.43	NM	☐	☐
	Comments	end totalizer from audit, reflects meter rollover. NSG reports 93 af, an amount which is ex							
2002	6/8/2000	1.08			35.87	38.74	NM	☐	☐
	Comments	IDWR audit work for report 2002. Gave it a 1 rollover factor. CRK 5-6-03							
2001	6/8/2000	1.08			23.36	25.23	MR	☐	☐
	Comments	No report received. End odometer from IDWR audit, reflects meter rollover. Report receiv							
2000	6/8/2000	1.08			19.42	20.97	MR	☐	☐
	Comments	This well is part of Dairy #2 with two POD's and two meters. CRK 3-21-01							
1999	6/8/2000	1.08			26.68	28.81	MR	☐	☐
	Comments	meter rolled this year							
1998	6/8/2000	1.08			10.57	11.42	PM	☐	☐
	Comments	new meter installed 6/20/98. No meter befor (GPM 2-28-00)							

Flowmeter Calibratio

Calibration Date: 6/8/2000 Calibration Factor: 1.08 401902

Installed Meter

Meter Type:	PROPELLER
Manufacturer:	MCCROMETER
Model:	3
Serial Number:	9834623
Rate Units:	GPM
Rate Multiplier:	1
Volume Units:	GAL
Volume Multiplier:	10
Location:	FAIR
Indicated Flow:	76

Standard Meter

Pipe Material:	STEEL
Outside Diameter:	3.53
Wall Thickness:	0.204
Upstream Straight:	1.125
Downstream Straignt:	0.08
Meter Type:	SONIC
Measured Flow Units:	GPM
Measured Flow:	82
Confidence:	FAIR

Other well(s):

Other meter(s): ☐

Comments:

Changed: 8/25/2000

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD

Site Visits

Site Visit Date	Site Examiner	Reason	Change Date:
6/8/2000	GMOODY	Flowmeter Calibration	11/16/2001

Notes:

POD Data 05S 15E 11 NESWSE

ion Name	Meas Option	POD
TH RANCH WELL		401725

GPS File R101515A Timeclock (7)

ER OWNER PUT NEW MOTOR AND CHANGED TO OPEN
NOW A 60 HP.

Phone(s)

(Fax)

	PCC Date	Utility	Account Number	Service Number
	09/08/1998	IP	02550123890	
	Tracking:		Preferred: ☑	Validated: ☐
			Change Date: 11/13/2001	
	09/08/1998	IP	02550123890	
	Tracking:		Preferred: ☑	Validated: ☐
			Change Date: 11/13/2001	
	..08/1998	IP	145763391	8659442369
	Tracking:		Preferred: ☐	Validated: ☐
			Change Date: 5/3/2002	
	01/01/1997	IP	02550123890	
00)	Tracking:		Preferred: ☐	Validated: ☐
			Change Date: 11/13/2001	

Change Date: 11/13/2001

V	60.12	GPM	817	PCC	399.65	PSI	63	Percent	100
p									
V	0	GPM	0	PCC		PSI	0	Percent	0
p									
V	0	GPM	0	PCC		PSI	0	Percent	0
p									

Avg CFS: Acre-Ft:

	Meas Option	POD

Change Date: 1/20/2005

FS: Acre-Ft:

Change Date: 1/20/2005

FS: 1.53 Acre-Ft:

. Now a 60 HP open discharge well.

Change Date: 5/24/2002

Change Date: 5/24/2002

np configuration. Now an open

□During my inventory the owners
recommend extreme caution
98

Acres	
	80
al	*80*

WMD POD Data 05S 15E 03 NWSWSE

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
05S 15E 03 NWSWSE	A0003664	ADAMS WELL		401726

Latitude 043:00:52.636 Longitude -114:39:34.314 GPS File R101515B PCC (2)

Comments SEE MEMO

Reporters

Type	Name / Address	Phone(s)
Owner	FITZGERALD, ANDREW 4 BROTHERS DAIRY INC 427 NORTH 250 WEST SHOSHONE, ID 83352	(Fax)

PCC Data

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
1997	26127.00	84.6	1	308.82	09/08/1998	IP	12550001969	

Comments: changed qualifier from N 1-20-00 GPM Tracking: Preferred: ☐ Validated: ☐ Change Date: 1/20/2000

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
1998	58717.00	190.13	1	308.82	09/08/1998	IP	12550001969	

Comments: Tracking: Preferred: ☑ Validated: ☐ Change Date: 2/3/2000

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
1999	61996.00	200.75	1	308.82	09/08/1998	IP	12550001969	

Comments: Tracking: Preferred: ☑ Validated: ☐ Change Date: 11/13/2001

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
2000	105944.00	343.06	1	308.82	09/08/1998	IP	12550001969	

Comments: Tracking: Preferred: ☑ Validated: ☐ Change Date: 3/21/2001

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
2001	82235.00	266.29	1	308.82	09/08/1998	IP	145763391	829947975

Comments: Tracking: Preferred: ☐ Validated: ☐ Change Date: 5/3/2002

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
2002	85535.00	276.97	1	308.82	09/08/1998	IP	145763391	829947975

Comments: Tracking: Preferred: ☑ Validated: ☐ Change Date: 1/13/2004

Year	Total KWH	PCC Acre-Ft	Qualifier	PCC	PCC Date	Utility	Account Number	Service Number
2003	55950.00	181.17	1	308.82	09/08/1998	IP	145763391	829947975

Comments: Tracking: Preferred: ☑ Validated: ☐ Change Date: 1/20/2005

PCC Calibration

Date 09/08/1998 PCC: 308.82 Change Date: 1/20/2000

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD

Kilowatt-Hour Meter

Utility: IP
Pole No: 250
Meter Mfgr: G
Meter S/N: 92660016
Disk Const:
Multiplier:

Condition #1	KW	34.8	GPM	612	PCC	308.82	PSI	0	Percent	100
	Descrip									
Condition #2	KW	0	GPM	0	PCC		PSI	0	Percent	0
	Descrip									
Condition #3	KW	0	GPM	0	PCC		PSI	0	Percent	0
	Descrip									

Site Visits

Site Visit Date	Site Examiner	Reason	Change Date:
9/8/1998	DNELSON	PCC Calibration	

Notes: THE OWNERS OF THIS WELL ARE THE FITZGERALD BROTHERS (4 BROS ì□DAIRY). THEY SEEMED HOSTILE DURING THE INVENTORY PROCESS DUE TO ì□A TRANSFER THAT HAD JUST BEEN DENIED. I WOULD USE CAUTION WHEN ì□DEALING WITH THESE GENTLEMEN. DAN 3-27-98

10/15/1997	DNELSON	Inventory

Notes:

Crop History

Year	Crop	Acres
1999	ALFALFA / HAY	260
1999	CORN	40
	1999 Total	***300***

NSG POD Data 05S 17E 09 SWNW

Legal Description	GPS Site ID	Diversion Name	Meas Option	POD
05S 17E 09 SWNW	D0016336	BARN #3		NSG20050

Latitude :: Longitude :: GPS File Flowmeter (8)

Comments 37-8911 - has flow meter installed and should be reporting. Petitioned to NSG in 2002 and mistakenly identified with Barn #2 wells, actually a separate barn.

Reporters

Type	Name / Address	Phone(s)
OWNER	FITZGERALD, ANDREW 4 BROTHERS DAIRY INC 427 NORTH 250 WEST SHOSHONE, ID 83352	(Fax)

Flowmeter Data

Year	Date	Calibration Factor	Max CFS	Adj Max CFS	Acre-Ft	Adj Acre-Ft	Acre-Ft Qualif	Valid	Prefrd
2003	1/1/2005	1					NM	☐	☐

Comments no reports? Meter installed, not on reporting list until 2004

Flowmeter Calibratio

Calibration Date: 1/1/2005 Calibration Factor:

NSG200500001

Installed Meter

Meter Type: PROPELLER
Manufacturer: MASTER
Model:
Serial Number: 2738634
Rate Units: GPM
Rate Multiplier: 1
Volume Units: GAL
Volume Multiplier: 100
Location: FAIR
Indicated Flow:

Standard Meter

Pipe Material:
Outside Diameter:
Wall Thickness:
Upstream Straight:
Downstream Straignt:
Meter Type:
Measured Flow Units:
Measured Flow:
Confidence:

Other well(s):

Other meter(s): ☐

Comments:

Changed: 1/19/2005

108

SCANNED
JUN 16 2007

BROCKWAY
ENGINEERING
P.L.L.C.

Hydraulics
Hydrology
Water Resources

CHARLES E. BROCKWAY, PH.D., P.E.

CHARLES G. BROCKWAY, PH.D., P.E.

2016 NORTH WASHINGTON STREET • SUITE 4

TWIN FALLS, IDAHO 83301

•736•8543

FAX: 736•8506

RECEIVED
FEB - 7 2005
DEPARTMENT OF
WATER RESOURCES

February 3, 2005

Ms. Cynthia Bridge Clark
Idaho Water Resource Board
322 East Front Street
Boise, ID 83720

COPY

Subject: Water Bank Application

Dear Cynthia:

Enclosed please find the applications for 4-Brothers Dairy, Inc. (C/O Andrew Fitzgerald) to place water in the Water Bank and also to lease water from the Water Bank through December 31, 2005.

Transfer # 71607 is currently pending to accomplish the change permanently, however the formal approval will likely occur past the date when the water is most needed and it is hoped that a temporary solution can be achieved.

I have also enclosed the ESPA Transfer Spreadsheet analysis which indicates that *all river reaches will actually benefit* from the change in POD for the first 25 years, with minimal pumping reduction (6%) required after 35 years to prevent additional river depletion in the Milner to King Hill reach of the Snake River.

Please call if you have any questions, or need any additional information.

Sincerely,

Jason C. Helms, EIT

Enclosure: Water Supply Bank Rental Agreement

cc: Andrew Fitzgerald
Rob Williams

cc: Protested Appl. for Transfer hearing file.

Form 42-1761
01/03

Water Supply Bank No. _____
Water Right No. _____

COPY

RECEIVED
FEB 07 2005
DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION TO SELL OR LEASE A WATER RIGHT TO THE WATER SUPPLY BANK

Name of Seller/Lessor 4 Bros Dairy, Inc. C/O Andrew Fitzgerald

Phone (208) 886-7716 Post office address 427 N. 250 W. Shoshone, ID 83352

1 DESCRIPTION OF RIGHT:

Right as evidenced by:

a. Decree No. 37-20613 Decreed to Herbert McCowan (Name)

in case of SRBA - Partial Decree vs _____

dated 12/11/2002 in Lincoln county of _____ (Name of Court)

b. License No. 37-7413 issued by the Idaho Department of Water Resources

c. Permit No. _____ issued by the Idaho Department of Water Resources.

2 DESCRIPTION OF PORTION OF RIGHT FOR SALE OR LEASE: (If the entire right is for sale or lease, show "all" on line a. below and skip the remainder of part 2.)

a. Amount of water under right: 1.12 cubic feet per second

& / or

309.6 acre-feet per annum

b Point of diversion NE ¼ of SE ¼ of Section 20 Township 6S Range 18E

B.M in Lincoln County

Additional points _____

_____

c Place of use: _____

TWP	RGE	SEC	N E.				N W.				S W				S E.				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06S	18E	20													38 7			38 7	77 4

If the right is for irrigation, show the number of acres for the part of the right to be put into the bank

Total number of acres 77.4

NOTE: Transfer 71607 in process

3. ADDITIONAL INFORMATION ABOUT RIGHT, OR PORTION THEROF, FOR SALE OR LEASE

a. Explain how the seller/lessor acquired the right, or portion thereof, and attach a copy of the deed to the land to which it is appurtenant or other evidence of ownership of the right. If the right is not recorded in the name of the seller/lessor, attach a copy of a change of ownership form as required by Section 42-248 or 42-1409(6), Idaho Code, together with required documentation.

Purchased for transfer, formal transfer proceedings will be unlikely resolved before water is needed.

b. Describe the frequency of water use under the right, or portion thereof, during the past five (5) years of use. Attach watermaster records, pumping power bills, or other evidence to demonstrate that the right has not been lost through abandonment or forfeiture. (This information is not required if a partial decree has been issued on the right within the last 5 years.)

Water has been used, and review for transfer #71607 shows no known difficulties.

ESPAM analysis shows no increased reach depletions during first 35 years at new point of diversion.

c. If the right is from a surface water source, describe the period of the year that water is typically available to satisfy the right.

d. Describe any other water rights with the same purpose and place of use as the right, or portion thereof, offered for lease. Will the present place of use continue to receive water from any source? If so, describe

None. Land will not be irrigated while this right is accepted into the water bank.

e If the water right is a permit, describe the work accomplished toward developing the right

f If the right to use the water or the use of the diversion works or irrigation system is represented by shares of stock in a company or corporation, or if such works or system is owned or managed by an irrigation district, a written consent of the sale or lease must be attached.

4. Remarks:

Form 42-1761
01/03

5. SALE/LEASE AGREEMENT

1. The water right, or portion thereof, described above is offered to the Idaho Water Resource Board:

_____ For Sale;

__X__ For Lease for period from 03/15/2005 (Month Day Year) to 11/15/2005 (Month Day Year)

(The lease period may be shown as "indefinite", if the total duration of lease is unkown); or

_____ As a gift to the State of Idaho

2. Show the minimum payment acceptable to the Seller/Lessor Include the method of determining the minimum payment. The minimum payment may be shown as the "current rental rate"

Current rental rate

I hereby assert that the information contained in this application is true to the best of my knowledge, and that I have the authorities necessary to offer the sale or lease of this right to the Idaho Water Resource Board.

The owner/lessor acknowledges the following:

1. Payment to the owner/lessor is contingent upon the sale or rental of the right from the bank.
2. While a right is in the bank, the owner of the right may not use the right even if the right is not rented
3. A right accepted into the bank stays in the bank until the Board releases it or until the lease term expires.
4. While a water right is in the bank, forfeiture provisions are stayed.
5. Acceptance of a right into the bank does not, in itself, confirm the validity of the right or any elements of the water right.

2-1-05
Date

Andrew Fitzgerald SECTRES
Signature

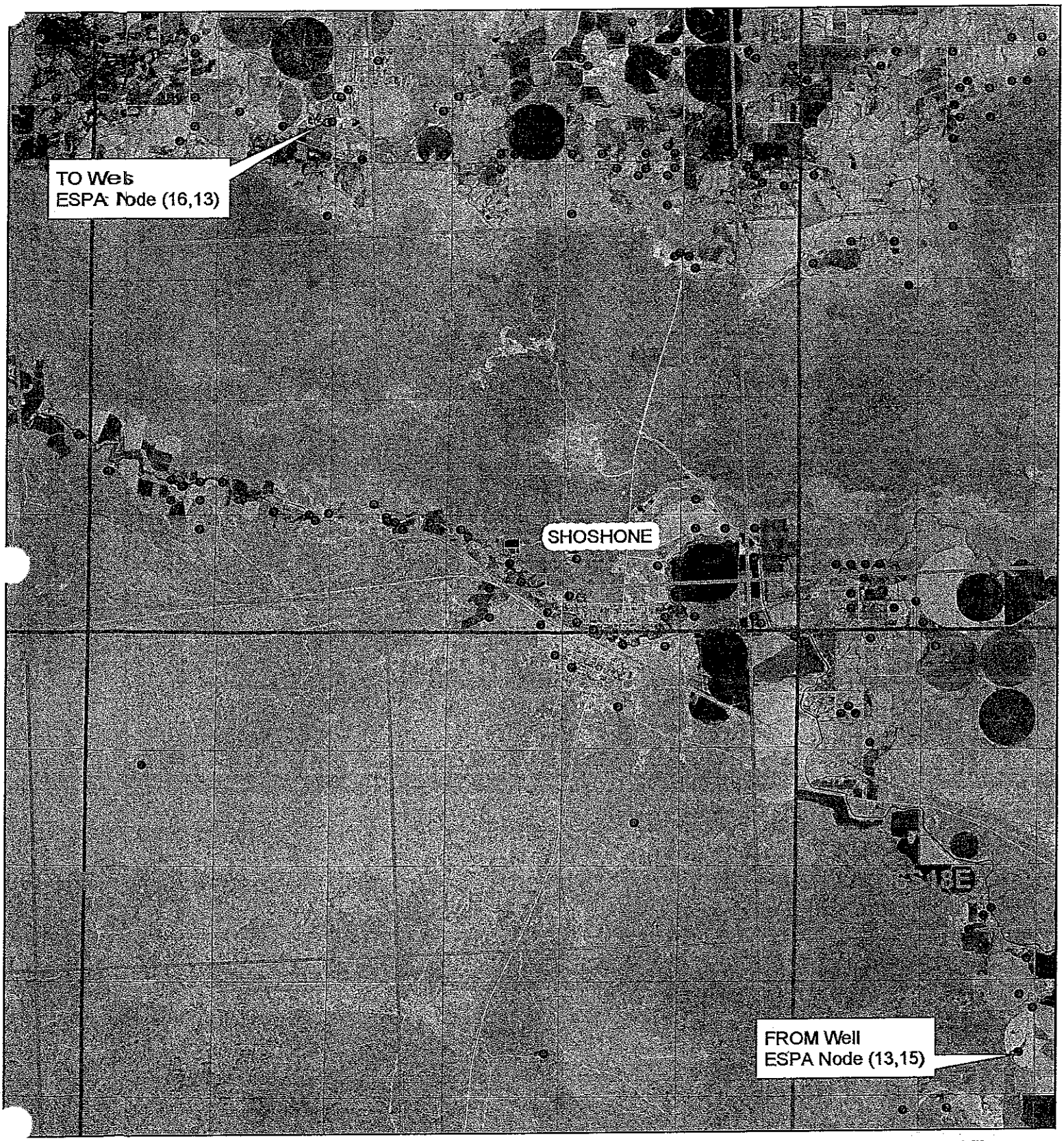
FOR DEPARTMENT USE ONLY

Received by _____ Date _____ Preliminary check by _____

Watermaster recommendation requested on _____ Received _____

Recommended for _____ approval _____ denial by _____

4-Bros. Dairy, Inc.
Water Bank Application 2005



2003 NAIP Aerial Photo - Lincoln County

0 0.5 1 2 3 4 5 Miles

townships sections modelgrid

Brockway Engineering, PLLC
JCH - Feb. 1, 2005

Transfer Mitigation Through Reduced Pumping

Proposed Pumping Schedule and Mitigation with Reduced Volume

Applicar 4 Brothers Dairy Ground Water Pumping Noc (16, 13) Prepared 1/13/05 - JCH

Transfer from McCowan (77.4 ac. 13,15) - 100%

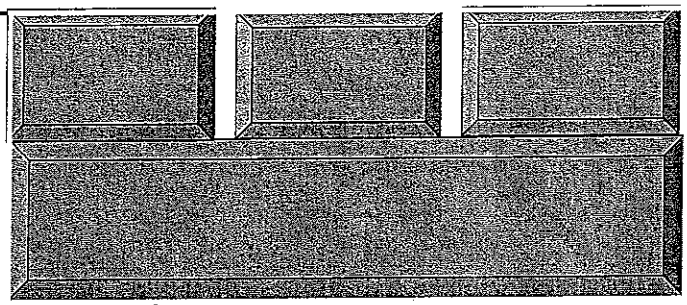
Years			Consumptive Volume (on 77.4 Acres)			Calculated Impact (+) is depletion							
						[Af/Year]	[Net %]	[Af/Year]	[Net %]	[Af/Year]	[Net %]	[Af/Year]	[Net %]
Begin	End	Number	Actual	Transferred	Percent	Heise/Ashton to Lewisville		Shelley to Neeley		Neeley to Minidoka		Milner to King Hill	
			Af/yr	Af/Year	pumped volun								
2004	2005	1	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2005	2006	1	232.2	232.2	100%	0.0	0.0	0.0	0.0	-0.1	-0.5	-12.4	-7.9
2006	2007	1	232.2	232.2	100%	0.0	0.0	0.0	-0.1	-0.8	-3.1	-38.5	-24.3
2007	2008	1	232.2	232.2	100%	0.0	0.0	-0.1	-0.5	-1.8	-7.5	-56.5	-35.5
2008	2009	1	232.2	232.2	100%	0.0	-0.1	-0.3	-1.4	-3.0	-12.3	-65.0	-40.6
2009	2010	1	232.2	232.2	100%	0.0	-0.4	-0.5	-2.9	-4.2	-16.8	-67.4	-42.0
2010	2011	1	232.2	232.2	100%	0.0	-0.8	-0.9	-4.7	-5.2	-20.8	-66.5	-41.2
2011	2012	1	232.2	232.2	100%	0.0	-1.5	-1.3	-6.9	-6.1	-24.2	-63.7	-39.4
2012	2013	1	232.2	232.2	100%	0.0	-2.5	-1.8	-9.2	-6.9	-27.1	-60.0	-37.0
2013	2014	1	232.2	232.2	100%	0.0	-3.7	-2.3	-11.6	-7.6	-29.6	-55.9	-34.4
2014	2015	1	232.2	232.2	100%	-0.1	-5.2	-2.9	-14.0	-8.2	-31.7	-51.7	-31.7
2015	2016	1	232.2	232.2	100%	-0.1	-6.8	-3.4	-16.3	-8.7	-33.5	-47.5	-29.0
2016	2017	1	232.2	232.2	100%	-0.1	-8.5	-3.9	-18.5	-9.2	-34.9	-43.5	-26.5
2017	2018	1	232.2	232.2	100%	-0.1	-10.3	-4.4	-20.6	-9.5	-36.2	-39.6	-24.1
2018	2019	1	232.2	232.2	100%	-0.2	-12.1	-4.9	-22.5	-9.9	-37.2	-35.9	-21.8
2019	2020	1	232.2	232.2	100%	-0.2	-13.9	-5.3	-24.3	-10.2	-38.1	-32.4	-19.6
2020	2021	1	232.2	232.2	100%	-0.2	-15.6	-5.7	-25.9	-10.4	-38.8	-29.1	-17.6
2021	2022	1	232.2	232.2	100%	-0.2	-17.3	-6.1	-27.3	-10.6	-39.3	-25.9	-15.6
2022	2023	1	232.2	232.2	100%	-0.3	-18.9	-6.5	-28.7	-10.8	-39.7	-23.0	-13.9
2023	2024	1	232.2	232.2	100%	-0.3	-20.4	-6.8	-29.8	-10.9	-40.1	-20.3	-12.2
2024	2025	1	232.2	232.2	100%	-0.3	-21.8	-7.1	-30.9	-11.0	-40.3	-17.7	-10.6
2025	2026	1	232.2	232.2	100%	-0.3	-23.1	-7.4	-31.8	-11.1	-40.5	-15.3	-9.2
2026	2027	1	232.2	232.2	100%	-0.4	-24.3	-7.6	-32.6	-11.2	-40.6	-13.0	-7.8
2027	2028	1	232.2	232.2	100%	-0.4	-25.5	-7.9	-33.3	-11.2	-40.6	-10.9	-6.5
2028	2029	1	232.2	232.2	100%	-0.4	-26.5	-8.1	-33.9	-11.2	-40.6	-9.0	-5.3
2029	2030	1	232.2	232.2	100%	-0.4	-27.4	-8.2	-34.5	-11.3	-40.5	-7.1	-4.2
2030	2031	1	232.2	232.2	100%	-0.4	-28.3	-8.4	-34.9	-11.3	-40.5	-5.4	-3.2
2031	2032	1	232.2	232.2	100%	-0.4	-29.0	-8.5	-35.3	-11.3	-40.3	-3.8	-2.3
2032	2033	1	232.2	232.2	100%	-0.5	-29.7	-8.7	-35.6	-11.3	-40.2	-2.3	-1.4
2033	2034	1	232.2	232.2	100%	-0.5	-30.3	-8.8	-35.9	-11.2	-40.0	-0.9	-0.5
2034	2035	1	232.2	232.2	100%	-0.5	-30.9	-8.9	-36.1	-11.2	-39.9	0.4	0.2
2035	2036	1	232.2	232.2	100%	-0.5	-31.4	-9.0	-36.3	-11.2	-39.7	1.6	1.0
2036	2037	1	232.2	232.2	100%	-0.5	-31.8	-9.1	-36.4	-11.2	-39.5	2.8	1.6
2037	2038	1	232.2	232.2	100%	-0.5	-32.2	-9.1	-36.5	-11.1	-39.3	3.8	2.3
2038	2039	1	232.2	232.2	100%	-0.5	-32.5	-9.2	-36.5	-11.1	-39.1	4.8	2.9
2039	2040	1	232.2	232.2	100%	-0.5	-32.8	-9.2	-36.6	-11.1	-38.9	5.8	3.4
2040	>>>>>	1	218.5	232.2	94%	-0.7	-35	-10	-35	-11	-36	7.6	3.9
LONG TERM			218.3	232.2	94%	-0.7	-35	-10	-35	-11	-36	7.6	4.4

Applicant must reduce annual pumping to mitigate increased depletion in Milner-King Hill Reach

GROUND-WATER RIGHTS TRANSFER SPREADSHEET

UNIVERSITY OF IDAHO - IDAHO WATER RESOURCES RESEARCH INSTITUTE | IDAHO DEPA

Cells this color are set up for user entries



ENTER STARTING DATE FO Transfer:
SIMULATION. THEN PUSH 71607
"UPDATE DATES" BUTTON Applicant:
YEAR 1957 4Bros(5S,17E)
SEASON SUMMER

ENTER CELL LOCATIONS:	'TO' CELL	McCowan 'FROM1' CELL	'FROM2' CELL	'FROM3' CELL
ROW	16	13		
COLUMN	13	15		

Larsen Fraction: 1 00
Fraction: 0 00
Fraction: 0 00
Pumped Fraction: varies
scale factor: 0.77

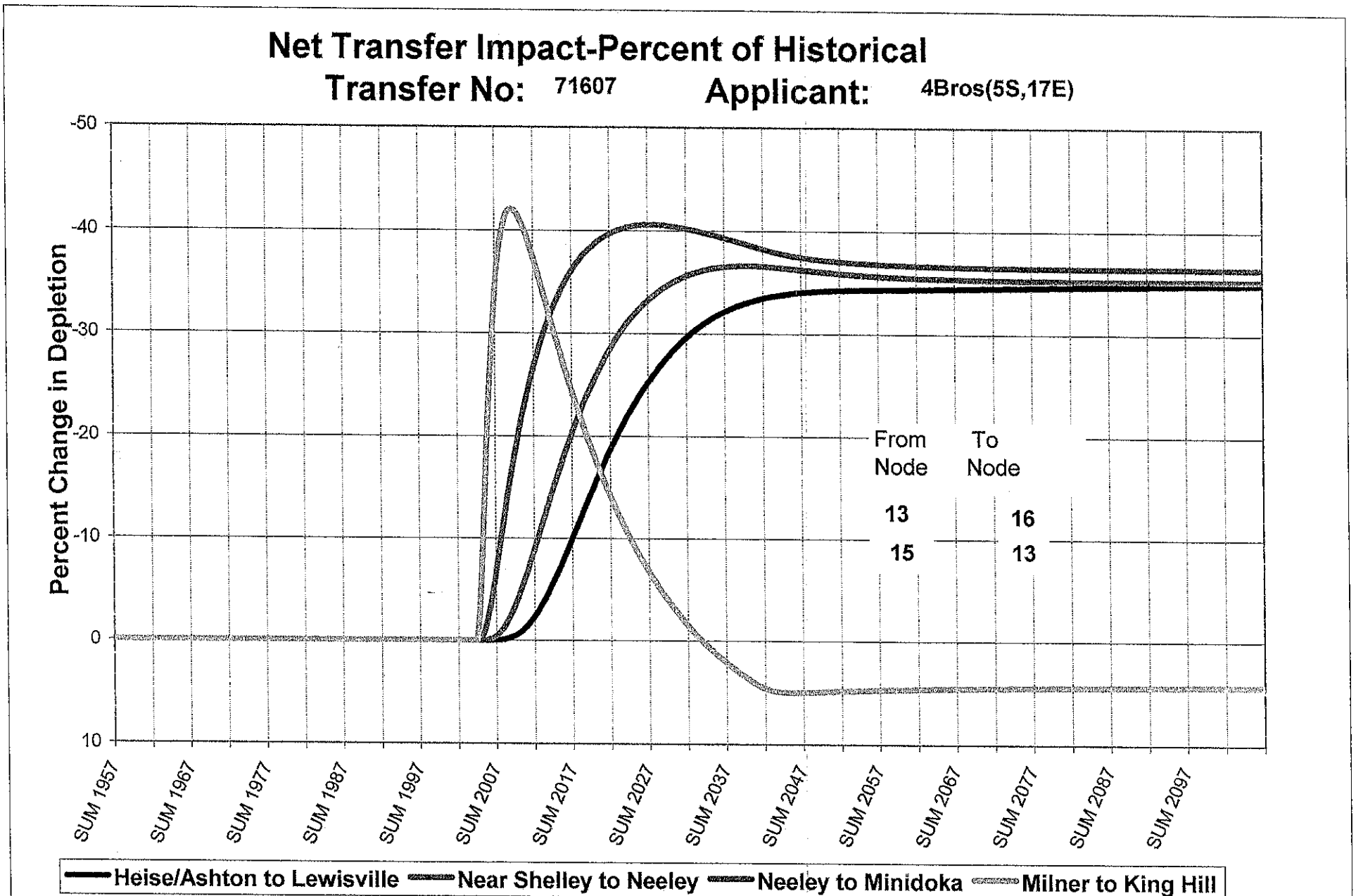
TRIMESTER OF ACTIVITY	TO WELL Projected Use AF/TRIMESTER	FROM1 WELL With Transfer AF/TRIMESTER	FROM1 WELL Without Transfer AF/TRIMESTER	FROM2 WELL With Transfer AF/TRIMESTER	FROM2 WELL Without Transfer AF/TRIMESTER	FROM3 WELL With Transfer AF/TRIMESTER	FROM3 WELL Without Transfer AF/TRIMESTER
SUM 1957	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1957	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1958	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1958	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1958	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1959	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1959	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1959	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1960	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1960	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1960	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1961	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1961	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1961	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1962	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1962	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1962	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1963	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1963	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1963	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1964	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1964	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1964	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1965	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1965	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1965	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1966	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1966	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1966	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1967	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1967	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1967	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1968	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1968	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1968	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1969	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1969	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1969	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1970	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TRIMESTER OF ACTIVITY	TO WELL Projected Use AF/TRIMESTER	FROM1 WELL With Transfer AF/TRIMESTER	FROM1 WELL Without Transfer AF/TRIMESTER	FROM2 WELL With Transfer AF/TRIMESTER	FROM2 WELL Without Transfer AF/TRIMESTER	FROM3 WELL With Transfer AF/TRIMESTER	FROM3 WELL Without Transfer AF/TRIMESTER
SUM 1970	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1970	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1971	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1971	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1971	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1972	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1972	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1972	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1973	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1973	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1973	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR 1974	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SUM 1974	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WIN 1974	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1975	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1975	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1975	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1976	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1976	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1976	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1977	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1977	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1977	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1978	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1978	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1978	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1979	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1979	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1979	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1980	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1980	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1980	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1981	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1981	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1981	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1982	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1982	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1982	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1983	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1983	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1983	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1984	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1984	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1984	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1985	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1985	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1985	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1986	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1986	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1986	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1987	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1987	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1987	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1988	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1988	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1988	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1989	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1989	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1989	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1990	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1990	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1990	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1991	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1991	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1991	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1992	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1992	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1992	0.00	77.40	77.40	0.00	0.00	0.00	0.00

TRIMESTER OF ACTIVITY	TO WELL Projected Use AF/TRIMESTER	FROM1 WELL With Transfer AF/TRIMESTER	FROM1 WELL Without Transfer AF/TRIMESTER	FROM2 WELL With Transfer AF/TRIMESTER	FROM2 WELL Without Transfer AF/TRIMESTER	FROM3 WELL With Transfer AF/TRIMESTER	FROM3 WELL Without Transfer AF/TRIMESTER
SPR 1993	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1993	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1993	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1994	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1994	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1994	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1995	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1995	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1995	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1996	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1996	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1996	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1997	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1997	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1997	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1998	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1998	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1998	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 1999	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 1999	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 1999	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 2000	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 2000	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 2000	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 2001	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 2001	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 2001	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 2002	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 2002	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 2002	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 2003	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 2003	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 2003	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 2004	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SUM 2004	0.00	77.40	77.40	0.00	0.00	0.00	0.00
WIN 2004	0.00	77.40	77.40	0.00	0.00	0.00	0.00
SPR 2005	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2005	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2005	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2006	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2006	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2006	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2007	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2007	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2007	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2008	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2008	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2008	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2009	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2009	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2009	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2010	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2010	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2010	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2011	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2011	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2011	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2012	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2012	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2012	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2013	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2013	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2013	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2014	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2014	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2014	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2015	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2015	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2015	77.40	0.00	77.40	0.00	0.00	0.00	0.00

TRIMESTER OF ACTIVITY	TO WELL Projected Use AF/TRIMESTER	FROM1 WELL With Transfer AF/TRIMESTER	FROM1 WELL Without Transfer AF/TRIMESTER	FROM2 WELL With Transfer AF/TRIMESTER	FROM2 WELL Without Transfer AF/TRIMESTER	FROM3 WELL With Transfer AF/TRIMESTER	FROM3 WELL Without Transfer AF/TRIMESTER
SPR 2016	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2016	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2016	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2017	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2017	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2017	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2018	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2018	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2018	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2019	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2019	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2019	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2020	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2020	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2020	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2021	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2021	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2021	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2022	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2022	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2022	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2023	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2023	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2023	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2024	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2024	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2024	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2025	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2025	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2025	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2026	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2026	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2026	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2027	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2027	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2027	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2028	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2028	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2028	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2029	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2029	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2029	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2030	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2030	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2030	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2031	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2031	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2031	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2032	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2032	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2032	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2033	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2033	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2033	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2034	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2034	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2034	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2035	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2035	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2035	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2036	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2036	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2036	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2037	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2037	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2037	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2038	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2038	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2038	77.40	0.00	77.40	0.00	0.00	0.00	0.00

TRIMESTER OF ACTIVITY	TO WELL	FROM1 WELL		FROM2 WELL		FROM3 WELL	
	Projected Use	With Transfer	Without Transfer	With Transfer	Without Transfer	With Transfer	Without Transfer
	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER
SPR 203	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 203	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 203	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 204	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SUM 204	77.40	0.00	77.40	0.00	0.00	0.00	0.00
WIN 204	77.40	0.00	77.40	0.00	0.00	0.00	0.00
SPR 204	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 204	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2041	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2042	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2042	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2042	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2043	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2043	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2043	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2044	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2044	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2044	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2045	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2045	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2045	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2046	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2046	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2046	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2047	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2047	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2047	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2048	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2048	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2048	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2049	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2049	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2049	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2050	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2050	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2050	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2051	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2051	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2051	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2052	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2052	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2052	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2053	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2053	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2053	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2054	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2054	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2054	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2055	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2055	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2055	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2056	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2056	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2056	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2057	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2057	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2057	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2058	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2058	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2058	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2059	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2059	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2059	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2060	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2060	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2060	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SPR 2061	72.76	0.00	77.40	0.00	0.00	0.00	0.00
SUM 2061	72.76	0.00	77.40	0.00	0.00	0.00	0.00
WIN 2061	72.76	0.00	77.40	0.00	0.00	0.00	0.00


Net Transfer Impact-Percent of Historical
Transfer No: 71607
Applicant: 4Bros(5S,17E)
Percent Change in Depletion
-50
-40
-30
-20
-10
0
10
From Node
To Node
13
16
15
13
SUM 1957
SUM 1967
SUM 1977
SUM 1987
SUM 1997
SUM 2007
SUM 2017
SUM 2027
SUM 2037
SUM 2047
SUM 2057
SUM 2067
SUM 2077
SUM 2087
SUM 2097
Heise/Ashton to Lewisville
Near Shelley to Neeley
Neeley to Minidoka
Milner to King Hill

12/99

RECEIVED

FEB 0 7 2005

DEPARTMENT OF WATER RESOURCES

COPY

Before the Idaho Water Resources Board

APPLICATION TO RENT WATER FROM THE WATER SUPPLY BANK

Applicant: 4 Bros Dairy, Inc. C/O Andrew Fitzgerald Phone No.: 208) 886-7716

Address: 427 N. 250 W.

City: Shoshone, State: ID Zip Code: 83352

A. DESCRIPTION OF WATER SOUGHT FOR RENTAL

1. Source of water Ground Water

   Which is tributary to

2. Maximum volume of water sought 232.2 AF
3. Maximum rate of diversion 1.12 cfs

B. DESCRIPTION OF USE PROPOSED

1. Nature of use: Stock Water
2. Location of point of diversion: SE ¼ SE ¼, Section 5,

   Township 5S, Range 17E, B M Lincoln County
3. Season of use: From 1/1 to 12/31.
4. Description of diverting works:

   Pump HP: 100 Lift: 200+? Pump type: Vertical Turbine+Cent.

   Canal Name, if appropriate:
5. Place of use:

   a. If water is for irrigation, describe the number of acres to be irrigated by 40-acre tract, section, township and range.

   b. If water is not for irrigation, describe the nature of the intended use and place of use

   Provide water for stock water & commercial uses at the dairy.

12/99

6. Describe any other water rights used for the same purposes as rental water sought under this application.

37-8911, 37-10444, 37-10446

7. Who owns the property at the point of diversion?

4 Bros. Dairy, Inc.

8 Who owns the property at the place of use?

4 Bros. Dairy, Inc.

9. Are you seeking a rental for more than one (1) year? No

If so, how many years? _____

10 Remarks: Land to be served by existing Wells. Formal transfer #71607 pending for same purpose.

2-1-05
Date

Andrew Fitzgerald SECTRES
Signature of Applicant

FOR DEPARTMENT USE ONLY

Received by: _____ Date: _____ Time: _____

Published in: _____ Publish Date: _____

Protests filed by: _____

Hearing held by: _____

Action recommended: _____

State of Idaho
DEPARTMENT OF WATER RESOURCES
1341 Fillmore Street, Suite 200, Twin Falls, ID 83301-3380
Phone: (208) 736-3033 FAX: (208) 736-3037

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

May 8, 1997

Charles G Brockway
Brockway Engineering
706 Sunrise Blvd
Twin Falls, ID
83301

RE: Application for Transfer, Black Butte Properties

Dear Chuck;

I am doing the staff analysis for the above-referenced application. In order to facilitate the process, I have requested a change-of-ownership form from Mike Branchflower for his portion of the water right. This will allow us to describe his portion of the Janss right (X36-07460M) as a separate water right before the transfer is processed. Once this is done, the application can be corrected to show only the Black Butte water in Part 1 (Part 1 now shows both the transferred and untransferred portions of Mike's 2.68 cfs).

With regard to the proposed new place of use, I have a question. Does the applicant plan to use the groundwater to supplement his surface rights on the existing farm ground, or will new land be added? Either way, Part 1.B.5. should show the actual land that will be or could be irrigated. A fair portion of the described property is not farmable according to the quad map that you provided. There is no problem with describing a PPU, but it should only include farmable land. In the case of the PPU for the Brockman and Schroeder transfers that you worked on, all of the proposed new place of use appears to be farmable. Please provide a recent ASCS aerial photo, and work up a revised land list from the photo.

With regard to the proposed new water system, I am a little confused on how it will work. It seems like one well would be enough, but they request two wells - why? With two wells, it appears that they could have a larger pumping capacity than could be allowed under the transfer.

I agree that the validity of this water right is not in question,

State of Idaho
DEPARTMENT OF WATER RESOURCES
1341 Fillmore Street, Suite 200, Twin Falls, ID 83301-3380
Phone: (208) 736-3033 FAX: (208) 736-3037

PHILIP E. BATT
GOVERNOR

KARL J. DREHER
DIRECTOR

and I do not plan to visit the original place of use. I may visit the Black Butte property, but am not yet sure on this.

For your information, Part 2 of the transfer (the present form, not the experimental one) is used only to describe an existing water right. Any proposed changes should be described in Part 1. I will correct this during my staff review.

Doug Jones tells me that Mike's right involves all three of the Janss wells, so we will continue to show it this way. Since none of this right will be used on the Janss property, this is basically for record-keeping purposes. All the 2.68 cfs will eventually be transferred to somewhere else.

Regards,

James E. Stanton
Sr. Water Resource Agent

TO: File DATE: May 12, 1997

FROM: Jim Stanton

SUBJECT: App. for Transfer, Black Butte Properties

Today I talked to both Chuck Brockway Sr. & Jr. regarding my letter of last week on this transfer. We agreed on some changes to be made, and disagreed on others. I asked Brockway Engineering to come up with a new land list based on ASCS photos, but Chuck Jr. refused to do this; he cited additional expense to the applicant as his reason. I will therefore do this myself in order to come up with a reasonable place of use. After reviewing the ASCS data, I may need to visit the property to verify what is presently irrigated. I asked Jr. why they needed two wells, and he said that one well would probably not supply the requested flow rates due to problems with the groundwater supply in the area.. Besides pumping directly into the sprinklers, water may be pumped in the pond before being relifted into the sprinklers.

Although we did not talk about it (I just now thought of it), I question the need or value of winter storage in the proposed pond.. It is my understanding that the pond will be used mainly for boat races, so would have no winter use. There would seem to be less water loss if water is only stored during the irrigation/recreation season.

As there has already been public opposition to these ski ponds in the Wood River Valley, I expect this application to be protested.

I will hold this application until the Branchflower portion of this water right is given its own number.

T#5:98

Sherl L. Chapman Consulting, Inc.

410 S. Orchard / Suite 144 / Boise, Idaho 83705 / Phone (208) 344-6690
Fax (208) 344-2744 / Email chapmaninc@rmci.net

April 22, 1998

Mr. Carl Pendleton
50 W. 620 N.
Shoshone, ID 83352

Dear Carl:

I've reviewed the information you and I discussed over the telephone April 20th relating to the Black Butte Properties Project. I've enclosed a modified Table 1 which has eliminated the Arensberg well and substituted the Sheer well with the appropriate numbers. Additionally, during my review I found a typographical error on the Stechelin drawdown at 0.5 cfs for 92 days, which I've corrected on this particular graph I've enclosed five copies of the corrected graph for distribution to the protestants.

I've also reviewed the data surrounding the wells at the Black Butte Properties in order to give you some information for discussion with the applicant. During the Brockway test the well was pumped for about 50 hours at 220 gallons per minute or .49 cubic feet per second. The drawdown during that period was slightly over 36 feet. The projections set forth in the table I've provided you calculates the proposed drawdown for a period of 92 days (2,208 hours) and 182 days (4,368 hours). Based on the data we have at hand, it appears that the drawdown in the Black Butte pumping well under continuous operation for approximately 90 days at .80 cfs would result in drawdown of the pumped well in excess of 40 feet. If the well were pumped at .5 cfs the drawdown would exceed 21 feet and at .2 cfs for 92 days the drawdown would exceed 8 5 feet. In addition, the drilling of up to 20 additional wells for domestic purposes could result in an instantaneous diversion rate of an additional 4 cubic feet per second or 179 gallons per minute. This would probably result in additional drawdowns at the Black Butte site of as much as 10-15 feet depending upon how the wells were operated and whether or not pumping was simultaneous and for what duration. Unfortunately, it is very difficult to calculate those effects since domestic wells are not operated on a specific schedule. I can only say that there would be additional drawdowns, particularly close to the lake and those drawdowns may or may not be seen in the domestic wells of the protestants because of the distance involved. However, it is clear that the additional 20 wells would, in fact, withdraw water from the aquifer and cause overall depletions during times of drought. As you've indicated, the time of particular concern is during late summer and fall when recharge from canals and irrigation systems is beginning to decline and the pressure on the aquifer to maintain the lake level and for domestic purposes may increase.

As I indicated I would, I called Mr. Brockway back and let him know that we are discussing this issue and will be getting back to him in the near future with our thoughts on the application.

If you have any questions, please give me a call.

Sincerely yours,

Sherl L. Chapman
President

SLC:kje

TABLE 1
BLACK BUTTE PROPERTIES, LLC PROJECT
ESTIMATED IMPACTS IN FEET AT SELECTED WELLS

T = 92 DAYS CONTINUOUS PUMPING

NAME	FLOW – 0.2 CFS	FLOW – 0.5 CFS	FLOW – 0.8 CFS	DISTANCE FROM PUMPING WELL
Pendleton	3.3	8.3	13.4	16,500'
Stechelin	2.9	7.3	11.7	12,300'
Albright	4.3	10.8	17.4	8,600'
Sheer	2.8	7.1	11.3	12,600'
Tews	4.3	10.8	17.3	8,600'

T = 182 DAYS CONTINUOUS PUMPING

NAME	FLOW – 0.2 CFS	FLOW – 0.5 CFS	FLOW – 0.8 CFS	DISTANCE FROM PUMPING WELL
Pendleton	4.3	10.8	17.3	16,500'
Stechelin	3.9	9.7	15.6	12,300'
Albright	5.3	13.3	21.3	8,600'
Sheer	3.8	9.5	15.2	12,600'
Tews	5.3	13.3	21.3	8,600'

Sherl L. Chapman Consulting, Inc.

410 S. Orchard / Suite 144 / Boise, Idaho 83705 / Phone (208) 344-6690
Fax (208) 344-2744 / Email chapmaninc@rmci.net



TO: Mr. Carl Pendleton

FROM: Sherl L. Chapman, President

DATE: April 8, 1998

SUBJECT: BLACK BUTTE PROPERTIES LLC – TRANSFER APPLICATION

This office was contacted by Mr. Carl Pendleton representing a number of protestants against water right transfer application #5098 in the name of Black Butte Properties LLC late in 1997. Mr. Pendleton indicated that the applicant was wishing to transfer ground water from an existing water right to property near Shoshone to use for irrigation, recreation, and aesthetics. He and others in the area were concerned about impacts to their water wells and because of those concerns had protested the application for transfer. Mr. Charles Brockway of Twin Falls, Idaho had conducted a hydrologic investigation of the area in behalf of the applicants, which indicated that there would be no net change in consumptive use from the ground water system or aquifer underlying the area. However, regardless of whether or not there is a change in consumptive use there is a concern over whether or not water levels in existing domestic wells will be lowered with potential damage to the owners. Because of those concerns Mr. Pendleton asked me to review the application to determine whether or not a compromise could be reached that would satisfy the needs of the protestants while allowing consideration of the transfer by the Idaho Department of Water Resources. An agreement was struck between the two parties providing for independent analysis of the Brockway data and perhaps a proposal for settlement that would eliminate the need for a formal water right hearing on the issues.

The primary objectives of the analysis were to determine whether or not the Brockway investigation was accurate and conducted in accordance with accepted hydrologic techniques and to determine what potential impacts might occur to the protestants wells if the application for transfer were approved. Once these parameters were determined the goal was to determine whether or not there is a flow rate that could be recommended that would minimize the impact to the protestants and still satisfy the needs of the applicant.

Mr. Brockway provided me with hydrologic and other data relating to the water right investigation on February 9, 1998. Additional data were provided on April 1, 1998. I visited the area on March 17th and met with Mr. Pendleton. We located the protestants domestic wells in the area and examined the wells that had been drilled on the Black

Butte project. At least four (4) wells had been drilled around the pond that is to be used for recreation (water skiing) and aesthetics. The location of all of the wells were subsequently plotted on an orthophoto quadrangle map in order to determine relative distances and locations from the wells to be used by Black Butte Properties.

Part of the data submitted by Brockway Engineering included an analysis of a pumping well test conducted by Mr. Brockway on December 10-12, 1997. The primary well was pumped at 220 gallons per minute for approximately 50 hours and water level changes were measured in three (3) other wells on Black Butte Properties. Mr Brockway then conducted a number of hydrologic analyses of aquifer response using standard modeling techniques and the Theis approach to aquifer analysis. The data collected by Mr. Brockway, the data tabulation, and the hydrologic analysis were reviewed and analyzed in an effort to determine whether or not they were appropriate for the area and accurately represented the expected aquifer response to pumping of the wells on the Black Butte Properties Based upon that review it is my belief that the analysis is reasonable and the data were tabulated and analyzed correctly.

A part of the analysis included a table showing anticipated changes in water level based upon a constant pumping rate and a time period for continuous pumping out to 182 days or approximately six (6) months. Values were obtained for pumping rates of .2, .5, and .8 cubic feet per second. By using these tables and the known distances from the pumping well to the protestants wells, estimated declines in the protestants wells were predicted at three pumping rates and for 92 days and 182 days continuous pumping respectively. If necessary, expected water level declines may be calculated for other flow rates and times as well.

Table 1 shows the expected decline in water level in the protestants well for each of the pumping rates for both 92 and 182 days. The protestants should review this table and determine whether or not any of the values are acceptable For example, it is anticipated that if the Black Butte well or wells are pumped at 0.5 cubic feet per second or 325 gallons per minute the anticipated water level decline after 92 days of continuous pumping in Carl Pendleton's well would be about 8.3 feet. The greatest decline at this rate and time would occur in the Arensberg well, which would decline about 13.1 feet. If the Black Butte wells were pumped at 225 gallons per minute for 182 days the water level decline in Carl Pendleton's well would be about 10.8 feet and 15.6 feet in the Arensberg well. It is important to note that these impacts are based on a continuous pumping rate for the entire period calculated. Generally, this does not occur and so it may be anticipated that the impact to any particular domestic well may be less than that listed on the table.

TABLE 1
BLACK BUTTE PROPERTIES, LLC PROJECT
ESTIMATED IMPACTS IN FEET AT SELECTED WELLS

T = 92 DAYS CONTINUOUS PUMPING

NAME	FLOW – 0.2 CFS	FLOW – 0.5 CFS	FLOW – 0.8 CFS	DISTANCE FROM PUMPING WELL
Pendleton	3.3	8.3	13.4	16,500'
Stechelin	2.9	~~4.8~~ 7.3	11.7	12,300'
Albright	4.3	10.8	17.4	8,600'
Arensberg	5.3	13.1	21.1	6,200'
Tews	4.3	10.8	17.3	8,600'
SHEER	2.8	~~4.7~~ 7.1	11.3	12,600

T = 182 DAYS CONTINUOUS PUMPING

NAME	FLOW – 0.2 CFS	FLOW – 0.5 CFS	FLOW – 0.8 CFS	DISTANCE FROM PUMPING WELL
Pendleton	4.3	10.8	17.3	16,500'
Stechelin	3.9	9.7	15.6	12,300'
Albright	5.3	13.3	21.3	8,600'
Arensberg	6.3	15.6	25.0	6,200'
Tews	5.3	13.3	21.3	8,600'
SHEER	3.8	9.5	15.2	12,600

TABLE 1
BLACK BUTTE PROPERTIES, LLC PROJECT
ESTIMATED IMPACTS IN FEET AT SELECTED WELLS

T = 92 DAYS CONTINUOUS PUMPING

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Albright	5.3	13.3	21.3	8,600'
Sheer	3.8	9.5	15.2	12,600'
Tews	5.3	13.3	21.3	8,600'

The directions to Chapman Consulting, Inc. were to try to determine a level of pumping between .25 cfs and .8 cfs that would be acceptable to the protestants and the applicant alike. Since the impact is directly on the protestants, it is my recommendation that the protestants review the enclosed table, determine whether or not any of these impacts are acceptable or if they would like the calculations made at different rates of flow, and then provide me with a recommendation for a proposal to the applicant. The range of flows used for the calculations should provide a reasonable basis for this analysis since the estimated impacts cover the range of available options. Additionally, the protestants may want to not only select a flow value but to recommend other conditions that the applicant could accept on an approved application for transfer. These, in addition to a flow rate, could include: 1) that the permissible place of use be allowed but that if significant changes are made in location of the 69.5 acres of ground to be irrigated a map be provided to IDWR before the irrigation season; 2) a condition that canal company water be used before any ground water is used both for filling the pond and making up evaporation and seepage whenever such water is available. This would have the net effect of restricting the ground water use for the pond generally to the non-irrigation season; 3) each discharge pipe on the well or wells to be used for makeup water for the pond must be equipped with a totalizing flow meter; 4) protestants must have access to the meter in order to determine periodically whether or not the applicant is staying within the required parameters of the approved transfer.

It is important to note also that there may be as many as 20 homes built around the pond each with its own domestic well. Under Idaho Law each well may divert up to .02 cubic feet per second for domestic and residential purposes including irrigation of up to one-half acre of ground The combined diversion rate of these homes could have nearly the same impact as the approved application for transfer, therefore, there may be some slight increase in impacts if all the homes are developed and the transfer is approved. It is also important to remember that Idaho case law is such that if there are impacts because of new wells to domestic wells drilled prior to 1978, the pumping level of those wells are protected and transfers or other water rights cannot be issued unless there is mitigation for those impacts. If the protestants chose to continue their protest this would be an important issue for consideration

In summary, Brockway Engineering appears to have done a credible job in conducting its hydrologic analysis of the aquifer in this area and the potential impacts for water level changes in the surrounding area. Based on my review of his analysis it appears that if the transfer is approved there will be impacts to all of the protestants wells with the magnitude of impact depending upon the flow rate and the duration of pumping. These impacts are quantified at various pumping rates and times in Table 1 for review. Since the protestants are familiar with their own pumping systems and wells

the decision on which flow rate to accept, if any, must be made by the protestants. If none of these flow rates are acceptable an additional flow rate impact table can be prepared very quickly for consideration. Additionally, I have recommended consideration of a number of other conditions that could be suggested as requirements of an approved transfer that would help to protect the interests of the protestants. These should be considered for advancement to the applicant as well as any flow rate that is mutually decided upon by the protestants.

If there are any questions regarding this report or additional information is needed, please contact me at any time.

5 of 6

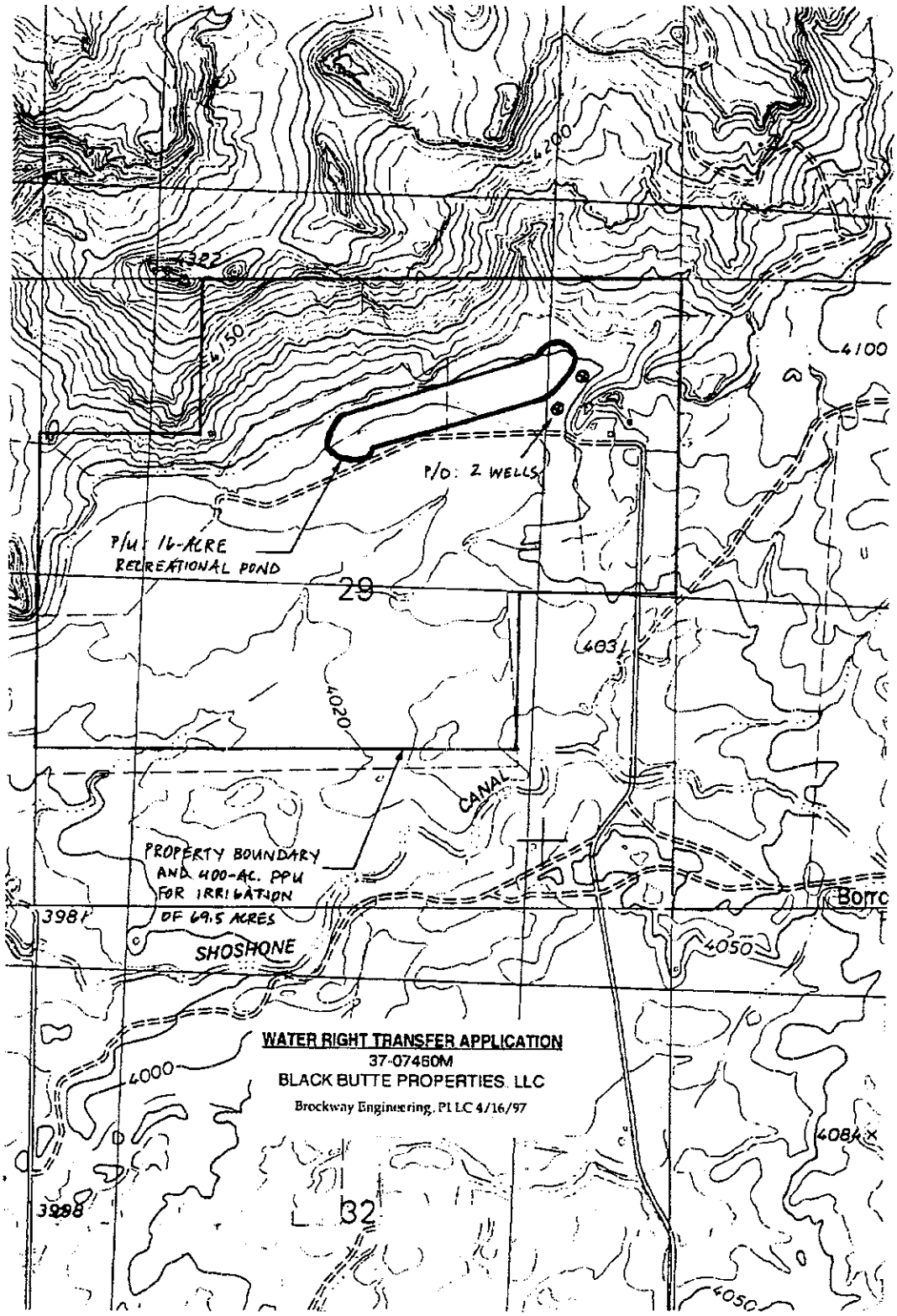
Transfer No. 5098

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION FOR TRANSFER OF WATER RIGHT

PART 3

a map or attach a USGS map indicating the new point(s) of diversion and/or the new place of use for rights ibed in part 1. Clearly depict the land by section, township and range number.



BROCKWAY
ENGINEERING
P.L.L.C.

Hydraulics
Hydrology
Water Resources

CHARLES E. BROCKWAY, PH.D., P.E.

CHARLES G. BROCKWAY, PH.D.

706 SUNRISE BOULEVARD NORTH

TWIN FALLS, IDAHO 83301

208•733•0938
208•734•2580

FAX: 736•1746

February 9, 1998

Sherl L Chapman Consulting, Inc.
410 S. Orchard /Suite 144
Boise, Idaho 83705

Subject: Black Butte(Pendelton)

Dear Sherl:

Enclosed are documents relative to the pumping test which was conducted in connection with the evaluation of the proposed Black Butte transfer. The test was conducted to determine the interaction between wells in the vicinity and provide some insight to the potential for impact on protestants' wells.

Well #1 was pumped at 220 gpm for approximately 50 hours and the response of Well#2, was measured. Two recently drilled domestic wells (west and east) were also measured.

The response of Wells #1 and #2 indicate a confined or semi-confined system whereas the shallower domestic wells showed little response(0.1 to 0.3 ft). A Theis analysis of the response of Well#2 was also performed to assist in projecting long term response to pumping. That analysis is also enclosed. All analyses were performed assuming continuous pumping of Well #1. My understanding is that the ground water source effected by the transfer will be used for make up water for the ski pond when surface water is not available and irrigation of landscaping around the pond. The use would therefore not be continuous so the assumption of continuous duty on the well is conservative.

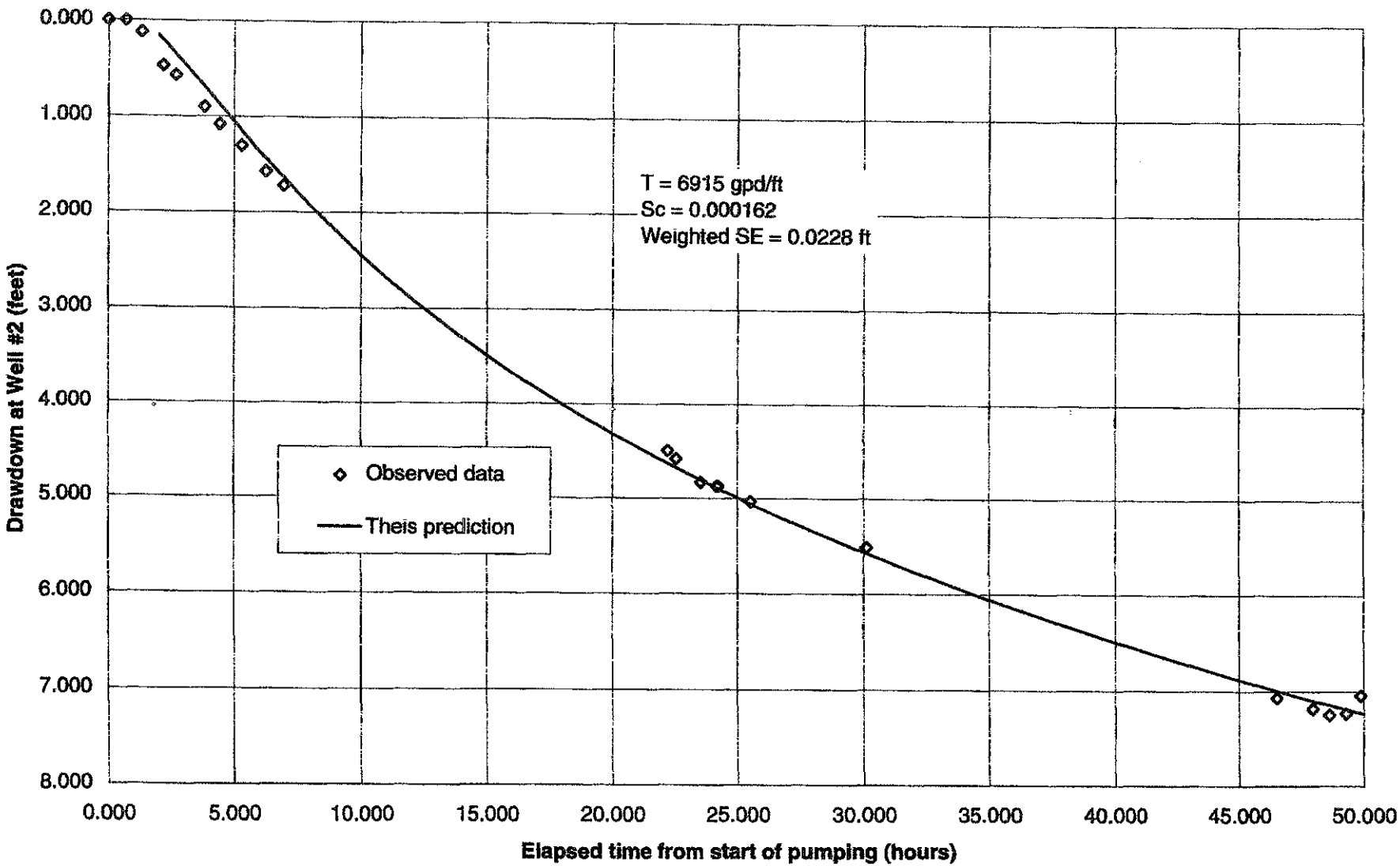
My understanding is that you are to evaluate the data which we have secured after which we will get together and discuss the results in an attempt to reach a consensus on a transfer amount which is mutually acceptable to the Applicant and the Protestants. Please contact me if you have any questions regarding the data.

Sincerely,

C. E. Brockway, P.E.

cc: David Brown, Black Butte Properties Inc.

Estimation of drawdown at Well #2 using Theis procedure



IDAHO SOIL CONSERVATION COMMISSION

IDAHO STATE DEPARTMENT OF AGRICULTURE

ENGINEERING SERVICES

Idaho State Department of Agriculture

June 25, 2004

Mr. Wendell Johnson
Planning and Zoning Administrator
Lincoln County
111 W. B Street, Suite P
Shoshone, ID 83352

RE: Fitzgerald Proposed Dairy Expansion, CAFO Siting Team, June 24, 2004 – Lincoln County, Idaho

Dear Mr. Johnson:

The Idaho State CAFO Siting Team has completed its review of the application for 4 Brothers proposed dairy expansion, located at 427 N. 250 W. Shoshone, Idaho in Lincoln County. The review was completed in response to a request made by the Lincoln County Commissioners in accordance with IDAPA 02.04.18.

The Team, consisting of representatives from the Idaho Department of Environmental Quality (IDEQ), Idaho Department of Water Resources (IDWR), and the Idaho State Department of Agriculture (ISDA) performed a site evaluation (from 2:00 PM to 3:30 PM) on June 24, 2004 and conducted a final review meeting on the same day.

The information evaluated for this facility included the application package provided by Lincoln County, IDWR well log information and water right records, IDWR State-wide Ambient Ground Water Quality Monitoring Program network data, Eastern Snake River Plain Aquifer information (see attached), IDEQ and IDWR data (see attached), ISDA Regional Agricultural Ground Water Quality Monitoring Program data, well driller reports and discussion with Andrew Fitzgerald (owner/operator) during the site review. Wendell Johnson, Planning and Zoning Board Administrator, also provided verbal information during the site visit and final review meeting.

The following technical factors contributed in determination of the rating

- The proposal is to expand an existing dairy facility. The facility currently has a permit for 7,258 animal units and is requesting an additional 4,000 animal units permit.
- The dairy currently resides and will have control of 1,377 acres of irrigated cropland. Andrew Fitzgerald mentioned an offer has been made to buy additional acreage, but the CAFO Siting Team did not take this information into account since it has yet to transpire.
- An Application for Transfer of a Water Right has been filed with the IDWR. As filed, the application appears to provide adequate water supply for the proposed expansion. The application is currently being processed and a final determination has not been issued. Issues involving water availability are matters to be heard and decided by IDWR in a separate water right process prescribed by law. Upon completion of the water right and transfer process, IDWR will make a final determination.
- Average precipitation is 10 inches per year. Groundwater recharge is primarily from precipitation, irrigation, tributary streams and underflow.
- The groundwater table and first encountered water in the local area is greater than 100 feet below land surface. Geologic information shows fractured basalt without any protective layers between soil and the water table.
- The general regional groundwater flow direction is towards the west-southwest.
- The facility is within a sole source aquifer boundary
- Groundwater quality data within the area suggest median nitrate concentrations to be between less that 1.0 and 2 parts per million in the local area and are stable or decreasing.

- Liquid wastewater including runoff from the expanded facility will be contained within new waste storage ponds (to be built). The wastewater will be land applied on the 1,271 irrigated acres owned by the dairy.
- The cropland is irrigated with pivots Dairy wastewater is applied through gated pipe
- Solid waste will be composted on-site or directly land applied. The facility is planning on exporting approximately 74% of its waste. The dairy would need approximately 5,250 acres of irrigated cropland to apply the waste generated from the facility according to the current NMP This NMP was written for 9,220 au's. The current facility permit and new permit would encompass 11,258 au's Using the current au/acre needed the current facility and expansion would require approximately 6,400 total acres for land application of waste.
- Pest Control. The dairy currently has a pest management program in place including spraying and harrowing the corrals to minimize pests.
- Domestic wells are present within 1000' of the proposed expansion.

The following information is beyond the scope of evaluation by the CAFO Siting team:

1. Information regarding air quality. For a more specific evaluation of air quality concerns, please contact the regional IDEQ office.
2. Increase in the number of lumens due to the expansion.
3. Potential road changes due to increased traffic. For a more specific evaluation, please contact your county highway district or the Idaho State Department of Transportation.

The final dairy engineering and site plans must be submitted to ISDA for final approval before construction can commence. In addition to meeting all the other State requirements, the producer must have any new wastewater containment structures approved by ISDA including berming prior to use. Any rock outcroppings found in the expansion area which are exposed will need to be covered with a minimum of 1 foot of soil.

The following recommendation is based on the information supplied to the team through the producer and site-specific conditions at the time of the evaluation. However, information used for evaluating the ground water, geology and soils is based on regional information and may not fully characterize the local conditions on the specific facility. Any changes or modification in the application or at the site may alter the Suitability Determination. The Suitability Determination, as determined by the Team, is **Moderate Risk**.

Several ways to mediate and lower the risk factor is to:

- Conduct annual soil and manure/compost testing prior to manure application to ensure the amount of waste is land applied at the appropriate agronomic rates.
- The facility can increase the amount of actively controlled (either own or lease) irrigated cropland to help reduce the amount of manure exported.
- The facility should re-write its current NMP to the requested pemit level.

The following individuals were present at the CAFO Siting Team evaluation. The names depicted in bold type are the individuals responsible for the suitability determination.

1. **Matt Thompson, ISDA, Resource Engineer**
2. John Bilderback, ISDA, Resource Engineer
3. Craig Tesch, ISDA, Hydrogeologist
4. **Helen Harrington, IDWR, Technical Hydrogeologist**
5. John Frietag, IDWR, Senior Water Right Agent
6. **Scott Stanton, IDEQ, Water Quality Science Officer**
7. David Anderson, IDEQ, Regional Engineering Manager
8. Wendell Johnson, Payette County Planning and Zoning Assistant Administrator
9. Andrew Fitzgerald, Owner/Operator
10. Clement Fitzgerald, Owner/Operator

If you require further information regarding this site determination, please feel free to contact us.

Matt Thompson, ISDA
(208) 736-3042

Helen Harrington, IDWR
(208) 327-7950

Scott Stanton, IDEQ
(208) 736-2190

ATTACHMENTS

1. IDEQ produced map (including animal units in the area, public water systems, residential wells, irrigated acres and population)
2. IDWR Summary Information for Lincoln County (information regarding the Eastern Snake River Plain Aquifer including groundwater and nitrate data).

Summary Information for
Lincoln County Plannning & Zoning Commission

Eastern Snake Plain Aquifer

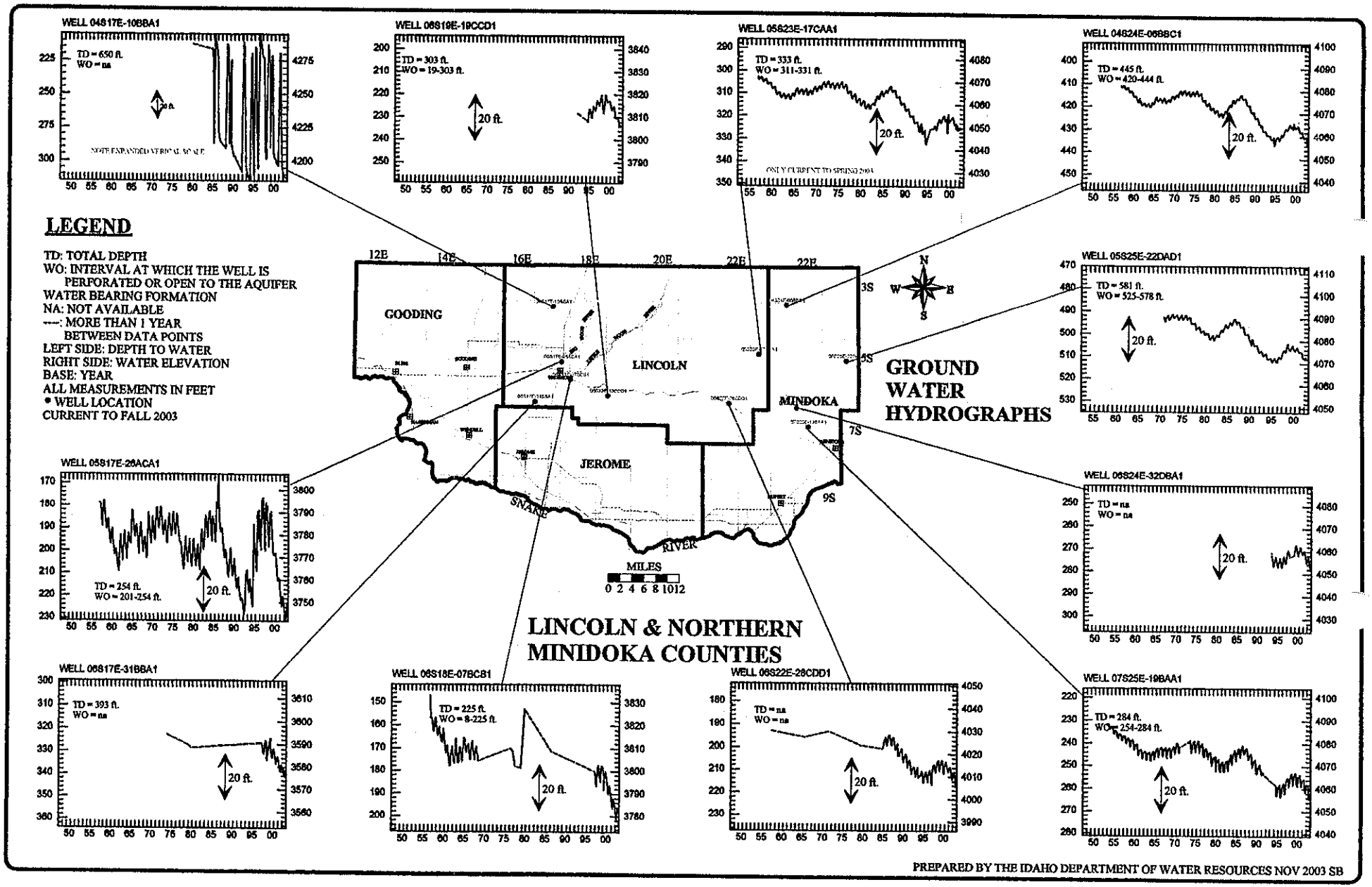
Ground water around Shoshone is from the Eastern Snake Plain Aquifer.

- Underlies about 10,000 square miles from Ashton to King Hill
- Aquifer is multiple basalt layers with sedimentary interbeds, thickness of basalt ranges from 2,000 to 10,000 feet
- Water generally moves along the contact zones between flows, through sedimentary deposits and along cracks and faults
- Storage of approximately 200 million acre-feet, enough to cover the state with water 4 feet deep
- Basin-wide, ground water moves approximately 2 feet per day
- Ground water flows from northeast to southwest, with major discharges at springs near American Falls and Hagerman
- Aquifer is recharged through precipitation, irrigation, tributary streams, underflow
- Annual aquifer recharge and discharge is approximately 8 million acre-feet

Lincoln County Ground Water Characteristics

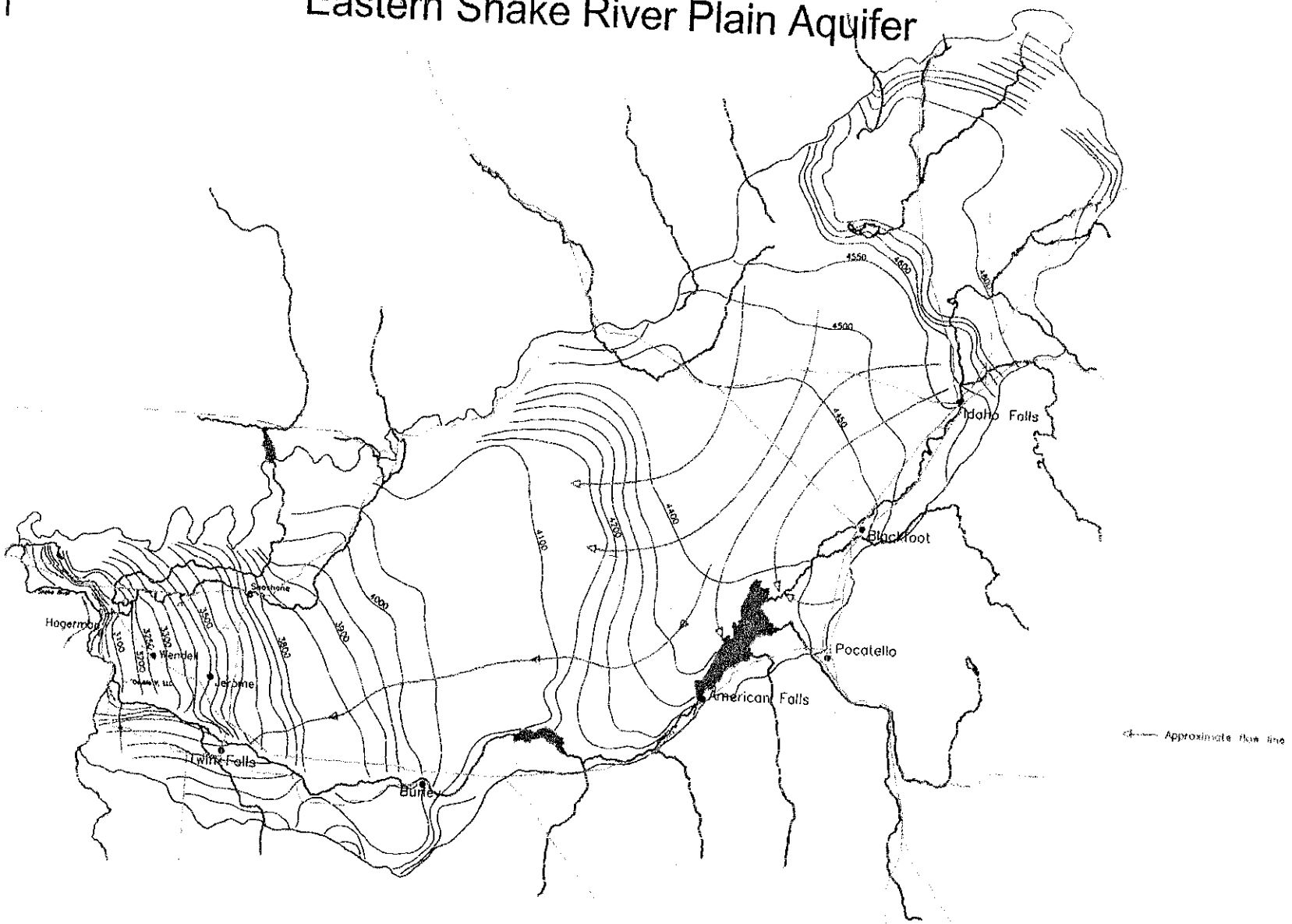
- Ground water levels in Shoshone area range from about 150 to 500 feet below land
- Well logs
    - Subsurface lithology
    - Water occurrences
    - Well construction details
- Ground water levels fluctuate seasonally, annually and cyclically
- Hydrographs
    - Water level changes over time
    - Seasonal and long term trends
    - Influences on water level
- Fluctuations caused by:
    - Climate
    - Natural recharge
    - Surface water irrigation
    - Pumping
    - Land use changes/Irrigation practices

Prepared by Helen Harrington
Idaho Department of Water Resources
June 10, 2004

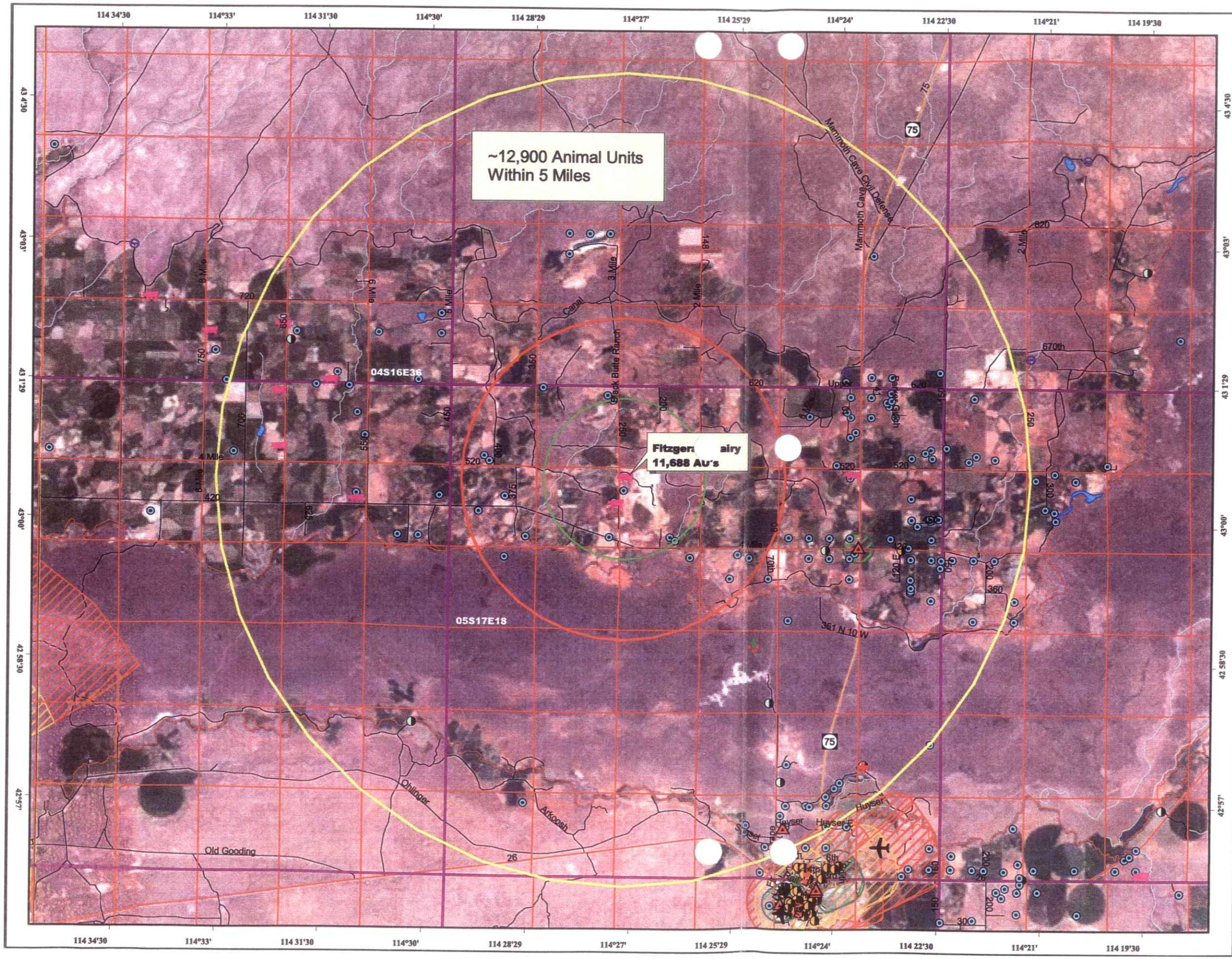

WELL 04S17E-10BBA1
TD = 650 ft.
WO = na
20 ft.
NOTE EXPANDED VERTICAL SCALE
WELL 06S19E-19CCD1
TD = 303 ft.
WO = 19-303 ft.
20 ft.
WELL 05S23E-17CAA1
TD = 333 ft.
WO = 311-331 ft.
20 ft.
ONLY CURRENT TO SPRING 2003
WELL 04S24E-06BBC1
TD = 445 ft.
WO = 420-444 ft.
20 ft.
LEGEND
TD: TOTAL DEPTH
WO: INTERVAL AT WHICH THE WELL IS PERFORATED OR OPEN TO THE AQUIFER
WATER BEARING FORMATION
NA: NOT AVAILABLE
----: MORE THAN 1 YEAR BETWEEN DATA POINTS
LEFT SIDE: DEPTH TO WATER
RIGHT SIDE: WATER ELEVATION
BASE: YEAR
ALL MEASUREMENTS IN FEET
* WELL LOCATION
CURRENT TO FALL 2003
12E
14E
16E
18E
20E
22E
22E
3S
5S
7S
9S
N
W
E
S
GOODING
LINCOLN
MINIDOKA
JEROME
SNAKE
RIVER
MILES
0 2 4 6 8 10 12
GROUND WATER HYDROGRAPHS
WELL 05S25E-22DAD1
TD = 581 ft.
WO = 525-578 ft.
20 ft.
WELL 05S17E-26ACA1
TD = 254 ft.
WO = 201-254 ft.
20 ft.
WELL 06S24E-32DBA1
TD = na
WO = na
20 ft.
LINCOLN & NORTHERN MINIDOKA COUNTIES
WELL 06S17E-31BBA1
TD = 393 ft.
WO = na
20 ft.
WELL 06S18E-07BCB1
TD = 225 ft.
WO = 8-225 ft.
20 ft.
WELL 06S22E-28CDD1
TD = na
WO = na
20 ft.
WELL 07S25E-19BAA1
TD = 284 ft.
WO = 254-284 ft.
20 ft.
PREPARED BY THE IDAHO DEPARTMENT OF WATER RESOURCES NOV 2003 SB

13-5

Eastern Snake River Plain Aquifer



From Brockway, 2004



Fitzgerald Dairy

T 5S R 17E Sect 9
Lincoln County

Legends

Dairy Locations

- Active
- Proposed
- Public Water Systems
- Domestic Wells (IDWR)
- State Monitoring Wells
- Wastewater Land App Wells
- Deep Injection Wells

SWA Delineations

- 3 Year
- 6 Year
- 10 Year
- Nitrate Priority Areas (1)

Public Water Systems = 2
Domestic Wells = ~166
State Monitoring Wells = 6
Deep Injection Wells = 1
Animal Units = ~12,900
Population = ~ 650
Irrigated Acres = ~16,700 acres

N

0 1 2 Kilometers

0 1 2 Miles

Restriction of Liability: Neither the State of Idaho nor the Department of Environmental Quality, nor any of their employees make any warranty, express or implied, or assume and legal liability or responsibility for the accuracy, completeness or usefulness of any information or data provided. Metadata is provided for all data sets, and no data should be used without first reading and understanding its limitations. The data could include technical inaccuracies or typographical errors. The Department of Environmental Quality may update, modify, or revise the data used at any time, without notice.

d:\aw3projs\source\fitzgerald_dairy.apr *June 9, 2004*

Office Of The
LINCOLN COUNTY PROSECUTING ATTORNEY
111 West B Street • Post Office Drawer D
Shoshone, Idaho 83352

E. Scott Paul
Prosecuting Attorney

Telephone: (208) 886-2454
Fax: (208) 886-9824

MEMO

DATE: November 5, 2004
TO: Lincoln County Commissioners
FROM: E.Scott Paul
RE: 4 Brothers Siting Appeal

This memo is to inform you that 4 Brothers Dairy has withdrawn its Siting Appeal application. It is my understanding that 4 Brothers has obtained a building permit for an additional structure and will increase their animal numbers as allowed by their current permit. This action on the part of 4 Brothers ends the appeal process The appeal hearings which were scheduled are hereby cancelled. The transcriber has been contacted and told to stop her transcription of the audiotapes. I asked her to send us the bill along with whatever materials had already been transcribed. Counsel for 4 Brothers, Mr. Rob Williams, asked that any further questions about this matter referred to him. Mr. Williams may be reached at 324-2303.

esp/pm

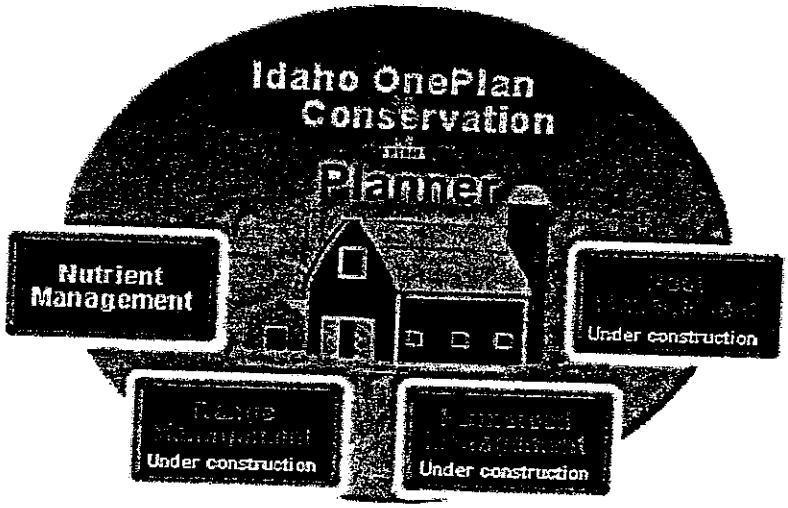
cc: see attached list

Four Brothers Dairy

Nutrient Management Plan

Agriculture . . .

Launching into the Future



Nutrient Management Plan Prepared For:
Jerome, Andy, Clem Fitzgerald
(1208) 886-7716
Four Brothers Dairy

3787

Certified Planner:
Dustin Olsen
Resource Technician, ISDA
(208) 736-2175

Producer Signature: _____ Certificated Planner Signature: Dustin Olsen

Date Completed: 02/03/04

731-0496

The information provided by those using the "Idaho OnePlan" shall be deemed to be trade secrets, production records or other proprietary information and shall be kept confidential and shall be exempt from enclosure pursuant to section 9-340D, Idaho Code (Title 22 Chapter 27 17D6)

21

PRODUCER SUMMARY

Facility Summary

Four Brothers Dairy is an existing facility that is located at 427 N 250 W Shoshone, ID 83352. It is owned and operated by Jerome, Andrew and Clem Fitzgerald. The dairy milks approximately 4,354 Holstein and Holstein-Jersey cross cows with 633 dry cows, 100 mature bulls, 100 young bulls, 1,200 calves and 2,930 heifers. Dairy cow weight is approximately 1350 lbs. The mature bulls average 1600 lbs, the young bulls 650 lbs, the calves 175 lbs and heifers 700 lbs. The milking cows, dry cows, bulls and heifers are all housed in open lots, the calves are in hutches or under sheds. The cows are milked in three different barns. Due to the OnePlan program limitations, the manure from all three herds and the water usage from the three barns has been grouped together and will be treated as if it came from one dairy.

Resource Concerns

The facility is located in the Big Wood Hydrologic Unit # 17040219, approximately one mile from the Big Wood River. This stream segment is water quality limited for Bacteria, Dissolved Oxygen, Flow Alteration, Nitrates, Nutrients and Sediment. This facility is located at GPS coordinates 43° 0.65 N and 114° 26.93 W and legal address Township 5 S, Range 17 E, Section 9.

The primary resource concern on the facility is groundwater. The dairy's fields have been bermed to prevent runoff from leaving the property therefore, all fields are listed as a groundwater concern. Refer to ISDA Regulations and the Idaho Nutrient Management Standard section in the OnePlan Nutrient Management Plan (OnePlan NMP) printout for Threshold standards and Threshold for individual fields. Threshold for individual fields may also be found in the Nutrient Risk Analysis section of OnePlan NMP.

Results where not available at this time to determine how the producer is managing Field Phosphorus Threshold.

Storage and Handling Plan Requirements

Wastewater application is to begin and end with the irrigation season. In the fall, wastewater may be applied to a growing crop. In the spring, if an emergency, wastewater may be applied after April 1st, which is your hydraulic balance date, at a depth of 0.5". When applying wastewater outside of the irrigation season you are required to contact the Idaho Department of Agriculture, Dairy Bureau (208) 332-8550 prior to application.

This facility has one 14 storage ponds that together provide an estimated 14,508,225 cubic feet of storage. The dairy requires 4,530,223 cubic feet of liquid storage to store barn water and runoff. The current liquid system is more than adequate to meet the 180-day storage requirement. There are 127 acres on the

facility currently used for liquid waste application. An additional 130 acres of ground should be made available for liquid application. At the current application rate, nutrients are being over applied to the ground that is presently used for liquid application. The dairy farms approximately 1,377 acres of ground that is used for waste application. In the addition to this ground, approximately 3,300 acres of third party ground will be needed to apply all of the waste that is generated on the facility. A list of third party recipients is included in the plan. Refer to the Containment Of Milk Center Waste And Corral Runoff section of the OnePlan NMP.

Nutrient Management Plan Requirements

The producer will maintain field level records for a minimum of five years. As applicable, records include.

Records must be kept on the following items;

- Soil tests. If nutrients are applied on an annual basis, annual soil tests are required. If nutrients are not applied to a crop for example 2nd, 3rd or 4th year alfalfa, soil tests are required prior to any nutrient application.
- Quantities, analyses and sources of nutrients applied.
- Approximate dates and methods nutrients were applied.
- Crops planted, planting and harvest dates, yields, and crop residues removed.
- Dates of annual review and person performing the review and recommendations that resulted from the review.

Refer to the Application Rate Table shown in your nutrient management plan to find the amounts of nutrients that should be applied.

Facility Testing Requirements

Regulatory soil phosphorus samples are required from each Field every 3-5 years. Samples will be taken from the 0-12" soil depth for surface water concerns, and the 18-24" depth for groundwater concerns. The samples will be reviewed for phosphorus level and compared with previous test data. These tests will indicate compliance with the nutrient management plan. The producer is not responsible to take or analyze these samples. Refer to the Field Phosphorus Threshold table in Resource Concern section of the OnePlan NMP printout for individual fields resource concerns and phosphorus threshold.

Recommendations

During extreme weather events that produce large amounts of runoff the heifer lagoons should be monitored closely. If they are becoming full, they should be pumped into another lagoon to ensure that all liquid runoff can be contained.

Four Brothers Dairy
ANALYSIS OF RESOURCE CONCERNS

INTRODUCTION

The purpose of this nutrient management plan is to meet agricultural production goals and to certify that manure and nutrients are properly managed to minimize adverse impact to surface or groundwater. Plans are written in cooperation with the producer to:

1) assure proper containment of animal manure and process waste water

2) assess resource concerns which exist on the property

3) budget nutrient sources to optimize crop water and nutrient needs. Nutrient sources include commercial fertilizers, animal manure, mineralization of previous crop soil organic matter, accounting of residues, and irrigation water.

4) When applicable, assess irrigation water management to minimize movement of nutrients beyond the root zone or with runoff.

If animal manure and/or commercial fertilizers are not properly managed, contaminants may negatively impact surface and/or groundwater. Some water resource contaminants associated with poorly managed animal manure and fertilizers are:

Phosphorus in the soil readily adsorbs to soil particles; thus, erosion of soil by surface runoff is the general mode of phosphorus transport. Even at very low concentrations, phosphorus can result in plant and algae blooms in surface water bodies. Alga blooms are a nuisance to boaters, irrigators, and others. Toxins released by certain algae can be lethal to livestock or other animals that drink the water. Dissolved oxygen in the water is depleted as algae die and decompose, sometimes causing fish kills.

Nitrogen in the form of nitrate (NO_3^-) is highly water-soluble and will move with water, particularly down the soil profile past the root zone if not utilized by plants (thus becoming a groundwater contamination issue). Nitrates are toxic to infants under 6 months, and to livestock at high concentrations. In surface water, excess nitrogen, like phosphorus, can result in nuisance plant and algae growth.

Organic matter in high load decreases dissolved oxygen in a surface water body when it decomposes. Low levels of dissolved oxygen is harmful or even fatal to fish and other aquatic life.

Bacteria and microorganism illnesses (pathogens) potentially transmitted through water by animal manure include Giardia, Typhoid Fever, Cryptosporidium, and

Cholera. Pathogens from animal waste can negatively impact surface and groundwater quality.

FACILITY DESCRIPTION
Owner Information

Owner (1): Jerome, Andy, Clem Fitzgerald
Address: 427 N 250 W , Shoshone, ID 83352
Phone: (1208) 886-7716 N/A
N/A

Location
Site Map: Facility site plan illustrated in Figure 1

Soil Conservation District: Wood River
County: Lincoln
Watershed Basin: Big Wood (USGS Hydrologic Unit Code # 17040219)

ANALYSIS OF RESOURCE CONCERNS

Farm Resource Concerns

Four Brothers Dairy is located in a watershed containing water quality limited stream segments listed according to the Clean Water Act. Stream segments are listed because a water quality parameter prevents the attainment of the "Fishable/Swimmable" goal of the Clean Water Act.

WATERBODY	BOUNDARIES	BACT	CHAN STAB	DO	FLOW ALT	HAB ALT	MET HG	MET	NH3	NUTR	O_G	ORG	PEST	PH	SAL	SED	TDG	TEMP	UNKN	*
Baker Creek	Headwaters to Norton Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Big Wood River	Glendale Diversion to T1NR18ES35	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Big Wood River	Highway 75 to Little Wood River	1	0	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	
Big Wood River	Little Wood River to Interstate	1	0	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	
Big Wood River	Magic Reservoir to Highway 75	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	
Big Wood River	Trail Creek to Glendale Diversion	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cove Creek	Headwaters to East Fk Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Croy Creek	Elk Creek to Big Wood River	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	
Eagle Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
East Fork Rock	Headwaters to Rock Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	

East Fork Wood	Headwaters to Blind Canyon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Greenhorn Cree	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Horse Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Lake Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Owl Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Placer Creek	Headwaters to Warm Springs Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Quigley Creek	Headwaters to mouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Rock Creek	Headwaters to Magic Reservoir	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	
Seamans Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Thorn Creek	Thorn Reservoir to Schooler Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	

Four Brothers Dairy is <u>not</u> located in a critical Nitrate-Nitrogen management area. Nitrate Management Areas are designated based upon ground water quality sampling results. Two priority groups exist as follows:

<u>Priority 1</u> is designated because at least 25% of the ground water sampling locations within the area exceed 5-milligrams/liter nitrate. This is one-half of the maximum contaminant level of 10-milligrams/liter nitrate. This nitrate concentration is considered evidence of significant degradation. Public drinking water systems are required to increase monitoring frequency when this level is reached.

<u>Priority 2</u> is designated because at least 50% of the ground water sampling locations within the area exceed 2-milligrams/liter nitrate. This concentration threshold provides an indication of human-caused (anthropogenic) impacts. The upper limit for naturally occurring (background) concentrations of nitrate is considered to be about 2 mg/l.

Four Brothers Dairy is located in a sole source aquifer area - Eastern Snake River Plain Aquifer.

Field Resource Concerns

- No Resource Concerns -

Depth Limiting Subsurface Features

Field Name	Subsurface Feature	Depth from Surface (in)
Buckwald	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72
Dairy Handlines	Cobbles	14

	Hard Pan	20
	Fractured Bedrock	13
	Water Table	>72
Field 26	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72
Hubbs	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72
Kelly	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72
Mini Pivot	Hard Pan	20
	Fractured Bedrock	13
	Water Table	>72
Pierce	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72
Sandy North	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72
Sandy South	Cobbles	23
	Fractured Bedrock	25
	Water Table	>72
Sherman	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72
Zimmatic	Hard Pan	20
	Fractured Bedrock	13
	Water Table	>72
Dietrich ½ Pivot	Fractured Bedrock	12
	Water Table	>72
Dietrich ¾ Pivot	Fractured Bedrock	21
	Water Table	>72
Dietrich Big Pivot	Fractured Bedrock	12
	Water Table	>72
Field 6&7	Hard Pan	20
	Fractured Bedrock	10
	Water Table	>72
North Ranch Big Pivot	Hard Pan	20

	Fractured Bedrock	10
	Water Table	>72
North Ranch Handlines	Hard Pan	20
	Fractured Bedrock	40
	Water Table	>72
North Ranch Mini	Hard Pan	20
	Fractured Bedrock	10
	Water Table	>72
North Ranch Swing	Hard Pan	20
	Fractured Bedrock	40
	Water Table	>72
Guthrie	Hard Pan	40
	Fractured Bedrock	25
	Water Table	>72

ISDA REGULATIONS AND THE IDAHO NUTRIENT MANAGEMENT STANDARD

Nutrient management plans for animal agricultural operations regulated by the Idaho State Department of Agriculture (ISDA) must be approved by the Idaho State Department of Agriculture and must follow the Natural Resource Conservation Service (NRCS) Agriculture Waste Management Field Handbook and the Idaho Nutrient Management Standard. ISDA regulation and the Standard use soil test phosphorus as the indicator for environmental impact from agricultural production practices. The Idaho Nutrient Management Standard is based on a threshold soil test phosphorus level (TH), above which there is no agronomic advantage to application of phosphorus.

The Idaho Nutrient Management Standard categorizes fields as a surface water concern or a groundwater concern. A surface water concern indicates that runoff leaves the contiguous operating unit from normal storm events, rain on snow, frozen ground, or irrigation. The soil phosphorus threshold for a field with a surface water concern is 40 ppm phosphorus for soils alkaline (ph > 6) tested with the Olsen method and 60 ppm phosphorus for acidic (ph < 6.5) soils tested with the Bray method (0-12"Soil Sample Depth).

A groundwater resource concern indicates that runoff does not leave the contiguous operating unit from normal storm events, rain on snow, frozen ground, or irrigation. There are two sub-categories for fields identified as having a groundwater concern. The first category applies to fields with a resource concern within the first five feet of the soil profile. A resource concern could be shallow soils, gravel, cobble, bedrock, high groundwater table, or a drained field. These fields are indicated as a groundwater concern <5'. The soil phosphorus threshold for a field with a groundwater concern <5' is 20 ppm

phosphorus for soils tested with the Olsen method and 25 ppm phosphorus for soils tested with the Bray method(18-24" Soil Sample Depth).

If a field is not classified as having a surface water concern or a groundwater <5' concern, by default it is classified as having a groundwater concern >5'. The soil phosphorus threshold for a field with a groundwater concern >5' is 30 ppm phosphorus for soils tested with the Olsen method and 45 ppm phosphorus for soils tested with the Bray method(18-24" Soil Sample Depth).

Field Phosphorus Threshold

Field	Resource Concern	P Threshold (ppm)	P Threshold Soil Test Depth
Buckwald	Groundwater < 5'	20	18 - 24"
Dairy Handlines	Groundwater < 5'	20	18 - 24"
Field 26	Groundwater < 5'	20	18 - 24"
Hubbs	Groundwater < 5'	20	18 - 24"
Kelly	Groundwater < 5'	20	18 - 24"
Mini Pivot	Groundwater < 5'	20	18 - 24"
Pierce	Groundwater < 5'	20	18 - 24"
Sandy North	Groundwater < 5'	20	18 - 24"
Sandy South	Groundwater < 5'	20	18 - 24"
Sherman	Groundwater < 5'	20	18 - 24"
Zimmatic	Groundwater < 5'	20	18 - 24"
Dietrich ½ Pivot	Groundwater < 5'	20	18 - 24"
Dietrich ¾ Pivot	Groundwater < 5'	20	18 - 24"
Dietrich Big Pivot	Groundwater < 5'	20	18 - 24"
Field 6&7	Groundwater < 5'	20	18 - 24"

North Ranch Big Pivot	Surface Water	40	0 - 12"
North Ranch Handlines	Groundwater < 5'	20	18 - 24"
North Ranch Mini	Groundwater < 5'	20	18 - 24"
North Ranch Swing	Groundwater < 5'	20	18 - 24"
Guthrie	Groundwater < 5'	20	18 - 24"

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 462570.266205793, Y = 211780.874282834

Map Scale: 1 : 372

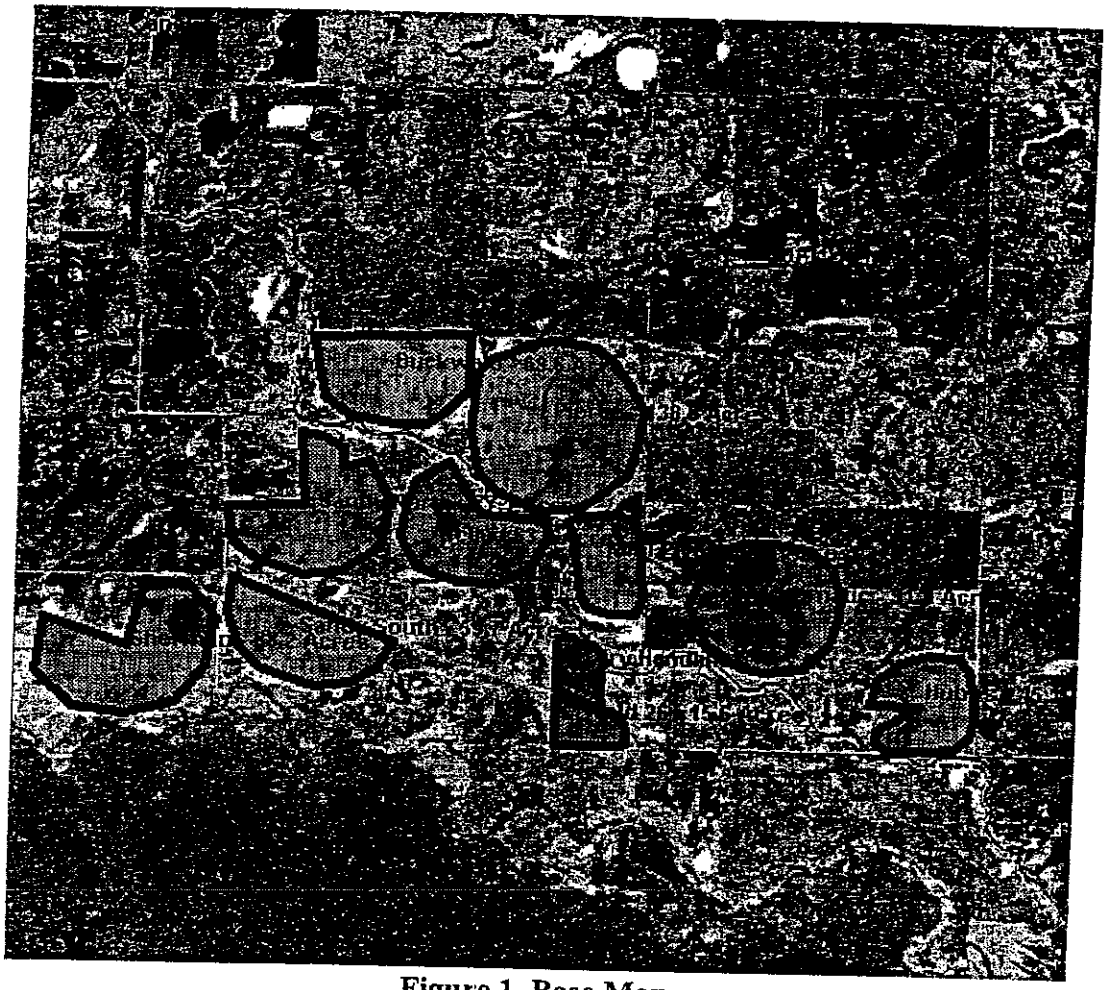


Figure 1. Base Map

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 462570.266205793, Y = 211780.874282834

Map Scale: 1 : 380

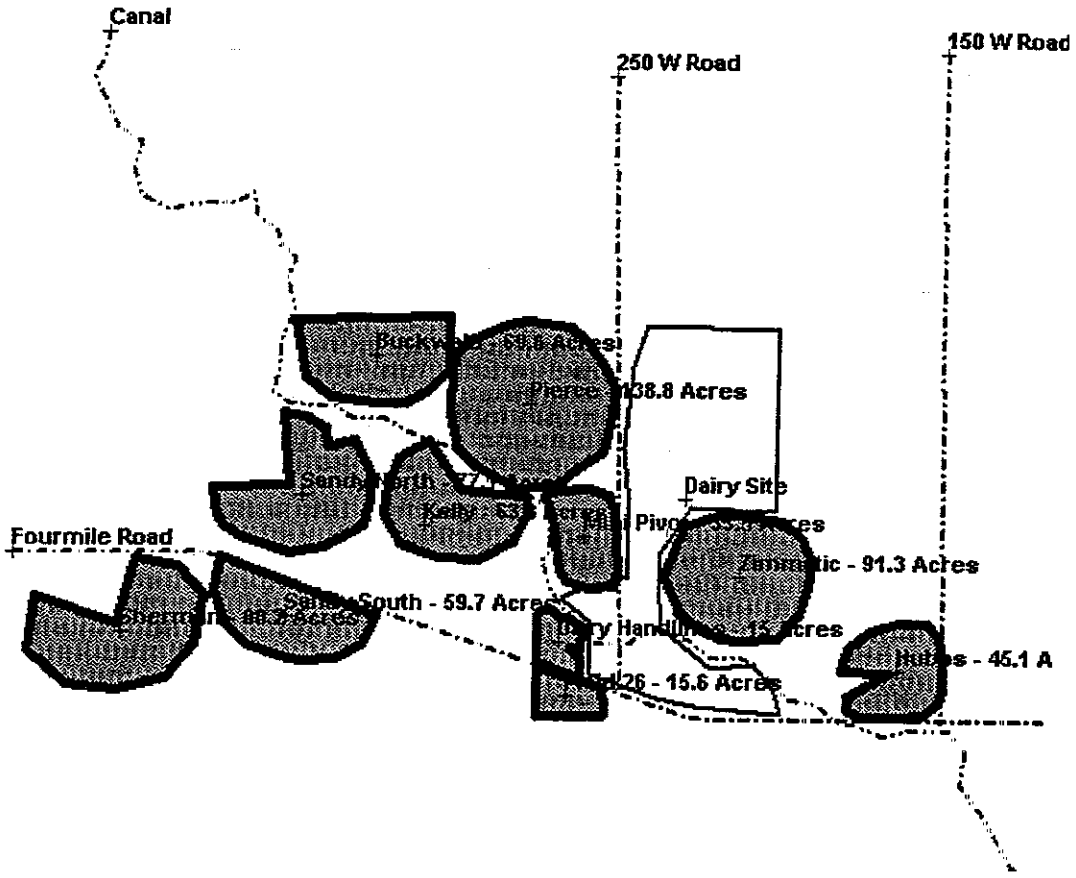


Figure 2. Farmstead Map

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Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 472175.680377905, Y = 197792.899442827

Map Scale: 1 : 131

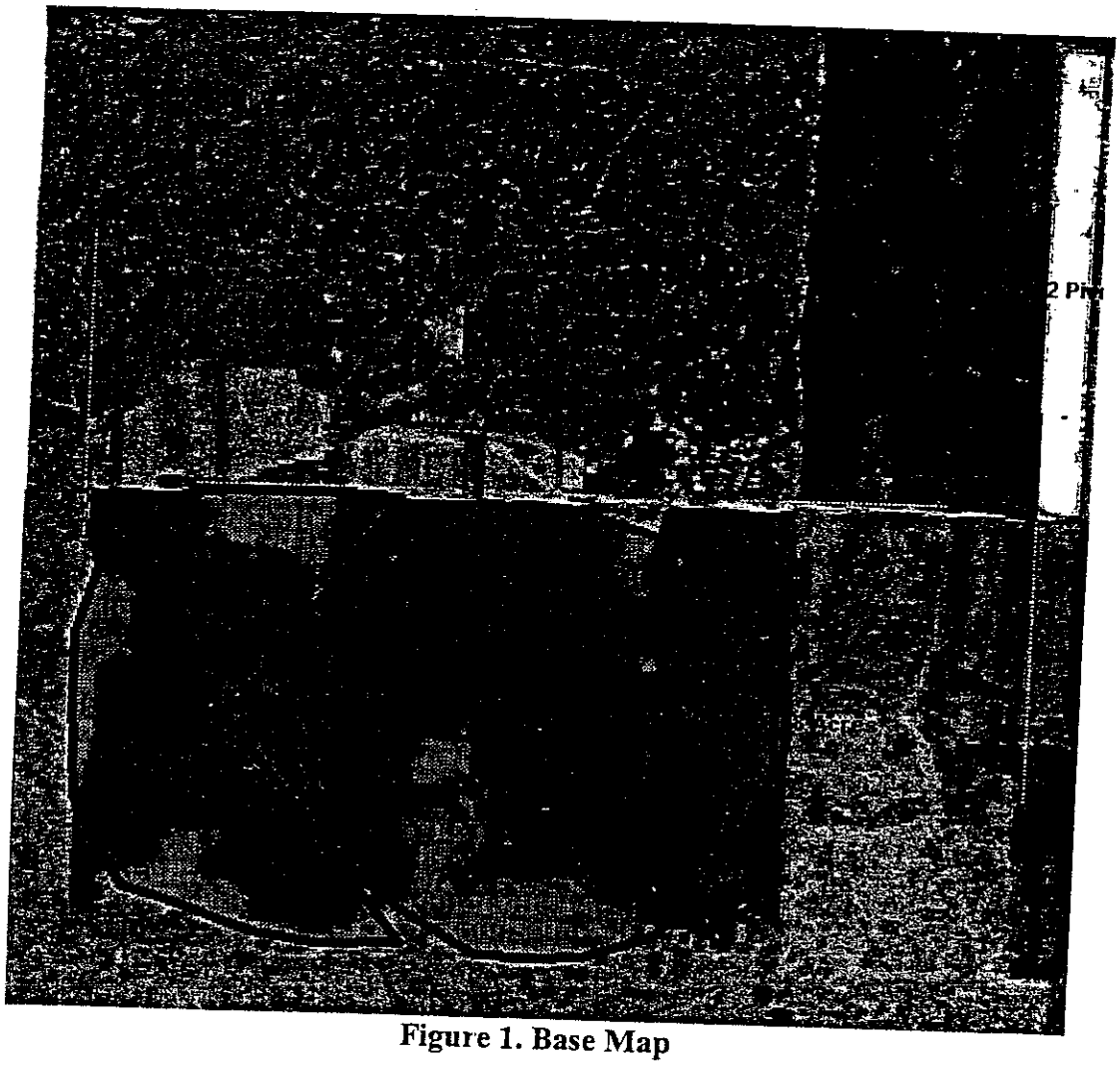


Figure 1. Base Map

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 472175.680377905, Y = 197792.899442827

Map Scale: 1 : 131

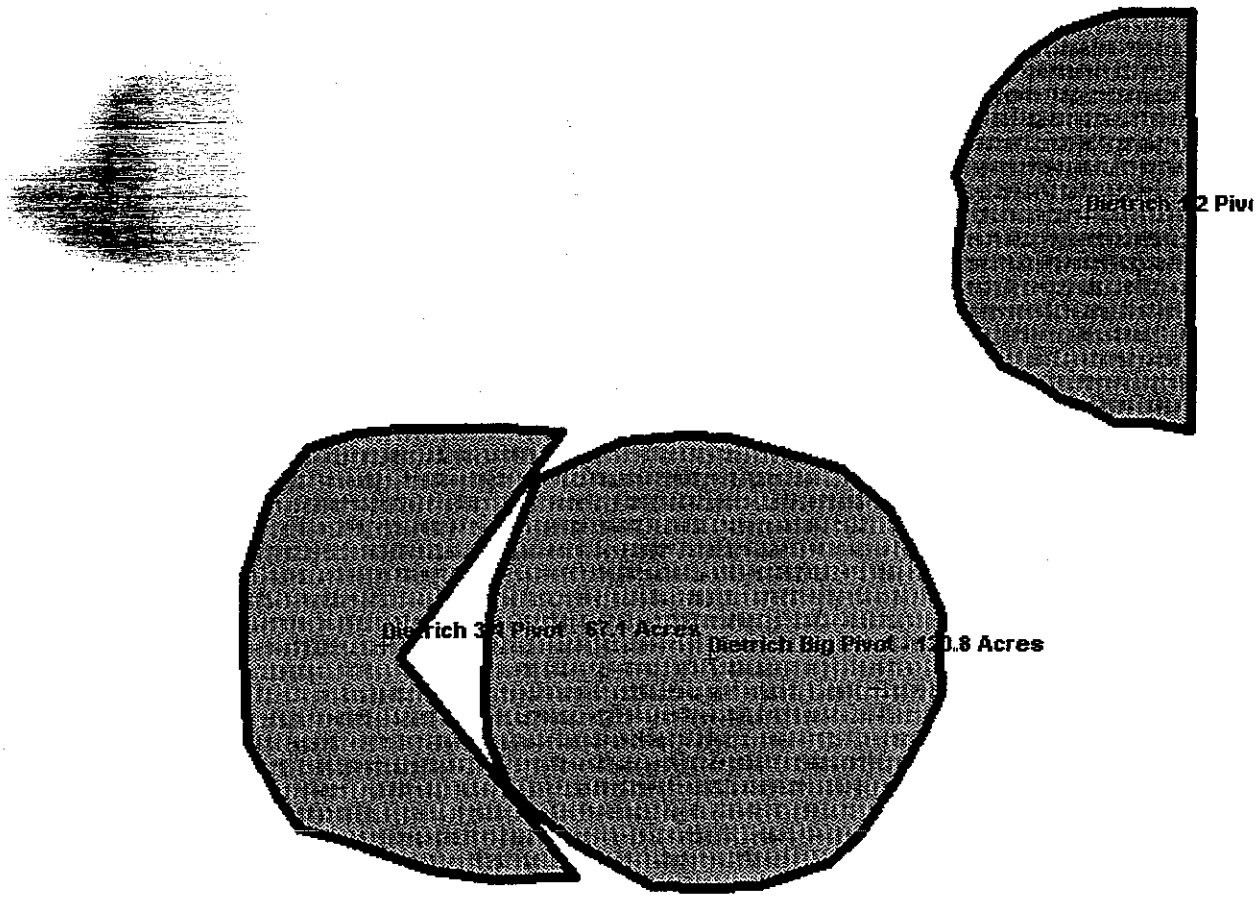


Figure 2. Farmstead Map

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 446452.204349695, Y = 211315.183120693

Map Scale: 1 : 168

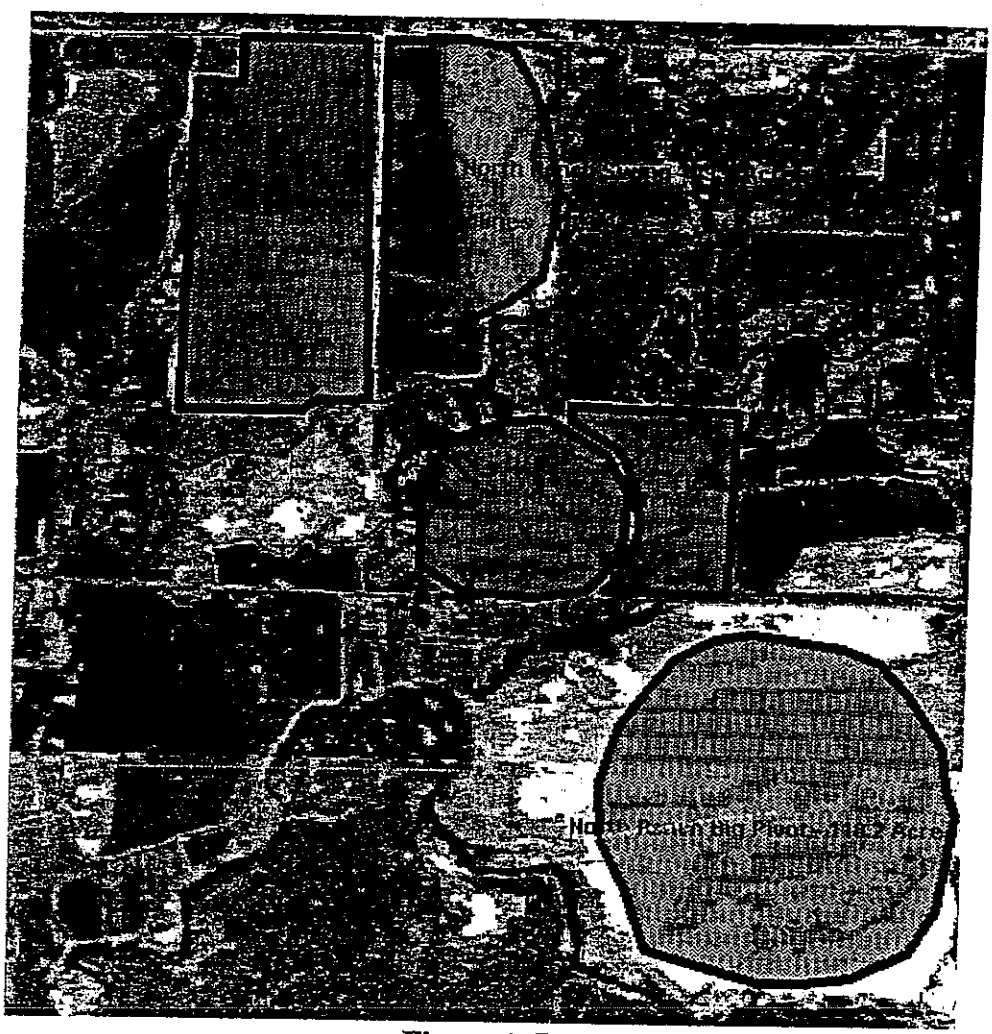


Figure 1. Base Map

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 446452.204349695, Y = 211315.183120693

Map Scale: 1 : 168

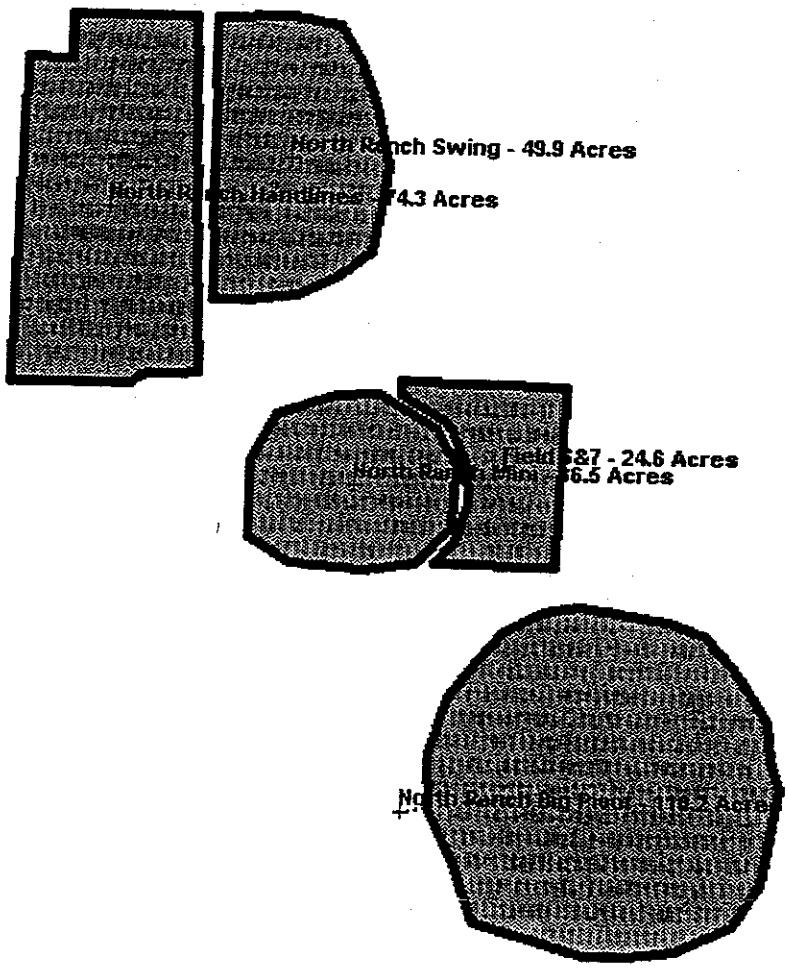


Figure 2. Farmstead Map

21-16

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 460109.137901372, Y = 213569.468176602

Map Scale: 1 : 123



Figure 1. Base Map

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 460109.137901372, Y = 213569.468176602

Map Scale: 1 : 123

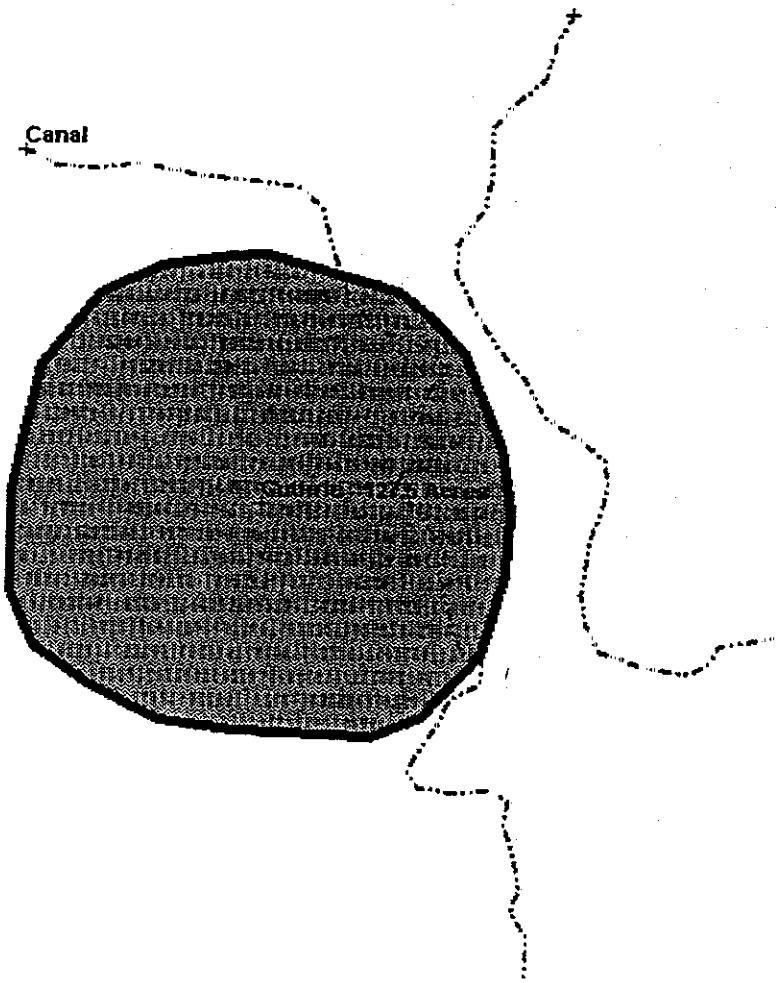


Figure 2. Farmstead Map

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NUTRIENT MANAGEMENT REQUIREMENTS/RECOMMENDATIONS

Manure Application Rate Requirement By Year

Assisted Mode has been turned off

FIELD: Buckwald

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total	
			0 T/ac	0 T/ac				
Triticale-Winter. Irrigated South ID(2003)	Y	N	0	0	N	0	N	0
		P	0	0			P	0
		K	0	0			K	0
			0 T/ac	0 T/ac				
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	N	N	0	0	N	0	N	0
		P	0	0			P	0
		K	0	0			K	0
			0 T/ac	22 T/ac				
Triticale-Winter Irrigated South ID(2004)	Y	N	0	18	N	-40	N	6
		P	0	74			P	148
		K	0	163			K	326
			0 T/ac	22 T/ac				
Corn-Field Silage Irrigated South ID(2004)	Y	N	0	18	N	-40	N	6
		P	0	74			P	148
		K	0	163			K	326
			0 T/ac	22 T/ac				
Triticale-Winter Irrigated South ID(2005)	Y	N	0	18	N	-11	N	35
		P	0	74			P	148
		K	0	163			K	326
			0 T/ac	22 T/ac				
Corn-Field Silage Irrigated South ID(2005)	Y	N	0	18	N	-11	N	35
		P	0	74			P	148
		K	0	163			K	326
			0 T/ac	22 T/ac				
N/A - No Second Crop(2006)	N	N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
			0 T/ac	22 T/ac				
Corn-Field Silage Irrigated South ID(2006)	Y	N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
			0 T/ac	22 T/ac				
N/A - No Second Crop(2007)	N	N	0	18	N	21	N	39

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		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2007)	Y		0 T/ac	22 T/ac				
		N	0	18	N	21	N	39
		P	0	74			P	74
		K	0	163			K	163
N/A - No Second Crop(2008)	N		0 T/ac	22 T/ac				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2008)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Triticale-Winter, Irrigated South ID(2009)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2009)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326

FIELD: Dairy Handlines

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total	
Triticale-Winter, Irrigated South ID(2003)	Y		0 T/ac	0 T/ac				
		N	0	0	N	0	N	0
		P	0	0			P	0
		K	0	0			K	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2003)	N		0 T/ac	0 T/ac				
		N	0	0	N	0	N	0
		P	0	0			P	0
		K	0	0			K	0
N/A - No Second Crop(2004)	N		0 T/ac	17 T/ac				
		N	0	15	N	-46	N	-31
		P	0	59			P	59
		K	0	131			K	131
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y		0 T/ac	17 T/ac				
		N	0	15	N	-46	N	-31
		P	0	59			P	59
		K	0	131			K	131
N/A - No Second Crop(2005)	N		0 T/ac	17 T/ac				
		N	0	15	N	8	N	23

		P	0	59			P	59
		K	0	131			K	131
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2005)	Y		[illegible]	[illegible]				
		N	0	15	N	8	N	23
		P	0	59			P	59
		K	0	131			K	131
Triticale-Winter Irrigated South ID(2006)	Y		[illegible]	[illegible]				
		N	0	15	N	8	N	45
		P	0	59			P	118
		K	0	131			K	262
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2006)	Y		[illegible]	[illegible]				
		N	0	15	N	8	N	45
		P	0	59			P	118
		K	0	131			K	262
N/A - No Second Crop(2007)	N		[illegible]	[illegible]				
		N	0	15	N	23	N	38
		P	0	59			P	59
		K	0	131			K	131
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2007)	Y		[illegible]	[illegible]				
		N	0	15	N	23	N	38
		P	0	59			P	59
		K	0	131			K	131
N/A - No Second Crop(2008)	N		0 T/ac	11 T/ac				
		N	0	15	N	16	N	31
		P	0	59			P	59
		K	0	131			K	131
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		0 T/ac	11 T/ac				
		N	0	15	N	16	N	31
		P	0	59			P	59
		K	0	131			K	131
Triticale-Winter Irrigated South ID(2009)	Y		0 T/ac	17 T/ac				
		N	0	15	N	8	N	45
		P	0	59			P	118
		K	0	131			K	262
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2009)	Y		0 T/ac	17 T/ac				
		N	0	15	N	8	N	45
		P	0	59			P	118
		K	0	131			K	262

FIELD: Field 26

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total
N/A - No Second Crop(2003)	N						
		N	N	0	N	0	

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		P	[illegible]	[illegible]	P	0			
		K	[illegible]	[illegible]	K	0			
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	N								
		N	N	0	N	0			
		P	[illegible]	[illegible]	P	0			
		K	[illegible]	[illegible]	K	0			
Triticale-Winter Irrigated South ID(2004)	Y		[illegible]	[illegible]					
		N	0	15	N	0	N	37	
		P	0	59	[illegible]	[illegible]	P	118	
		K	0	131	[illegible]	[illegible]	K	262	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y		[illegible]	[illegible]					
		N	0	15	N	0	N	37	
		P	0	59	[illegible]	[illegible]	P	118	
		K	0	131	[illegible]	[illegible]	K	262	
N/A - No Second Crop(2005)	N		[illegible]	[illegible]					
		N	0	15	N	-23	N	-8	
		P	0	59	[illegible]	[illegible]	P	59	
		K	0	131	[illegible]	[illegible]	K	131	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2005)	Y		[illegible]	[illegible]					
		N	0	15	N	-23	N	-8	
		P	0	59	[illegible]	[illegible]	P	59	
		K	0	131	[illegible]	[illegible]	K	131	
N/A - No Second Crop(2006)	N		[illegible]	[illegible]					
		N	0	15	N	16	N	31	
		P	0	59	[illegible]	[illegible]	P	59	
		K	0	131	[illegible]	[illegible]	K	131	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2006)	Y		[illegible]	[illegible]					
		N	0	15	N	16	N	31	
		P	0	59	[illegible]	[illegible]	P	59	
		K	0	131	[illegible]	[illegible]	K	131	
Triticale-Winter Irrigated South ID(2007)	Y		[illegible]	[illegible]					
		N	0	15	N	8	N	45	
		P	0	59	[illegible]	[illegible]	P	118	
		K	0	131	[illegible]	[illegible]	K	262	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2007)	Y		[illegible]	[illegible]					
		N	0	15	N	8	N	45	
		P	0	59	[illegible]	[illegible]	P	118	
		K	0	131	[illegible]	[illegible]	K	262	
N/A - No Second Crop(2008)	N		[illegible]	[illegible]					
		N	0	15	N	23	N	38	
		P	0	59	[illegible]	[illegible]	P	59	
		K	0	131	[illegible]	[illegible]	K	131	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		[illegible]	[illegible]					
		N	0	15	N	23	N	38	

		P	0	59			P	59
		K	0	131			K	131
N/A - No Second Crop(2009)	N		0 T/ac	22 T/ac				
		N	0	15	N	16	N	31
		P	0	59			P	59
		K	0	131			K	131
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2009)	Y		0 T/ac	4 T/ac				
		N	0	15	N	16	N	31
		P	0	59			P	59
		K	0	131			K	131

FIELD: Hubbs

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization			Total
N/A - No Second Crop(2003)	N							
		N	N	0	N	0		
		P	0 T/ac	0 T/ac	P	0		
		K	0 T/ac	0 T/ac	K	0		
Corn-Field Silage, Irrigated South ID(2003)	N							
		N	N	0	N	0		
		P	0 T/ac	0 T/ac	P	0		
		K	0 T/ac	0 T/ac	K	0		
N/A - No Second Crop(2004)	N		0 T/ac	22 T/ac				
		N	0	18	N	0	N	18
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2004)	Y		0 T/ac	22 T/ac				
		N	0	18	N	0	N	18
		P	0	74			P	74
		K	0	163			K	163
N/A - No Second Crop(2005)	N		0 T/ac	22 T/ac				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2005)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Triticale-Winter, Irrigated South ID(2006)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2006)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	56

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		P	0	74			P	148
		K	0	163			K	326
Triticale-Winter Irrigated South ID(2007)	Y		[illegible]	[illegible]				
		N	0	18	N	29	N	75
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage Irrigated South ID(2007)	Y		[illegible]	[illegible]				
		N	0	18	N	29	N	75
		P	0	74			P	148
		K	0	163			K	326
Triticale-Winter Irrigated South ID(2008)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	85
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage Irrigated South ID(2008)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	85
		P	0	74			P	148
		K	0	163			K	326
N/A - No Second Crop(2009)	N		[illegible]	[illegible]				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
Corn-Field Silage Irrigated South ID(2009)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163

FIELD: Kelly

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total
N/A - No Second Crop(2003)	N						
		N	N	0	N	0	
		P	[illegible]	[illegible]	P	0	
		K	[illegible]	[illegible]	K	0	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	N						
		N	N	0	N	0	
		P	[illegible]	[illegible]	P	0	
		K	[illegible]	[illegible]	K	0	
N/A - No Second Crop(2004)	N		[illegible]	[illegible]			
		N	0	18	N	0	N 18
		P	0	74			P 74
		K	0	163			K 163
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y		[illegible]	[illegible]			
		N	0	18	N	0	N 18

		P	0	74			P	74
		K	0	163			K	163
Triticale-Winter Irrigated South ID(2005)	Y		[illegible]	[illegible]				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2005)	Y		[illegible]	[illegible]				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Triticale-Winter Irrigated South ID(2006)	Y		[illegible]	[illegible]				
		N	0	18	N	29	N	75
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage, Irrigated South ID(2006)	Y		[illegible]	[illegible]				
		N	0	18	N	29	N	75
		P	0	74			P	148
		K	0	163			K	326
Triticale-Winter Irrigated South ID(2007)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	85
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage, Irrigated South ID(2007)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	85
		P	0	74			P	148
		K	0	163			K	326
N/A - No Second Crop(2008)	N		[illegible]	[illegible]				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
Corn-Field Silage Irrigated South ID(2008)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
N/A - No Second Crop(2009)	N		[illegible]	[illegible]				
		N	0	18	N	21	N	39
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2009)	Y		[illegible]	[illegible]				
		N	0	18	N	21	N	39
		P	0	74			P	74
		K	0	163			K	163

FIELD: Mini Pivot

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Name	Man App		Separated Solid(s)	Solid Stack(s)	Waste Storage Pond(s)	Mineralization			Total
N/A - No Second Crop(2003)	N	N	N	0	N	0			
		P	[illegible]	[illegible]	P	0			
		K	[illegible]	[illegible]	K	0			
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	N	N	N	0	N	0			
		P	[illegible]	[illegible]	P	0			
		K	[illegible]	[illegible]	K	0			
Triticale-Winter Irrigated South ID(2004)	Y		[illegible]	[illegible]	[illegible]				
		N	0	7	6	N	0	N	33
		P	0	28	46	[illegible]		P	148
		K	0	62	89	[illegible]		K	302
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y		[illegible]	[illegible]	[illegible]				
		N	0	7	6	N	0	N	33
		P	0	28	46	[illegible]		P	148
		K	0	62	89	[illegible]		K	302
Triticale-Winter Irrigated South ID(2005)	Y		[illegible]	[illegible]	[illegible]				
		N	0	3	8	N	-20	N	7
		P	0	12	62	[illegible]		P	148
		K	0	26	120	[illegible]		K	292
Corn-Field Silage Irrigated South ID(2005)	Y		[illegible]	[illegible]	[illegible]				
		N	0	3	8	N	-20	N	7
		P	0	12	62	[illegible]		P	148
		K	0	26	120	[illegible]		K	292
Triticale-Winter Irrigated South ID(2006)	Y		[illegible]	[illegible]	[illegible]				
		N	0	3	8	N	25	N	52
		P	0	12	62	[illegible]		P	148
		K	0	26	120	[illegible]		K	292
Corn-Field Silage Irrigated South ID(2006)	Y		[illegible]	[illegible]	[illegible]				
		N	0	3	8	N	25	N	52
		P	0	12	62	[illegible]		P	148
		K	0	26	120	[illegible]		K	292
N/A - No Second Crop(2007)	N		[illegible]	[illegible]	[illegible]				
		N	0	0	10	N	24	N	34
		P	0	0	74	[illegible]		P	74
		K	0	0	144	[illegible]		K	144
Corn-Field Silage Irrigated South ID(2007)	Y		[illegible]	[illegible]	[illegible]				
		N	0	0	10	N	24	N	34
		P	0	0	74	[illegible]		P	74
		K	0	0	144	[illegible]		K	144
N/A - No Second Crop(2008)	N		[illegible]	[illegible]	[illegible]				
		N	0	3	8	N	12	N	23
		P	0	14	60	[illegible]		P	74

		K	0	30	117			K	147
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		[illegible]						
		N	0	3	8	N	12	N	23
		P	0	14	60			P	74
		K	0	30	117			K	147
N/A - No Second Crop(2009)	N		[illegible]						
		N	0	3	8	N	6	N	17
		P	0	14	60			P	74
		K	0	30	117			K	147
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2009)	Y		[illegible]						
		N	0	3	8	N	6	N	17
		P	0	14	60			P	74
		K	0	30	117			K	147

FIELD: Pierce

Name	Man App		Separated Solid(s)	Solid Stack(s)	Waste Storage Pond(s)	Mineralization		Total	
Triticale-Winter Irrigated South ID(2003)	Y		[illegible]						
		N	0	0	0	N	0	N	0
		P	0	0	0			P	0
		K	0	0	0			K	0
Corn-Field Silage, Irrigated South ID(2003)	N		[illegible]						
		N	0	0	0	N	0	N	0
		P	0	0	0			P	0
		K	0	0	0			K	0
Triticale-Winter Irrigated South ID(2004)	Y		[illegible]						
		N	0	7	6	N	-40	N	-7
		P	0	28	45			P	146
		K	0	62	89			K	302
Corn-Field Silage Irrigated South ID(2004)	Y		[illegible]						
		N	0	7	6	N	-40	N	-7
		P	0	28	45			P	146
		K	0	62	89			K	302
N/A - No Second Crop(2005)	N		[illegible]						
		N	0	3	8	N	-20	N	-9
		P	0	12	62			P	74
		K	0	26	120			K	146
Corn-Field Silage Irrigated South ID(2005)	Y		[illegible]						
		N	0	3	8	N	-20	N	-9
		P	0	12	62			P	74
		K	0	26	120			K	146
N/A - No Second Crop(2006)	N		[illegible]						
		N	0	3	8	N	13	N	24
		P	0	12	62			P	74

		K	0	26	120			K	146
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2006)	Y		0 T/ac	2 T/ac	4 %				
		N	0	3	8	N	13	N	24
		P	0	12	62			P	74
		K	0	26	120			K	146
N/A - No Second Crop(2007)	N		0 T/ac	0 T/ac	2 %				
		N	0	0	10	N	6	N	16
		P	0	0	74			P	74
		K	0	0	145			K	145
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2007)	Y		0 T/ac	0 T/ac	2 %				
		N	0	0	10	N	6	N	16
		P	0	0	74			P	74
		K	0	0	145			K	145
Triticale-Winter Irrigated South ID(2008)	Y		0 T/ac	2 T/ac	4 %				
		N	0	4	8	N	5	N	35
		P	0	15	60			P	150
		K	0	32	117			K	298
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		0 T/ac	2 T/ac	4 %				
		N	0	4	8	N	5	N	35
		P	0	15	60			P	150
		K	0	32	117			K	298
Triticale-Winter Irrigated South ID(2009)	Y		0 T/ac	4 T/ac	4 %				
		N	0	4	8	N	18	N	48
		P	0	15	60			P	150
		K	0	32	117			K	298
Corn-Field Silage Irrigated South ID(2009)	Y		0 T/ac	4 T/ac	4 %				
		N	0	4	8	N	18	N	48
		P	0	15	60			P	150
		K	0	32	117			K	298

FIELD: Sandy North

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total	
Triticale-Winter Irrigated South ID(2003)	Y		0 T/ac	0 T/ac				
		N	0	0	N	0	N	0
		P	0	0			P	0
		K	0	0			K	0
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	Y		0 T/ac	0 T/ac				
		N	0	0	N	0	N	0
		P	0	0			P	0
		K	0	0			K	0
Triticale-Winter Irrigated South ID(2004)	Y		0 T/ac	22 T/ac				
		N	0	18	N	-40	N	6
		P	0	74			P	148

		K	0	163			K	326
Corn-Field Silage Irrigated South ID(2004)	Y		[illegible]	[illegible]				
		N	0	18	N	-40	N	6
		P	0	74	[illegible]		P	148
		K	0	163			K	326
Triticale-Winter Irrigated South ID(2005)	Y		[illegible]	[illegible]				
		N	0	18	N	-11	N	35
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage Irrigated South ID(2005)	Y		[illegible]	[illegible]				
		N	0	18	N	-11	N	35
		P	0	74			P	148
		K	0	163			K	326
N/A - No Second Crop(2006)	N		[illegible]	[illegible]				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
Corn-Field Silage Irrigated South ID(2006)	Y		[illegible]	[illegible]				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
N/A - No Second Crop(2007)	N		[illegible]	[illegible]				
		N	0	18	N	21	N	39
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2007)	Y		[illegible]	[illegible]				
		N	0	18	N	21	N	39
		P	0	74			P	74
		K	0	163			K	163
N/A - No Second Crop(2008)	N		[illegible]	[illegible]				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		[illegible]	[illegible]				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Triticale-Winter Irrigated South ID(2009)	Y		[illegible]	[illegible]				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2009)	Y		[illegible]	[illegible]				
		N	0	18	N	10	N	56
		P	0	74			P	148

		K	0	163			K	326

FIELD: Sandy South

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total	
N/A - No Second Crop(2003)	N							
		N	N	0	N	0		
		P			P	0		
		K			K	0		
Corn-Field Silage, Irrigated South ID(2003)	N							
		N	N	0	N	0		
		P			P	0		
		K			K	0		
N/A - No Second Crop(2004)	N		0 T/ac					
		N	0	18	N	0	N	18
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2004)	Y		0 T/ac	22 T/ac				
		N	0	18	N	0	N	18
		P	0	74			P	74
		K	0	163			K	163
N/A - No Second Crop(2005)	N		0 T/ac	22 T/ac				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2005)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	28
		P	0	74			P	74
		K	0	163			K	163
Triticale-Winter, Irrigated South ID(2006)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2006)	Y		0 T/ac	22 T/ac				
		N	0	18	N	10	N	56
		P	0	74			P	148
		K	0	163			K	326
Triticale-Winter, Irrigated South ID(2007)	Y		0 T/ac	22 T/ac				
		N	0	18	N	29	N	75
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage, Irrigated South ID(2007)	Y		0 T/ac	22 T/ac				
		N	0	18	N	29	N	75
		P	0	74			P	148

		K	0	163			K	326
Triticale-Winter Irrigated South ID(2008)	Y		0 T/ac	22 T/ac				
		N	0	18	N	39	N	85
		P	0	74			P	148
		K	0	163			K	326
Corn-Field Silage Irrigated South ID(2008)	Y		0 T/ac	22 T/ac				
		N	0	18	N	39	N	85
		P	0	74			P	148
		K	0	163			K	326
N/A - No Second Crop(2009)	N		0 T/ac	22 T/ac				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163
Corn-Field Silage Irrigated South ID(2009)	Y		0 T/ac	22 T/ac				
		N	0	18	N	39	N	57
		P	0	74			P	74
		K	0	163			K	163

FIELD: Sherman

Name	Man App		Separated Solid(s)	Solid Stack(s)	Mineralization		Total
N/A - No Second Crop(2003)	N						
		N	N	0	N	0	
		P			P	0	
		K			K	0	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	N						
		N	N	0	N	0	
		P			P	0	
		K			K	0	
N/A - No Second Crop(2004)	N		0 T/ac	22 T/ac			
		N	0	18	N	0	N 18
		P	0	74			P 74
		K	0	163			K 163
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y		0 T/ac	22 T/ac			
		N	0	18	N	0	N 18
		P	0	74			P 74
		K	0	163			K 163
Triticale-Winter Irrigated South ID(2005)	Y		0 T/ac	22 T/ac			
		N	0	18	N	10	N 56
		P	0	74			P 148
		K	0	163			K 326
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2005)	Y		0 T/ac	22 T/ac			
		N	0	18	N	10	N 56
		P	0	74			P 148

		K	0	163			K	326
Triticale-Winter. Irrigated South ID(2006)	Y		[illegible]					
		N	0	18	N	29	N	75
		P	0	74	[illegible]		P	148
		K	0	163	[illegible]		K	326
Corn-Field Silage. Irrigated South ID(2006)	Y		[illegible]					
		N	0	18	N	29	N	75
		P	0	74	[illegible]		P	148
		K	0	163	[illegible]		K	326
Triticale-Winter. Irrigated South ID(2007)	Y		[illegible]					
		N	0	18	N	39	N	85
		P	0	74	[illegible]		P	148
		K	0	163	[illegible]		K	326
Corn-Field Silage. Irrigated South ID(2007)	Y		[illegible]					
		N	0	18	N	39	N	85
		P	0	74	[illegible]		P	148
		K	0	163	[illegible]		K	326
N/A - No Second Crop(2008)	N		[illegible]					
		N	0	18	N	39	N	57
		P	0	74	[illegible]		P	74
		K	0	163	[illegible]		K	163
Corn-Field Silage. Irrigated South ID(2008)	Y		[illegible]					
		N	0	18	N	39	N	57
		P	0	74	[illegible]		P	74
		K	0	163	[illegible]		K	163
N/A - No Second Crop(2009)	N		[illegible]					
		N	0	18	N	21	N	39
		P	0	74	[illegible]		P	74
		K	0	163	[illegible]		K	163
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2009)	Y		[illegible]					
		N	0	18	N	21	N	39
		P	0	74	[illegible]		P	74
		K	0	163	[illegible]		K	163

FIELD: Zimmatic

Name	Man App		Separated Solid(s)	Solid Stack(s)	Waste Storage Pond(s)	Mineralization	Total
N/A - No Second Crop(2003)	N						
		N	N	0	N	0	
		P	[illegible]	[illegible]	P	0	
		K	[illegible]	[illegible]	K	0	
Alfalfa Hay. Irrigated South ID-Cut Early Bloom(2003)	N						
		N	N	0	N	0	
		P	[illegible]	[illegible]	P	0	

		K	[illegible]	[illegible]	K	0				
Triticale--Winter Irrigated South ID(2004)	Y		[illegible]	[illegible]	[illegible]					
		N	0	7	6	N	0	N	33	
		P	0	28	46	[illegible]	[illegible]	P	148	
		K	0	62	89	[illegible]	[illegible]	K	302	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2004)	Y		[illegible]	[illegible]	[illegible]					
		N	0	7	6	N	0	N	33	
		P	0	28	46	[illegible]	[illegible]	P	148	
		K	0	62	89	[illegible]	[illegible]	K	302	
Triticale-Winter Irrigated South ID(2005)	Y		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	-20	N	7	
		P	0	12	62	[illegible]	[illegible]	P	148	
		K	0	26	120	[illegible]	[illegible]	K	292	
Corn-Field Silage, Irrigated South ID(2005)	Y		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	-20	N	7	
		P	0	12	62	[illegible]	[illegible]	P	148	
		K	0	26	120	[illegible]	[illegible]	K	292	
Triticale--Winter Irrigated South ID(2006)	Y		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	25	N	52	
		P	0	12	62	[illegible]	[illegible]	P	148	
		K	0	26	120	[illegible]	[illegible]	K	292	
Corn-Field Silage Irrigated South ID(2006)	Y		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	25	N	52	
		P	0	12	62	[illegible]	[illegible]	P	148	
		K	0	26	120	[illegible]	[illegible]	K	292	
N/A - No Second Crop(2007)	N		[illegible]	[illegible]	[illegible]					
		N	0	0	10	N	24	N	34	
		P	0	0	74	[illegible]	[illegible]	P	74	
		K	0	0	144	[illegible]	[illegible]	K	144	
Corn-Field Silage, Irrigated South ID(2007)	Y		[illegible]	[illegible]	[illegible]					
		N	0	0	10	N	24	N	34	
		P	0	0	74	[illegible]	[illegible]	P	74	
		K	0	0	144	[illegible]	[illegible]	K	144	
N/A - No Second Crop(2008)	N		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	12	N	23	
		P	0	14	60	[illegible]	[illegible]	P	74	
		K	0	30	117	[illegible]	[illegible]	K	147	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	12	N	23	
		P	0	14	60	[illegible]	[illegible]	P	74	
		K	0	30	117	[illegible]	[illegible]	K	147	
N/A - No Second Crop(2009)	N		[illegible]	[illegible]	[illegible]					
		N	0	3	8	N	6	N	17	
		P	0	14	60	[illegible]	[illegible]	P	74	

PGRV	Very Paragravelly
PGRX	Extremely Paragravelly
PST	Parastony
PSTV	Very Parastony
PSTX	Extremely Parastony
PT	Peaty
ST	Stony
STV	Very stony
STX	Extremely stony
WD	Woody

Soil Texture Modifiers, Texture Class and Terms Used in Lieu of Texture.

Texture Modifiers	
ASHY	Ashy
BY	Bouldery
BYV	Very bouldery
BYX	Extremely bouldery
CB	Cobbly
CBV	Very cobbly
CBX	Extremely cobbly
CN	Channery
CNV	Very channery
CNX	Extremely channery
COP	Coprogenous
DIA	Diatomaceous
FL	Flaggy
FLV	Very flaggy
FLX	Extremely flaggy
GR	Gravelly
GRC	Coarse gravelly
GRF	Fine gravelly
GRM	Medium gravelly
GRV	Very gravelly
GRX	Extremely gravelly
GS	Grassy
GYP	Gypsiferous
HB	Herbaceous
HYDR	Hydrous
MEDL	Medial
MK	Mucky
MR	Marly
MS	Mossy
PBY	Paraboulderly
PBYV	Very Paraboulderly
PBYX	Extremely Paraboulderly
PCB	Paracobbly
PCBV	Very Paracobbly
PCBX	Extremely Paracobbly
PCN	Parachannery
PCNV	Very Parachannery
PCNX	Extremely Parachannery
PF	Permanently frozen
PFL	Paraflaggy
PFLV	Very Paraflaggy
PFLX	Extremely Paraflaggy
PGR	Paragravelly

Texture Class	
C	Clay
CL	Clay loam
COS	Coarse sand
COSL	Coarse sandy loam
FS	Fine sand
FSL	Fine sandy loam
L	Loam
LCOS	Loamy coarse sand
LFS	Loamy fine sand
LS	Loamy sand
LVFS	Loamy very fine sand
S	Sand
SC	Sandy clay
SCL	Sandy clay loam
SI	Silt
SIC	Silty clay
SICL	Silty clay loam
SIL	Silt loam
SL	Sandy loam
VFS	Very fine sand
VFSL	Very fine sandy loam

Terms used in lieu of texture	
BR	Bedrock
BY	Boulders
CB	Cobbles
CN	Channers
DUR	Duripan
FL	Flagstones
G	Gravel
HPM	Highly Decomposed plant ma
MAT	Material
MPM	Moderately Decomposed plan
MPT	Mucky peat
MUCK	Muck
OR	Ortstein
PBY	Paraboulders
PC	Petrocalcic
PCB	Paracobbles
PCN	Parachanners
PEAT	Peat
PF	Petroferric
PFL	Paraflagstones
PG	Paragravel
PGP	Petrogypsic
PL	Placic
PST	Parastones
SPM	Slightly Decomposed plant mat
ST	Stones
W	Water

the growing season so that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow-depth. Free water at shallow depth is usually present. This water table is commonly the result of low or very low saturated hydraulic conductivity of nearly continuous rainfall, or of a combination of these.

Very poorly drained (VP). Water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season. The occurrence of internal free water is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. If rainfall is high or nearly continuous, slope gradients may be greater.

Soil Hydrologic Group

Group A – Soils that have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands and gravels. These soils have a high rate of water transmission (greater than 0.30 in/hr).

Group B – Soils that have moderate infiltration rates when thoroughly wetted. They consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (greater than 0.15 – 0.30 in/hr)

Group C – Soils that have low infiltration rates when thoroughly wetted. They consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (greater than 0.05 - 0.15 in/hr).

Group D – Soils that have high runoff potential. They have very low infiltration rates when thoroughly wetted. They consist chiefly of clay soils with high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over impervious material. These soils have a very low rate of water transmission (greater than 0.0 - 0 05 in/hr)

Soil Permeability Class

Very Rapid:	20.0 to 100.0 inches/hour
Rapid:	6.0 to 20.0 inches/hour
Moderately Rapid:	2 0 to 6 0 inches/hour
Moderate:	0.6 to 2 0 inches/hour
Moderately Slow:	0.2 to 0.6 inches/hour
Slow:	0.06 to 0.20 inches
Very Slow:	0.0015 to 0.06 inches/hour
Impermeable:	0.0000 to 0 0015 inches/hour

ANALYSIS OF SOIL CHARACTERISTICS Legend

Soil Pan

Hardpan – A hardened or cemented layer soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Claypan – A slowly permeable soil horizon that contains much more clay than the horizon above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Plowpan – A compacted layer formed in the soil directly below the plow layer.

Fragipan – A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restrict roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than deform slowly.

Soil Drainage Class

Excessively drained (E). Water is removed very rapidly. The occurrence of internal free water commonly is very rare or very deep. The soils are commonly coarse-textured and have very high hydraulic conductivity or are very shallow. They are not suited to crop production unless irrigated.

Somewhat excessively drained (SE). Water is removed from the soil rapidly. Internal free water occurrence commonly is very rare or very deep. The soils are commonly coarse-textured and have high saturated hydraulic conductivity or are very shallow. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained (W). Water is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep; annual duration is not specified. Water is available to plants throughout most of the growing season in humid regions. Wetness does not inhibit growth of roots for significant periods during most growing seasons.

Moderately well drained (MW). Water is removed from the soil somewhat slowly during some periods of the year. Internal free water occurrence commonly is moderately deep and transitory through permanent. The soils are wet for only a short time within the rooting depth during the growing season, but long enough that most mesophytic crops are affected. They commonly have a moderately low or lower saturated hydraulic conductivity in a layer within the upper 1 m, periodically receive high rainfall, or both.

Somewhat poorly drained (SP). Water is removed slowly so that the soil is wet at a shallow depth for significant periods during the growing season. The occurrence of internal free water commonly is shallow to moderately deep and transitory to permanent. Wetness markedly restricts the growth of mesophytic crops, unless artificial drainage is provided. The soils commonly have one or more of the following characteristics: low or very low saturated hydraulic conductivity, a high water table, additional water from seepage, or nearly continuous rainfall.

Poorly drained (P). Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. The occurrence of internal free water is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during

NOTES:

1 - See Appendix A;

2 - GRAVEL, COBBLE, or STONE: GRV = Very Gravelly, GRX = Extremely Gravelly, CBV = Very Cobbly, CBX = Extremely Cobbly, STV = Very Stony, STX = Extremely Stony, WB = Weathered Bedrock, and UWB = Unweathered Bedrock;

3 - DRAINAGE CLASS: E = Excessively drained, SE = Somewhat Excessively drained, W = Well drained, MW = Moderately Well drained, SP = Somewhat Poorly drained, P = Poorly drained, VP = Very Poorly drained;

Table 3. Soil characteristics that represent a potential limiting condition within the soil profile (< 5 feet) across the entire field.

Field Name	Depth to Limiting Layer < 5 feet - Soil Layer with > 50 % Gravel, Cobble or Stone					Depth to Limiting Layer < 5 feet - Pan[1]				
	Dominant Condition		Most Limiting Condition			Dominant Condition		Most Limiting Condition		
	Layer Description[1,2]	Acres	Layer Description[1,2]	Acres	Minimum Depth (in)	Layer Description	Acres	Layer Description	Acres	Minimum Depth (in)
Buckwald	None Present	44.11	STV	25.52	0	Pan Present	54.32	Pan Present	15.31	40
Dairy Handlines	None Present	13.45	GRV CBV	1.58	14	Pan Present	11.56	Pan Present	3.47	20
Field 26	None Present	14.37	STV	1.2	0	Pan Present	14.85	Pan Present	0.72	40
Hubbs	None Present	45.06		45.06	0	Pan Present	39.42	Pan Present	5.64	20
Kelly	None Present	38.01	STV	25.75	0	Pan Present	48.31	Pan Present	15.45	40
Mini Pivot	None Present	30.51	STV	0.44	0	Pan Present	19.8	Pan Present	15.44	20
Pierce	None Present	130.2	STV	8.61	0	No Pan Present	133.64	Pan Present	5.16	40
Sandy North	None Present	63.07	STV	14.07	0	No Pan Present	68.7	Pan Present	8.44	40
Sandy South	None Present	58	GRX	1.7	23	Pan Present	59.7	Pan Present	59.7	0
Sherman	None Present	70.84	STV	16.62	0	Pan Present	58.32	Pan Present	29.84	40
Zimmatic	None Present	1455.51	STV	1075.79	0	No Pan Present	1848.93	No Pan Present	67.64	20

Field Name	Depth to Limiting Layer < 5 feet - Rock					Depth to Limiting Layer < 5 feet - Seasonal High Water Table				
	Dominant Condition		Most Limiting Condition			Dominant Condition		Most Limiting Condition		
	Layer Description	Acres	Layer Description	Acres	Minimum Depth (in)	Layer Description	Acres	Layer Description	Acres	Minimum Depth (in)
Buckwald	Rock Layer Present	69 63	Rock Layer Present	54 32	25	No Water Table Present	69 63	No Water Table Present	69.63	6
Dairy Handlines	No Rock Layer Present	9 98	No Rock Layer Present	1 58	N/A	Water Table Present	15.02	Water Table Present	15 02	6
Field 26	No Rock Layer Present	13 65	No Rock Layer Present	1.2	N/A	Water Table Present	15 56	Water Table Present	15 56	6
Hubbs	No Rock Layer Present	35 47	No Rock Layer Present	3 95	N/A	Water Table Present	45 06	Water Table Present	45 06	6
Kelly	Rock Layer Present	41 2	Rock Layer Present	25 75	25	No Water Table Present	63 76	No Water Table Present	63 76	6
Mini Pivot	Rock Layer Present	28.44	Rock Layer Present	4.55	13	Water Table Present	35.51	Water Table Present	35.51	6
Pierce	Rock Layer Present	135.34	Rock Layer Present	130.17	25	No Water Table Present	138 8	No Water Table Present	138 8	6
Sandy North	Rock Layer Present	77 14	Rock Layer Present	68.7	25	No Water Table Present	77 14	No Water Table Present	77 14	6
Sandy South	No Rock Layer Present	31 18	No Rock Layer Present	25 12	N/A	Water Table Present	59 7	Water Table Present	59 7	6
Sherman	Rock Layer Present	46.67	Rock Layer Present	16 83	25	No Water Table Present	88 16	No Water Table Present	88 16	6
Zimmatic	Rock Layer Present	1819.64	Rock Layer Present	30 75	13	No Water Table Present	2562.04	No Water Table Present	2562 04	6

Field Name	Drainage Class[1,3]		Hydrologic Group[1]	
	Dominant Drainage Class	Acres	Dominant Hydrologic Group	Acres
Buckwald	Well drained	69.63	D	69.63
Dairy Handlines	Well drained	15.02	B	9.98
Field 26	Well drained	15.56	B	13.65
Hubbs	Well drained	45.06	B	35.47
Kelly	Well drained	63.76	D	41.2
Mini Pivot	Well drained	35.51	C	23.79
Pierce	Well drained	138.8	D	135.34
Sandy North	Well drained	77.14	D	77.14
Sandy South	Well drained	59.7	B	34.58
Sherman	Well drained	88.16	D	57.51
Zimmatic	Well drained	2562.04	D	1721.26

Table 2. Soil characteristics representative for each field

Field Name	Representative For Entire Field (Weighted Average)											
	Dominant Surface Texture & (Acreage)[1]	Total Available Water Capacity to 5 feet (in)	Surface Soil Erodibility Factor - K	Soil Loss Tolerance - T (tons/acre)	Calculated Sheet and Rill Erosion Rate[1] (tons/acre)	Calculated Irrigation Induced Erosion Rate[1] (tons/acre)	Slope (%)	Permeability (in/hour)	Permeability Class[1,2]	Runoff Class[1,3]	Surface pH	Surface pH Classification
Buckwald	SIL(44.11)	5.72	0.46	2	-1	-1	4.21	0.03	Very Slow	H	7.29	Alkaline
Dairy Handlines	SIL(15.02)	9.01	0.42	4	-1	-1	1.84	0.39	Moderately Slow	L	7.33	Alkaline
Field 26	SIL(14.37)	10.35	0.43	5	-1	-1	1.8	0.34	Moderately Slow	L	7.23	Alkaline
Hubbs	SIL(45.06)	9.75	0.43	4	-1	-1	2.03	0.39	Moderately Slow	L	7.23	Alkaline
Kelly	SIL(38.01)	7.95	0.44	3	-1	-1	3.11	0.15	Slow	M	7.24	Alkaline
Mini Pivot	SIL(35.06)	6.34	0.43	2	-1	-1	2.94	0.34	Moderately Slow	L	7.34	Alkaline
Pierce	SIL(130.2)	5.17	0.48	2	-1	-1	4.38	0.03	Very Slow	H	7.35	Alkaline
Sandy North	SIL(63.07)	5.29	0.48	2	-1	-1	4.36	0.03	Very Slow	H	7.33	Alkaline
Sandy South	SIL(49.5)	7.91	0.45	4	-1	-1	2.68	0.39	Moderately Slow	L	7.31	Alkaline
Sherman	SIL(70.84)	9.2	0.42	4	-1	-1	2.07	0.22	Moderately Slow	L	7.25	Alkaline
Zimmatic	SIL(1486.26)	213.78	12.33	87	-1	-1	90.3	4.06	Moderately Rapid	M	203.38	Alkaline

NOTES:

1 - See Appendix A;

2 - PERMEABILITY CLASSES: VR = Very Rapid, R = Rapid, MR = Moderately Rapid, M = Moderate, MS = Moderately Slow, S = Slow, VS = Very Slow, I = Impermeable;

3 - RUNOFF CLASS: N = Negligible, LV = Very Low, L = Low, M = Medium, H = High, HV = Very High;

Hydrologic Group—A group of soils having similar runoff potential under similar storm and cover conditions.

diameter. Soil texture influences engineering works and plant growth and is used as an indicator of how soils formed (See Appendix A)

Available Water Capacity (AWC) -- The volume of water that should be available to plants if the soil, inclusive of fragments, were at field capacity. It is commonly defined as the difference between the amount of soil moisture at field capacity and the amount at permanent wilting point. Typical Available Water Capacities are 0.6 inches/foot for a Sand and 2.0 inches/foot for a Silt Loam. Available Water Capacity is an important soil property in developing water budgets, predicting droughtiness, designing and operating irrigation systems, designing drainage systems, protecting water resources, and predicting yields.

Surface Soil Erodibility Factor (K) -- A factor which quantifies the susceptibility of soil detachment by water. Factors vary from a low of 0.02 to a high of 0.64.

Soil Loss Tolerance (T) -- The maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained.

Slope—The difference in elevation between two points expressed as a percentage of the distance between those points.

Permeability—The quality of the soil that enables water or air to move through it.

Permeability Class—Permeability expressed by classes ranging from very rapid to impermeable. (See Appendix A)

Runoff Class - An index of the likelihood for runoff to occur based on inherent soil and slope characteristic. Runoff classes range from Negligible to Very High. (See Appendix A)

Surface pH—A numerical expression of the relative acidity or alkalinity of the surface soil layer.

Surface pH Classification—A general descriptive term for soil pH, acid or alkaline

Table 3 contains additional important soil characteristics for each of the fields identified in this plan. Each soil characteristic listed represents a potential limiting condition within the soil profile (< 5 feet) across the field. ***(Caution:*** *USDA NRCS Soil Survey information was used to estimate the values reported in Table 2.* ***These are not absolute values*** *and may vary for each specific situation. They are estimated values representative for each field.)* The following includes a brief description of each of those factors:

Soil Layer with > 50 % Gravel, Cobble or Stone—A layer comprised of more than 50 % gravel, cobbles or stones.

Pan - A compact, dense layer in the soil that impedes the movement of water and the growth of roots Examples include, *hardpan, claypan, plowpan*, and *Fragipan* (See Appendix A)

Rock—A layer of rock in the soil that impedes the movement of water and the growth of roots.

Seasonal High Water Table—A seasonal water table that exist near the surface.

Drainage Class - Drainage class identifies the natural drainage condition of the soil. It refers to the frequency and duration of wet periods. Alteration of the water regime by humans, either through drainage or irrigation, is not a consideration unless the alterations have significantly changed the morphology of the soil. (See Appendix A)

	ELIJAH	55	8.02	SIL
Pierce	CATCHELL	100	121.57	SIL
	CATCHELL	50	6.89	STV-SIL
	GOODING	30	4.13	SIL
	POWER	100	3.47	SIL
Sandy North	CATCHELL	50	11.26	STV-SIL
	GOODING	30	6.75	SIL
	CATCHELL	100	54.63	SIL
Sandy South	POWER	100	24.38	SIL
	BURCH	45	4.59	L
	QUENCHEROO	30	3.06	L
	DRYCK	15	1.53	VFSL
	CATCHELL	100	25.12	SIL
Sherman	GOODING	30	7.98	SIL
	POWER	100	29.5	SIL
	CATCHELL	50	13.3	STV-SIL
	DRYCK	55	0.63	VFSL
	LOUPENCE	35	0.4	SIL
	GOODING	55	16.89	SIL
	POWER	30	9.21	SIL
	CATCHELL	100	0.2	SIL
Zimmatic	POWER	100	742.4	SIL
	CATCHELL	50	860.63	STV-SIL
	GOODING	30	516.38	SIL
	ELIJAH	55	54.11	SIL
	BRUNCAN	25	24.6	SIL

Note: 1- See Appendix A.

Table 2 contains important soil characteristics for each of the fields identified in this plan. Each soil characteristic listed is representative for the entire field based on a weighted average. *(**Caution**: USDA NRCS Soil Survey information was used to estimate the values reported in Table 2. **These are not absolute values and may vary for each specific situation.** They are estimated values representative for each field.)* The following includes a brief description of each of those factors:

Dominant Surface Texture—The predominant texture of the surface layer. Soil texture is the relative proportion, by weight, of the particle separate classes (sand, silt, and clay) finer than 2 mm in equivalent

Appendix A: ANALYSIS OF SOIL CHARACTERISTICS

Soil Survey (USDA NRCS) information was used to describe the soil variations across each field. **This is not absolute** and may vary for each specific situation. The soil map has broad areas that have distinctive pattern of soils, relief, and drainage. Each map unit on the soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas Because the minor soils are not described in the following summary, the combined acreage for all major soils will be less than the acreage for each field.

Table 1. Soil type across each field

Field Name	Soil Type	Percentage	Approximate Acreage	Surface Texture[1]
Buckwald	CATCHELL	50	20.42	STV-SIL
	CATCHELL	100	28.79	SIL
	GOODING	30	12.25	SIL
Dairy Handlines	BRUNCAN	25	1.26	SIL
	POWER	100	9.98	SIL
	ELIJAH	55	2.77	SIL
Field 26	GOODING	30	0.57	SIL
	POWER	100	13.65	SIL
	CATCHELL	50	0.96	STV-SIL
Hubbs	POWER	100	35.47	SIL
	MCPAN	35	3.36	SIL
	ELIJAH	50	4.79	SIL
Kelly	POWER	100	22.56	SIL
	CATCHELL	50	20.6	STV-SIL
	GOODING	30	12.36	SIL
Mini Pivot	CATCHELL	50	0.35	STV-SIL
	GOODING	30	0.21	SIL
	CATCHELL	100	3.95	SIL
	POWER	100	7.06	SIL
	BRUNCAN	25	3.64	SIL
	MCPAN	35	3.23	SIL
	ELIJAH	50	4.61	SIL

Crop	Yield	Yield Units	N Requirement	P_2O_5 uptake	K_2O Requirement
N/A - No Second Crop	0	0	0	0	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
N/A - No Second Crop	0	0	0	0	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
Triticale-Winter, Irrigated South ID	60	bu/acre	160	33	240
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
N/A - No Second Crop	0	0	0	0	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
N/A - No Second Crop	0	0	0	0	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
Triticale-Winter, Irrigated South ID	60	bu/acre	160	33	240
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
Average				39.5	

- Nitrogen and Potassium Requirements assume zero credits.

Mapped Resource Concern(s)

Field Name	Acres	Resource Concern(s)
NoData	NoData	NoData

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ANALYSIS OF CROPPING SYSTEM

Farming Operation

Total Acres: 1377.4

Crop Production History

THIS IS NOT A FERTILIZER RECOMMENDATION

Crop Rotation Name: Alfalfa/Corn/Triticale

Crop	Yield	Yield Units	N_{tot} Requirement	P_2O_5 uptake	K_2O Requirement
Triticale-Winter, Irrigated South ID	60	bu/acre	160	33	240
Corn-Field Silage, Irrigated South ID	30	tons/acre	250	120.2	240
Triticale-Winter, Irrigated South ID	60	bu/acre	160	33	240
Corn-Field Silage, Irrigated South ID	30	tons/acre	250	120.2	240
N/A - No Second Crop	0	0	0	0	0
Corn-Field Silage, Irrigated South ID	30	tons/acre	250	120.2	240
N/A - No Second Crop	0	0	0	0	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
N/A - No Second Crop	0	0	0	0	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
Triticale-Winter, Irrigated South ID	60	bu/acre	160	33	240
Alfalfa Hay, Irrigated South ID-Cut Early Bloom	5.5	tons/acre	0	68	240
Average				55.3	

* Nitrogen and Potassium Requirements assume zero credits.

THIS IS NOT A FERTILIZER RECOMMENDATION

Crop Rotation Name: Alfalfa/Triticale

BIO-NUTRIENT EXPORT INFO

Exported Bio-Nutrient Summary					
Bio-Nutrient Group Name	**Amount**	**Consumer**	**Consumer's Address**	**Telephone**	**Acres**
Solid Stack(s)	19016	Four Brothers Gooding, Guthrie and Dietrich Farms	427 N 250 W,Shoshone,ID,83352	208-886-7716	677.7
Solid Stack(s)	4776	Scott Simons	830 W 420 N Gooding ,ID,83330	208-886-7117	160
Solid Stack(s)	12149	Tunapa Ranch	2490 E 1700 S,Gooding,ID,83330	208-934-9259	407
Solid Stack(s)	8955	Craig Olsen	215 Montana St ,Gooding,ID,83330	208-934-5651	300
Solid Stack(s)	27761	Sabala Farms	1819 E 1530 S,Gooding,ID,83330	208-934-4360	930
Solid Stack(s)	13433	Eden Farms	414 N 800 W,Gooding,ID,83330	208-886-2180	450
Solid Stack(s)	7000	Bigwood Farms	72 HWY 75,Shoshone,ID,83352	208-886-2777	1380
Separated Solid(s)	18429	Bigwood Farms	72 HWY 75,Shoshone,ID,83352	208-886-2777	1380

Lagoon #2									
Barn 2 Lagoon #3	873,131	180	400	300	8	2	0	Yes	No
Barn 2 Lagoon #4	670,752	180	400	300	6	2	0	Yes	No
Barn 2 Lagoon #5	3,983,616	180	600	600	12	2	0	Yes	No
Barn 2 Lagoon #6	873,131	180	400	300	8	2	0	Yes	No
Barn 2 Lagoon #7	3,312	180	40	30	6	2	0	Yes	No
Barn 3 Lagoon #1	17,333	180	60	60	10	2	0	Yes	No
Barn 3 Lagoon #2	43,691	180	100	80	8	2	0	Yes	No
Barn 3 Lagoon #3	16,811	180	100	40	8	2	0	Yes	No
Heifer Lagoon #1	14,891	180	90	40	8	2	0	Yes	No
Heifer Lagoon #2	79,333	180	150	80	10	2	0	Yes	No
Solid Stack	2,900,000	180	1,000	580	10	0	0	Yes	No

Containment of Milking Center Waste and Corral Runoff

It is important that all barn water and contaminated runoff from corrals be contained and/or diverted to the lagoon storage system. As stated in the Idaho State Department of Agriculture (ISDA) regulation, a discharge is allowed only under large precipitation events (>25yr, 24hr storm event). Lagoon structures must be properly designed, operated, and maintained to contain all barn wastewater and contaminated runoff from a 25-year, 24-hour rainfall event for the site location and maintained to contain all runoff from accumulation of winter precipitation from a one in five-year winter. Animals confined in the CAFO may not have direct contact with canals, streams, lakes, or other surface waters.

Comments

No Comments

Barn 3 Lagoon #2	180	0%	0%	0%	0%	0%	0%	0%	0%	13%	C
Barn 3 Lagoon #3	180	0%	0%	0%	0%	0%	0%	0%	1%	2%	0
Barn 2 Lagoon #1	180	0%	0%	0%	0%	0%	41%	0%	0%	55%	0
Barn 2 Lagoon #2	180	0%	0%	0%	0%	0%	59%	0%	69%	0%	0
Barn 2 Lagoon #3	180	0%	0%	0%	82%	73%	0%	0%	28%	0%	0
Barn 2 Lagoon #4	180	0%	0%	0%	0%	27%	0%	0%	0%	0%	0
Barn 2 Lagoon #5	180	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
Barn 2 Lagoon #6	180	0%	0%	0%	0%	0%	0%	0%	0%	0%	½
Barn 2 Lagoon #7	180	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Solid Stack	180	0%	100%	0%	0%	0%	0%	0%	0%	0%	100

New Storage Containers Required		
Storage Unit Name	Days Stored	NoData
NoData	@[DaysStored]	NoData

Container Name	Volume (ft3)	Storage Period (Days)	Length	Width	Depth	Slope	Diameter	Existing	Proposed
Barn 1 Lagoon # 2	4,525,333	180	800	600	10	2	0	Yes	No
Barn 1 Lagoon #1	831,744	180	400	300	8	3	0	Yes	No
Barn 2 Lagoon #1	1,327,531	180	600	300	8	2	0	Yes	No
Barn 2	1,247,616	180	400	300	12	2	0	Yes	No

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Barn 1 North Corrals	54,151	100%
Barn 3 Corrals and Heifer Corrals	321,336	100%
Process Water	449,826	100%

Total Solid Capacity		
Bio-Nutrient Group	Cubic Feet	% Contained
Solid Stack(s)	3,542,405	100%
Separated Solid(s)	594,505	0%
Barn 1 Milkers	708,806	100%
Barn 2 Milkers	1,367,032	100%
Barn 3 Milkers	177,032	100%
Dries	327,419	100%
Bulls	61,419	100%
Young Bulls	24,839	100%
Calves	46,080	100%
Heifers	786,032	100%

					Existing Storage Containers						
Storage Unit Name	Days Stored	Waste Storage Pond(s)	Solid Stack(s)	Separated Solid(s)	Heifer feedlot and calf hutches	Calf Sheds, Clem's corral, south of Barn 1 and Barn 3 area	Barn 2 Corrals	Barn 1 North Corrals	Barn 3 Corrals and Heifer Corrals	ProcessWater	Bar Mil - Bed
Heifer Lagoon #1	180	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%
Heifer Lagoon #2	180	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%
Barn 1 Lagoon #1	180	100%	0%	0%	0%	0%	0%	100%	0%	30%	0%
Barn 1 Lagoon # 2	180	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Barn 3 Lagoon #1	180	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%

Cow Prep Water:	653	Deck Flush Volume:	0
Automatic Backflush:	0	Other Volume:	0
Sprinkler Volume:	0	**Holding Pen Cleaning Water:**	3000
Manual Cow Prep:	653.1	Hose Volume:	3000
Dairy Equipment Water:	0	Flush Volume:	0
Compressor Water:	0	Other Volume:	0
Vacuum Pump Water:	0	**Freestall/Alley Flush:**	0
Pre-Cooler Water:	0	**Excess Water**	
Glycol Chiller Water:	0	Cow Water:	0
Miscellaneous Equipment Water:	350	Group 1:	0
Washing Machine Water:	0	Group 2:	7200
Miscellaneous Water:	200		
Milkhouse Water	150	**Total Dairy Water:**	**9243**

Bulk Tank(s)		
Bulk Tank ID	Size	Volume
1	8000	80
2	8000	80
3	8000	80
4	7000	80

Comments

Misc Equip Comments:
Water used to wash boots, bottles etc.

MANURE STORAGE SUMMARY

Total Liquid Capacity Required		
Bio-Nutrient Group	Cubic Feet	% Contained
Waste Storage Pond(s)	196,183	100%
Heifer feedlot and calf hutches	261,829	100%
Calf Sheds,Clem's corral, south of Barn 1 and Barn 3 area	232,076	100%
Barn 2 Corrals	803,339	100%

Storage Pond(s)	Storage Pond, Diluted > 50%					

- in Nitrogen Retention % Column means "Overridden Nitrogen Values" Assisted Mode has been turned off.

Manure Group		Barn 1 Milkers	Barn 2 Milkers	Barn 3 Milkers	Bulls	Calves	Dries	Heifers	Young Bulls
Waste Storage Pond(s)	% To Group	4	9	4					
Solid Stack(s)	% To Group	85	63	85	100	100	100	100	100
Separated Solid(s)	% To Group	11	28	11					

Annual Production of Nutrients

The nutrient values were calculated based on animal weight and nitrogen loss estimates as described in the NRCS Agricultural Waste Management Field Handbook guidelines (1996). The calculations are estimates, and manure testing is recommended for more accuracy, as manure nutrient content varies widely among operations.

	Nutrient Distribution on Facility			
	Pounds N	Pounds P_2O_5	Pounds K_2O	% of Total
Total Nutrients Produced	637167	471735	1018059	
Separated Solid(s)	98779	73243	143276	15
Solid Stack(s)	520562	374322	827503	81
Waste Storage Pond(s)	17826	24170	47280	4
Nutrients Exported	433274	320780	692280	68
Nutrients Onsite	203893	150955	325779	32

Comments on Bionutrients
No Comments

Dairy Water Values

Dairy Water Values			
Dairy Process Water:	1040	**Milk Parlor Cleaning Water:**	4200
Dairy Parlor Water:	720	Hose Volume:	4200
Bulk Tank Water:	320	Flush Volume:	0

ANALYSIS OF ANIMAL SYSTEM

WASTE STORAGE AND HANDLING

Livestock Unit Characteristic

Description	Animal	Number	Weight	Days Collected	Housing	Bedding Type	Bedding (tons)
Barn 1 Milkers	Lactating Cow	1,370	1,350	365	Open Lot	Long Straw	3,139
Barn 2 Milkers	Lactating Cow	2,642	1,350	365	Open Lot	Long Straw	6,054
Barn 3 Milkers	Lactating Cow	342	1,350	365	Open Lot	Long Straw	784
Dries	Dry Cow	633	1,350	365	Open Lot	Long Straw	1,450
Bulls	Beef - High energy diet	100	1,600	365	Open Lot	Long Straw	272
Young Bulls	Beef - High energy diet	100	650	365	Open Lot	Long Straw	110
Calves	Dairy Calf	1,200	175	365	Covered Pens	Long Straw	192
Heifers	Dairy Heifer	2,930	700	365	Open Lot	Long Straw	3,481

Manure/Biosolid Groups

Manure Group	Storage Type	Application Method	Days to Incorporation	Nitrogen Retention(%)	Annual Volume (ft3)	Annual Weight (tons)
Separated Solid(s)	Manure Stored in Open Lot, Arid Region	Broadcast, Incorporated less than 3 inches	4-7 days	48	594,505	18,430
Solid Stack(s)	Manure Stored in Open Lot, Arid Region	Broadcast, Incorporated less than 3 inches	4-7 days	48	3,542,405	109,815
Waste	Waste	Irrigation	N/A	26	196,183	6,082

Final Nutrient Balance	266	-6	-118

Acceptable: Sustainable agronomic rate

Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2
Solid Stack	28	74	163
Estimated Remaining Nutrients Required	266	-6	118
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	266	-6	118

Acceptable: Sustainable agronomic rate.

Field: North Ranch Swing **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	250	120	275
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	-40		
from Prior Bio-Nutrients	18		
from Irrigation Water	0		0
Nutrient Balance from above	272.6	120.2	274.7
Solid Stack	28	74	163
Estimated Remaining Nutrients Required	245	46	112
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	245	46	112

Acceptable: Sustainable agronomic rate.

Field: Guthrie **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2
Solid Stack	28	74	163
Estimated Remaining Nutrients Required	266	-6	118
Commercial Fertilizer Application	0	0	0

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from Irrigation Water	0		0
Nutrient Balance from above	272.4	68	281.2
Solid Stack	38	61	135
Estimated Remaining Nutrients Required	234	7	146
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	234	7	146

Acceptable: Sustainable agronomic rate.

Field: North Ranch Big Pivot **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	294	68	281
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	294	68	281

Acceptable: Sustainable agronomic rate.

Field: North Ranch Handlines **Crop:** Alfalfa Hay, Irrigated South ID-Cut Early Bloom **Yield:** 5.5

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	21		
from Irrigation Water	0		0
Nutrient Balance from above	272.4	68	281.2
Solid Stack	38	61	135
Estimated Remaining Nutrients Required	234	7	146
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	234	7	146

Acceptable: Sustainable agronomic rate.

Field: North Ranch Mini **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20

Field: Dietrich ¾ Pivot **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	250	120	275
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	-40		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	209	120.2	274.7
Solid Stack	27	72	158
Estimated Remaining Nutrients Required	264	48	116
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	264	48	116

Caution: Rate is either deficit or is approaching an amount that may potentially contribute to an environmental risk.
Acceptable: Sustainable agronomic rate

Field: Dietrich Big Pivot **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	230	102	234
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	-40		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	189	102.2	233.5
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	271	102	234
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	271	102	234

Caution: Rate is either deficit or is approaching an amount that may potentially contribute to an environmental risk.
Acceptable: Sustainable agronomic rate

Field: Field 6&7 **Crop:** Alfalfa Hay, Irrigated South ID-Cut Early Bloom **Yield:** 5.5

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	21		

Nutrient Balance from above	293.6	68	281.2
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	294	68	281
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	294	68	281

Acceptable: Sustainable agronomic rate.

Field: Zimmatic **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2
Separated Solid(s)	0	0	0
Solid Stack(s)	11	28	62
Waste Storage Pond(s)	9	46	89
Estimated Remaining Nutrients Required	274	-6	129
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	274	-6	129

Acceptable: Sustainable agronomic rate.

Field: Dietrich ½ Pivot **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	293	68	0
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	0
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	294	68	0
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	294	68	0

Acceptable: Sustainable agronomic rate.

Field: Sandy North **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	250	120	275
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	-40		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	291	120.2	274.7
Separated Solid(s)	0	0	0
Solid Stack(s)	28	74	163
Estimated Remaining Nutrients Required	263	46	112
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	263	46	112

Rate is either deficit or is approaching an amount that may potentially contribute to an environmental risk.

Acceptable: Sustainable agronomic rate.

Field: Sandy South **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	294	68	281
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	294	68	281

Acceptable: Sustainable agronomic rate.

Field: Sherman **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0

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N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	294	68	281
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	294	68	281

Acceptable: Sustainable agronomic rate.

Field: Mini Pivot **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	160	33	22
Nutrients From Soil	-1		
from Mineralized Nitrogen	45		
from Prior Crops	0		
from Prior Bio-Nutrients	20		
from Irrigation Water	0		0
Nutrient Balance from above	96.3	33	22.5
Separated Solid(s)	0	0	0
Solid Stack(s)	11	28	62
Waste Storage Pond(s)	9	46	89
Estimated Remaining Nutrients Required	76	-41	-129
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	76	-41	-129

Unacceptable Rate: May be a resource risk.
Acceptable: Sustainable agronomic rate.

Field: Pierce **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	160	33	22
Nutrients From Soil	-1		
from Mineralized Nitrogen	45		
from Prior Crops	-15		
from Prior Bio-Nutrients	20		
from Irrigation Water	0		0
Nutrient Balance from above	111.3	33	22.5
Separated Solid(s)	0	0	0
Solid Stack(s)	11	28	62
Waste Storage Pond(s)	9	45	89
Estimated Remaining Nutrients Required	91	-40	-129
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	91	-40	-129

Unacceptable Rate: May be a resource risk.
Acceptable: Sustainable agronomic rate.

Field: Field 26 **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2
Separated Solid(s)	0	0	0
Solid Stack(s)	22	59	131
Estimated Remaining Nutrients Required	272	9	150
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	272	9	150

Acceptable: Sustainable agronomic rate.

Field: Hubbs **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	0	0	0
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	28		
from Irrigation Water	0		0
Nutrient Balance from above	-26.7	0	0
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	-27	0	0
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	-27	0	0

Unacceptable Rate: May be a resource risk.
Acceptable: Sustainable agronomic rate.

Field: Kelly **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	293.6	68	281.2

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ANNUAL NUTRIENT BUDGET

The following crop nutrient budget is based on soil test data and cropping information. It is for one year for the following field and specified crop information:

Nutrient Budget Summary

Field: Buckwald **Crop:** Triticale-Winter, Irrigated South ID **Yield:** 60

	N	P205	K20
Crop Nutrient Requirement	250	120	275
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	-40		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	209	120	274.7
Separated Solid(s)	0	0	0
Solid Stack(s)	28	74	163
Estimated Remaining Nutrients Required	263	46	112
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	263	46	112

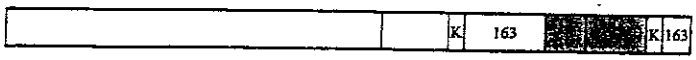
Caution: Rate is either deficit or is approaching an amount that may potentially contribute to an environmental risk.
Acceptable: Sustainable agronomic rate.

Field: Dairy Handlines **Crop:** N/A - No Second Crop **Yield:** 0

	N	P205	K20
Crop Nutrient Requirement	293	68	281
Nutrients From Soil	-1		
from Mineralized Nitrogen	0		
from Prior Crops	-46		
from Prior Bio-Nutrients	0		
from Irrigation Water	0		0
Nutrient Balance from above	246	68	281.2
N/A	N/A	N/A	N/A
Estimated Remaining Nutrients Required	340	68	281
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance	340	68	281

Caution: Rate is either deficit or is approaching an amount that may potentially contribute to an environmental risk.
Acceptable: Sustainable agronomic rate.

Record Keeping For each field keep a record of annual manure and chemical fertilizer applications. Include nutrient source, date, time, rate and application method.



Minimum Acres Required for Manure Application

Manure Group	Acres
Separated Solid(s)	814
Solid Stack(s)	4159
Waste Storage Pond(s)	269

The acreage in the table is based on an average crop uptake of 100 lbs P_2O_5 per acre. These acreage numbers are for estimating export acreage needed. Wastewater application should begin with the first irrigation of the season and end with the last irrigation of the season. Rates should be designed to supply uniform application. When applying wastewater outside of the irrigation window you must contact the Department of Agriculture, Dairy Bureau (208) 332-8550.

Hydraulic Balance

Field	Date
Buckwald	April 1
Dairy Handlines	April 1
Field 26	April 1
Hubbs	April 1
Kelly	April 1
Mini Pivot	April 1
Pierce	April 1
Sandy North	April 1
Sandy South	April 1
Sherman	April 1
Zimmatic	April 1

0.5" of wastewater may be applied to fields after the hydraulic balance date to remain in compliance with this nutrient management plan.

Spring Soil Test

Spring soils tests must be taken every year from every field to determine a commercial fertilization rate. If commercial fertilizer isn't applied (for a perennial crop), spring soil samples are not required. If you do not apply commercial fertilizer, a complete soil analysis will need to be conducted initially to determine the nutrient baseline.

		K	163			K	326	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2004)	Y		22 T/ac					
		N	18	N	0	N	46	
		P	74			P	148	
		K	163			K	326	
Triticale-Winter, Irrigated South ID(2005)	Y		22 T/ac					
		N	18	N	-11	N	35	
		P	74			P	148	
		K	163			K	326	
Corn-Field Silage, Irrigated South ID(2005)	Y		22 T/ac					
		N	18	N	-11	N	35	
		P	74			P	148	
		K	163			K	326	
Triticale-Winter Irrigated South ID(2006)	Y		22 T/ac					
		N	18	N	39	N	85	
		P	74			P	148	
		K	163			K	326	
Corn-Field Silage, Irrigated South ID(2006)	Y		22 T/ac					
		N	18	N	39	N	85	
		P	74			P	148	
		K	163			K	326	
N/A - No Second Crop(2007)	N		22 T/ac					
		N	18	N	39	N	57	
		P	74			P	74	
		K	163			K	163	
Corn-Field Silage, Irrigated South ID(2007)	Y		22 T/ac					
		N	18	N	39	N	57	
		P	74			P	74	
		K	163			K	163	
N/A - No Second Crop(2008)	N		22 T/ac					
		N	18	N	20	N	38	
		P	74			P	74	
		K	163			K	163	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		22 T/ac					
		N	18	N	20	N	38	
		P	74			P	74	
		K	163			K	163	
N/A - No Second Crop(2009)	N		22 T/ac					
		N	18	N	10	N	28	
		P	74			P	74	
		K	163			K	163	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2009)	Y		22 T/ac					
		N	18	N	10	N	28	
		P	74			P	74	

Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2006)	Y	22 T/ac						
		N	18	N	20	N	38	
		P	74			P	74	
		K	163			K	163	
N/A - No Second Crop(2007)	N	22 T/ac						
		N	18	N	10	N	28	
		P	74			P	74	
		K	163			K	163	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2007)	Y	22 T/ac						
		N	18	N	10	N	28	
		P	74			P	74	
		K	163			K	163	
Triticale-Winter, Irrigated South ID(2008)	Y	22 T/ac						
		N	18	N	10	N	56	
		P	74			P	148	
		K	163			K	326	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2008)	Y	22 T/ac						
		N	18	N	10	N	56	
		P	74			P	148	
		K	163			K	326	
Triticale-Winter, Irrigated South ID(2009)	Y	22 T/ac						
		N	18	N	29	N	75	
		P	74			P	148	
		K	163			K	326	
Corn-Field Silage, Irrigated South ID(2009)	Y	22 T/ac						
		N	18	N	29	N	75	
		P	74			P	148	
		K	163			K	326	

FIELD: Guthrie

Name	Man App		Solid Stack	Mineralization	Total	
N/A - No Second Crop(2003)	N					
		N	N	0	N	0
		P			P	0
		K			K	0
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2003)	N					
		N	N	0	N	0
		P			P	0
		K			K	0
Triticale-Winter, Irrigated South ID(2004)	Y	22 T/ac				
		N	18	N	0	N	46
		P	74			P	148

Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y	22 T/ac						
		N	18	N	20	N	38	
		P	74			P	74	
		K	163			K	163	
N/A - No Second Crop(2009)	N	22 T/ac						
		N	18	N	10	N	28	
		P	74			P	74	
		K	163			K	163	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2009)	Y	22 T/ac						
		N	18	N	10	N	28	
		P	74			P	74	
		K	163			K	163	

FIELD: North Ranch Swing

Name	Man App		Solid Stack	Mineralization		Total	
Triticale-Winter. Irrigated South ID(2003)	Y	22 T/ac					
		N	28	N	30	N	58
		P	74			P	74
		K	163			K	163
Corn-Field Silage Irrigated South ID(2003)	N	22 T/ac					
		N	28	N	30	N	58
		P	74			P	74
		K	163			K	163
Triticale-Winter. Irrigated South ID(2004)	Y	22 T/ac					
		N	18	N	-22	N	24
		P	74			P	148
		K	163			K	326
Corn-Field Silage Irrigated South ID(2004)	Y	22 T/ac					
		N	18	N	-22	N	24
		P	74			P	148
		K	163			K	326
N/A - No Second Crop(2005)	N	22 T/ac					
		N	18	N	-1	N	17
		P	74			P	74
		K	163			K	163
Corn-Field Silage. Irrigated South ID(2005)	Y	22 T/ac					
		N	18	N	-1	N	17
		P	74			P	74
		K	163			K	163
N/A - No Second Crop(2006)	N	22 T/ac					
		N	18	N	20	N	38
		P	74			P	74
		K	163			K	163

N/A - No Second Crop(2003)	N	N	N	0	N	0	
		P	[illegible]		P	0	
		K	[illegible]		K	0	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2003)	N	N	N	0	N	0	
		P	[illegible]		P	0	
		K	[illegible]		K	0	
Triticale-Winter, Irrigated South ID(2004)	Y	[illegible]					
		N	18	N	0	N	46
		P	74	[illegible]		P	148
		K	163	[illegible]		K	326
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2004)	Y	[illegible]					
		N	18	N	0	N	46
		P	74	[illegible]		P	148
		K	163	[illegible]		K	326
Triticale-Winter, Irrigated South ID(2005)	Y	[illegible]					
		N	18	N	-11	N	35
		P	74	[illegible]		P	148
		K	163	[illegible]		K	326
Corn-Field Silage, Irrigated South ID(2005)	Y	[illegible]					
		N	18	N	-11	N	35
		P	74	[illegible]		P	148
		K	163	[illegible]		K	326
Triticale-Winter, Irrigated South ID(2006)	Y	[illegible]					
		N	18	N	39	N	85
		P	74	[illegible]		P	148
		K	163	[illegible]		K	326
Corn-Field Silage, Irrigated South ID(2006)	Y	[illegible]					
		N	18	N	39	N	85
		P	74	[illegible]		P	148
		K	163	[illegible]		K	326
N/A - No Second Crop(2007)	N	[illegible]					
		N	18	N	39	N	57
		P	74	[illegible]		P	74
		K	163	[illegible]		K	163
Corn-Field Silage, Irrigated South ID(2007)	Y	[illegible]					
		N	18	N	39	N	57
		P	74	[illegible]		P	74
		K	163	[illegible]		K	163
N/A - No Second Crop(2008)	N	[illegible]					
		N	18	N	20	N	38
		P	74	[illegible]		P	74
		K	163	[illegible]		K	163

		N	18	N	39	N	85
		P	74			P	148
		K	163			K	326
N/A - No Second Crop(2009)	N		22 T/ac				
		N	18	N	39	N	57
		P	74			P	74
		K	163			K	163
Corn-Field Silage Irrigated South ID(2009)	Y		22 T/ac				
		N	18	N	39	N	57
		P	74			P	74
		K	163			K	163

FIELD: North Ranch Handlines

Name	Man App		Solid Stack	Mineralization		Total	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2003)	Y		18 T/ac				
		N	38	N	0	N	38
		P	61			P	61
		K	135			K	135
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2004)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135
Triticale-Winter, Irrigated South ID(2005)	Y		18 T/ac				
		N	38	N	66	N	104
		P	61			P	61
		K	135			K	135
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2006)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2007)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2008)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135

FIELD: North Ranch Mini

Name	Man App		Solid Stack	Mineralization	Total

		N	N	-10	N	-10	
		P	[illegible]	[illegible]	P	0	
		K	[illegible]	[illegible]	K	0	
Corn-Field Silage, Irrigated South ID(2003)	N						
		N	N	-10	N	-10	
		P	[illegible]	[illegible]	P	0	
		K	[illegible]	[illegible]	K	0	
N/A - No Second Crop(2004)	N	[illegible]					
		N	18	N	0	N	18
		P	74	[illegible]	[illegible]	P	74
		K	163	[illegible]	[illegible]	K	163
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y	[illegible]					
		N	18	N	0	N	18
		P	74	[illegible]	[illegible]	P	74
		K	163	[illegible]	[illegible]	K	163
N/A - No Second Crop(2005)	N	[illegible]					
		N	18	N	10	N	28
		P	74	[illegible]	[illegible]	P	74
		K	163	[illegible]	[illegible]	K	163
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2005)	Y	[illegible]					
		N	18	N	10	N	28
		P	74	[illegible]	[illegible]	P	74
		K	163	[illegible]	[illegible]	K	163
Triticale-Winter Irrigated South ID(2006)	Y	[illegible]					
		N	18	N	10	N	56
		P	74	[illegible]	[illegible]	P	148
		K	163	[illegible]	[illegible]	K	326
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2006)	Y	[illegible]					
		N	18	N	10	N	56
		P	74	[illegible]	[illegible]	P	148
		K	163	[illegible]	[illegible]	K	326
Triticale-Winter, Irrigated South ID(2007)	Y	[illegible]					
		N	18	N	29	N	75
		P	74	[illegible]	[illegible]	P	148
		K	163	[illegible]	[illegible]	K	326
Corn-Field Silage, Irrigated South ID(2007)	Y	[illegible]					
		N	18	N	29	N	75
		P	74	[illegible]	[illegible]	P	148
		K	163	[illegible]	[illegible]	K	326
Triticale-Winter Irrigated South ID(2008)	Y	[illegible]					
		N	18	N	39	N	85
		P	74	[illegible]	[illegible]	P	148
		K	163	[illegible]	[illegible]	K	326
Corn-Field Silage Irrigated South ID(2008)	Y	[illegible]					

		K	158			K	316
Triticale-Winter Irrigated South ID(2009)	Y		2.1 T/ac				
		N	18	N	38	N	83
		P	72			P	144
		K	158			K	316
Corn-Field Silage Irrigated South ID(2009)	Y		2.1 T/ac				
		N	18	N	38	N	83
		P	72			P	144
		K	158			K	316

FIELD: Field 6&7

Name	Man App		Solid Stack	Mineralization		Total	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2003)	Y		18 T/ac				
		N	38	N	0	N	38
		P	61			P	61
		K	135			K	135
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2004)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2005)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2006)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135
Triticale-Winter Irrigated South ID(2007)	Y		18 T/ac				
		N	38	N	66	N	104
		P	61			P	61
		K	135			K	135
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2008)	Y		18 T/ac				
		N	38	N	21	N	59
		P	61			P	61
		K	135			K	135

FIELD: North Ranch Big Pivot

Name	Man App		Solid Stack	Mineralization		Total	
N/A - No Second Crop(2003)	N						

		K	0			K	0	
Corn-Field Silage, Irrigated South ID(2003)	N	21 T/ac						
		N	0	N	30	N	30	
		P	0			P	0	
		K	0			K	0	
N/A - No Second Crop(2004)	N	21 T/ac						
		N	18	N	-40	N	-22	
		P	72			P	72	
		K	158			K	158	
Corn-Field Silage, Irrigated South ID(2004)	Y	21 T/ac						
		N	18	N	-40	N	-22	
		P	72			P	72	
		K	158			K	158	
N/A - No Second Crop(2005)	N	21 T/ac						
		N	18	N	10	N	28	
		P	72			P	72	
		K	158			K	158	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2005)	Y	21 T/ac						
		N	18	N	10	N	28	
		P	72			P	72	
		K	158			K	158	
N/A - No Second Crop(2006)	N	21 T/ac						
		N	18	N	10	N	28	
		P	72			P	72	
		K	158			K	158	
Alfalfa Hay, Irrigated South ID-Cut Early Bloom(2006)	Y	21 T/ac						
		N	18	N	10	N	28	
		P	72			P	72	
		K	158			K	158	
Triticale-Winter Irrigated South ID(2007)	Y	21 T/ac						
		N	18	N	10	N	55	
		P	72			P	144	
		K	158			K	316	
Alfalfa Hay Irrigated South ID-Cut Early Bloom(2007)	Y	21 T/ac						
		N	18	N	10	N	55	
		P	72			P	144	
		K	158			K	316	
Triticale-Winter Irrigated South ID(2008)	Y	21 T/ac						
		N	18	N	28	N	73	
		P	72			P	144	
		K	158			K	316	
Corn-Field Silage Irrigated South ID(2008)	Y	21 T/ac						
		N	18	N	28	N	73	
		P	72			P	144	

		K	158			K	316
Corn-Field Silage. Irrigated South ID(2005)	Y		21 T/ac				
		N	18	N	-12	N	33
		P	72			P	144
		K	158			K	316
N/A - No Second Crop(2006)	N		21 T/ac				
		N	18	N	38	N	56
		P	72			P	72
		K	158			K	158
Corn-Field Silage. Irrigated South ID(2006)	Y		21 T/ac				
		N	18	N	38	N	56
		P	72			P	72
		K	158			K	158
N/A - No Second Crop(2007)	N		21 T/ac				
		N	18	N	20	N	38
		P	72			P	72
		K	158			K	158
Alfalfa Hay. Irrigated South ID-Cut Early Bloom(2007)	Y		21 T/ac				
		N	18	N	20	N	38
		P	72			P	72
		K	158			K	158
N/A - No Second Crop(2008)	N		21 T/ac				
		N	18	N	10	N	28
		P	72			P	72
		K	158			K	158
Alfalfa Hay. Irrigated South ID-Cut Early Bloom(2008)	Y		21 T/ac				
		N	18	N	10	N	28
		P	72			P	72
		K	158			K	158
Triticale-Winter. Irrigated South ID(2009)	Y		21 T/ac				
		N	18	N	10	N	55
		P	72			P	144
		K	158			K	316
Alfalfa Hay. Irrigated South ID-Cut Early Bloom(2009)	Y		21 T/ac				
		N	18	N	10	N	55
		P	72			P	144
		K	158			K	316

FIELD: Dietrich Big Pivot

Name	Man App		Solid Stack	Mineralization		Total	
Triticale-Winter. Irrigated South ID(2003)	Y		0 T/ac				
		N	0	N	30	N	30
		P	0			P	0

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352

RE: 4-Bros. Nutrient Management Plan

4-Bros. Diary, Inc. has the following acres of farm ground to spread waste.

Farm Name: EDEN FARMS
Address: 414W 800W GOODING, ID 83330
Phone: 208-886-2180
Acres: 450

Dairy Eden

Andrew Fitzgerald
Andrew Fitzgerald
4-Bros. Dairy, Inc.

21-75

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2088867659 01:30

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352

RE: 4-Bros. Nutrient Management Plan

4-Bros. Diary, Inc. has the following acres of farm ground to spread waste.

Farm Name: SABAIA FARMS IDC
Address: 1819E 1550 S
Phone: 934-4360
Acres: 930 ACRES

Mark Sabala
SABAIA FARMS

Andrew Fitzgerald
4-Bros. Dairy, Inc.

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352

RE: 4-Bros. Nutrient Management Plan

4-Bros. Diary, Inc. has the following acres of farm ground to spread waste.

Farm Name: BIG WOOD FARMS

Address: PO BOX 741 SHOSHONE IDAHO

Phone: 208-886-

Acres: 1380

Alton Hueper

Andrew Fitzgerald
4-Bros. Dairy, Inc.

21-77

PAGE 05

4 BROS DAIRY

12-30-03

4 BROS HAS THESE ACRES AVAILABLE TO SPREAD WASTE ON:

SCOTT SIMMONS

830 W 420 N

GOODING ID 83330 886-7117

160 ACRES

Scott Simmons Andrew Fitzgerald

21-79

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352

RE: 4-Bros. Nutrient Management Plan

4-Bros. Diary, Inc. has the following acres of farm ground to spread waste

Farm Name: TUNUPA RANCH

Address: 2490 E 1700 S,

Phone: (208) 934-9259

Acres: 407

Andrew Fitzgerald
4-Bros Dairy, Inc.

21-79

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352

RE: 4-Bros Nutrient Management Plan

4-Bros Diary, Inc. has the following acres of farm ground to spread waste

Farm Name: CRAIG OLSEN

Address: 215 MONTANA ST. GOODING, ID 83330

Phone: 934-5651

Acres: 300

Andrew Fitzgerald
4-Bros Dairy, Inc.

21-36

ATTN: [redacted]

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352
FAX # 886-7659

RE: 4-Bros Nutrient Management Plan

4-Bros Diary, Inc has the following acres of farm ground to spread waste

Farm Name: K W Hall

Address: 520 N 3400 W

Phone: 886 7066

Acres: 60

K. W. Hall

Andrew Fitzgerald
4-Bros Dairy, Inc

21-81

ATTN: CRAIG

4-BROS. DAIRY, INC.
427 North 250 West
Shoshone, ID 83352
FAX # 886-7659

RE: 4-Bros. Nutrient Management Plan

4-Bros Diary, Inc. has the following acres of farm ground to spread waste

Farm Name: Craig L Hobbs

Address: 212 E 620 N

Phone: 886-2289

Acres: 100 Ac.

Andrew Fitzgerald
4-Bros. Dairy, Inc

STATE OF IDAHO

DEPARTMENT OF AGRICULTURE

DIRK KEMPTHORNE
Governor
PATRICK A. TAKASUGI
Director

July 20, 2005

Rich Carlson
PO Box 21
Filer, Id 83328

Re: Public Records Request

Dear Mr. Carlson:

On July 15, 2005, the Idaho State Department of Agriculture, Dairy Bureau, received your facsimile request for, "(1) Any studies, reports, summaries, data compilations etc. ISDA has showing the number of acres in Jerome, Gooding, Twin Falls, Cassia, Lincoln, Canyon, Owyhee Counties (the "counties") which have been identified as having reached a phosphorus level where application of dairy manure is not appropriate....(2) Any studies, reports, summaries, data compilations, etc. showing the percentage of manure produced at dairy facilities which dairy facilities in the above referenced counties are "exporting" from their facilities based on reports in their Nutrient management plans....(3) Current statistics on the number of number of dairy facilities in the above referenced counties, the number of NMPs which have been "approved" by the department, the number of NMPs which have not been approved, the number of NMPs which have been "ground truthed", the percentage of facilities where the department has done regulatory soil samples for NMP compliance purposes, and the percentage of facilities which have been checked or audited for compliance with the soil testing the operator is required to do under the NMP...."

More time is necessary to process your request. The Department will respond to your request within ten working days from the date your request was received.

If you have any questions, please call.

Sincerely,

Marv Patten

Marv Patten, Chief
Bureau of Dairying

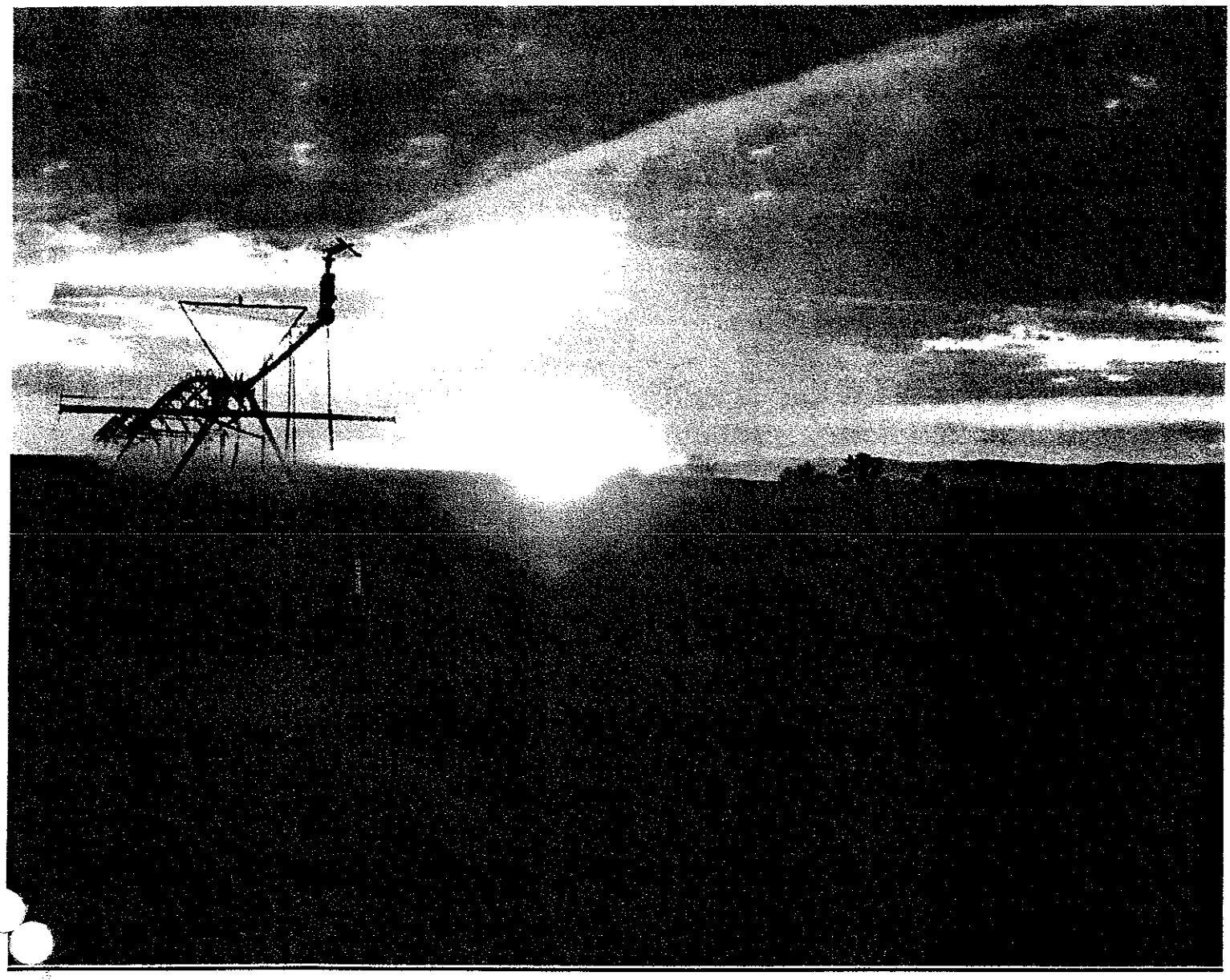
Certificate of Mailing

I hereby certify that the original of this letter was deposited in the United States mail, postage prepaid, this 20th day of July, 2005.

Martha Walbey

Martha Walbey
Administrative Assistant

IDAHO STATE DEPARTMENT OF AGRICULTURE MOU ANNUAL REPORT APRIL 20, 2005



IDAHO STATE DEPARTMENT OF AGRICULTURE DAIRY MOU REPORT APRIL 20, 2005

At the end of 2004, Idaho had 737 dairy farms - a net loss of 25 dairies from 2003. Average herd size increased from 540 mature animals per farm in 2003 to 590 in 2004. Total milk production was over 9 billion pounds up 3.6% from 2003. Average milk price was $14.97 per hundred weight up from $11.62 in 2003. Farm gate receipts were 1.36 billion, up from 1.1 billion in 2003. The Department estimates the 2005 milk production will increase approximately 6% over 2004. Several dairymen have gone through the county siting approval process and are under construction. Numerous other proposals (primarily potato and sugar beet farmers) are in the process of converting their properties to dairy operations. The Gossner Food's Cheese plant in Heyburn will open this fall. Other milk processors are reviewing areas in Idaho for possible manufacture sites.

YEAR	NUMBER OF FARMS	POUNDS OF MILK (BILLIONS OF LBS.)	MATURE DAIRY COWS (IN THOUSANDS)	AVERAGE HERD SIZE
1991	1952	2.87	178	91
1992	1825	3.09	183	100
1993	1248	3.18	189	151
1994	1217	3.71	208	171
1995	1179	4.17	232	197
1996	1150	4.7	256	223
1997	1074	5.15	272	253
1998	980	5.7	301	307
1999	930	6.453	332	357
2000	894	7.189	354	395
2001	837	7.757	377	450
2002	788	8.155	390	495
2003	762	8.77	412	540
2004	737	9.09	435	590
Statistics from ISDA & estimates from USDA Statistical Reporting				

WASTE INSPECTION DATA

During the nine-year history of the MOU, 1996 through 2004, ISDA conducted 22,541 dairy farm waste inspections. A total of 3,033 noncompliance violations and 965 discharge violations were issued.

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Non-compliance	805	661	291	73	146	221	383	217	236
Discharge	437	326	99	32	14	21	20	5	11
Total Inspections	3196	2742	2697	2619	2386	2385	2350	2083	2082

Waste Inspection - Animal Summary

County / Producer	Dairies 1-200 Animals	Dairies 201-500 Animals	Dairies 501-750 Animals	Dairies 751-1000 Animals	Dairies 1001-2000 Animals	Dairies 2000+ Animals	Total Animals
ADA COUNTY	11	10	3	0	6	2	19 457
BANNOCK COUNTY	6	1	0	0	0	0	535
BEAR LAKE COUNTY	20	0	0	0	0	0	902
BINGHAM COUNTY	24	9	3	1	0	1	10 159
BLAINE COUNTY	2	0	0	0	0	0	37
BONNER COUNTY	3	0	0	0	0	0	266
BONNEVILLE COUNTY	7	2	0	0	0	0	926
BOUNDARY COUNTY	3	0	0	0	0	0	299
BUTTE COUNTY	1	2	0	0	0	0	540
CANYON COUNTY	22	10	6	5	4	4	28 960
CARIBOU COUNTY	13	1	0	0	0	0	973
CASSIA COUNTY	23	6	2	1	6	6	30 529
ELMORE COUNTY	1	1	0	0	1	1	6 960
FRANKLIN COUNTY	61	11	1	0	0	1	10 663
FREMONT COUNTY	6	0	0	0	0	0	490
GEM COUNTY	13	2	0	0	0	0	1 805
GOODING COUNTY	18	30	10	16	16	14	101 128
IDAHO COUNTY	4	0	0	0	0	0	238
JEFFERSON COUNTY	21	4	2	0	1	0	5 816
JEROME COUNTY	9	19	14	8	15	4	60 227
LATAH COUNTY	1	0	0	0	0	0	100
LEMHI COUNTY	4	0	0	0	0	0	350
LINCOLN COUNTY	18	8	2	0	1	3	17 101
MADISON COUNTY	6	0	0	0	0	0	485
MINIDOKA COUNTY	19	4	0	1	1	1	7 567
ONEIDA COUNTY	5	0	0	0	0	0	210
OWYHEE COUNTY	9	3	1	1	0	3	13 680
PAYETTE COUNTY	15	10	1	1	1	1	12 440
POWER COUNTY	0	1	0	0	0	0	500
TETON COUNTY	11	0	0	0	0	0	770
TWIN FALLS COUNTY	23	23	7	7	7	5	46 717
WASHINGTON COUNTY	2	1	0	0	0	0	420
OTHER COUNTY	0	0	0	0	0	0	0
737 Total Producer(s)	381	158	52	41	59	46	381 250

NUTRIENT MANAGEMENT

In January 2006 EPA will require CAFO's (700 mature dairy animals) to have Nutrient Management Plans (NMPs). There are approximately 162 dairy farms that meet the 700 mature dairy animal classifications. Since July 1, 2001, all Idaho dairy farms licensed to sell milk for human consumption, were required to have NMP's. Developing or possessing an NMP is the easy part. Understanding, implementing and modifying (when necessary) the plans have been a problem. Dairy farms are required to make sure their NMP accurately reflects the current activities of the facilities. Keeping plans current with changes made on operations are the producer's responsibility. In many cases, industry has been slow in responding to this requirement. Changes in water availability and commodity economics alter cropping rotations and yields. Record keeping continues to be sub-par. Modifications to traditional land applications due to phosphorous standards have been slow, however, it appears producer awareness is improving.

Perhaps the biggest NMP obstacle to overcome is the issue of available acres to apply effluent at the phosphorous threshold, especially on larger dairies. Insufficient separation of nutrients from the liquid waste containment systems and the utilization of compost for bedding will cause many facilities significant increased costs to their manure management program. Adoption of technology, to economically address phosphorus loading will play a very significant role in dairy farm expansion.

There continues to be some confusion with nitrate environmental impacts and the phosphorus standard. The phosphorus based nutrient management standard provides a degree of safety with regards to adverse ground water nitrate impacts. Generally, manure applications at the phosphorus threshold would require more than three times more manure to meet crop nitrogen needs. When other agriculture operations are required to meet the same nutrient management criteria, Idaho water quality will improve.
The department has not been able to meet expectations regarding regulatory soil sampling. Plans are underway to reenergize this portion of the program for 2005. The Bureau has been very concerned with the testing accuracy of our regulatory soil samples. A decision was made to use the State Quality Assurance Lab in Twin Falls for regulatory soil samples. We praise NRCS for taking the initiative to be an integral part in developing a new quality assurance program for laboratories conducting soil and plant testing.

SUMMARY

As we enter the 2005 year, many questions remain to be resolved. How will the new NPDES permit requirements mesh with the state inspection program and the future of the MOU? How will multi-agency regulatory responsibility provide non-conflicting enforcement as livestock operators deal with waste containment, nutrient management, odor, and air quality issues? Will increased regulatory burdens cause a decline in small livestock operations? How quickly will new technologies become a part of the industry?

There will be substantial growth of the dairy industry. New 2500 plus head operations will be forth coming. Facilities with less than 2,000 head have not been built in the last 4 or 5 years. These larger facilities will be constructed and operated to meet all agencies' requirements. We are concerned with the emphasis to regulate the large CAFO's, and the impact the additional regulations will have on the smaller CAFO's. Will the not - so - large facilities be able to withstand the additional burdens? Government agencies must develop common sense requirements and most of all, work together to minimize the collateral damage.

Respectfully Submitted,

Marv Patten

Marv Patten, Chief
Dairy Bureau

Acres Soil Sampled

Status of Other NMP Activities – End of 2003

- **Total Acres to Sample (2003)** — **213,988**
- **Total Acres to Sample (2004)** — **231,951**
  - ➔ New Dairies and More Acreage Purchased
- **Total Acres Sampled since inception** — **89,320**
- **Facilities sampled in 2004** — **15**
- **Number of acres sampled in 2004** — **8,592**

2270 Old Penitentiary Road
Boise, Idaho 83712
(208) 332-8500

Well Analyses Report

MRS. JOSEPH BUCKWAY
684 N 250 W
SHOSHONE, ID 83352

Sample # 7500468 Sample Date: 7/6/2004 Project # 750

ANALYTES:	RESULTS:	DETECTION LIMITS:	UNITS OF MEASURE:
Temperature	15.900		degrees Celcius
pH	7.730		unitless
TDS	493		mg/L
Salinity	NA		unitless
Nitrate	6.1		mg/L
Nitrite	ND	0.025	mg/L
OrthoP	BDL	0.025	mg/L
Sulfate	25	0.027	mg/L
Bromide	ND	0.150	mg/L
Chloride	15	0.038	mg/L
Flouride	0.3	0.090	mg/L
nonia	BDL	0.120	mg/L

Primary Standards:
Based on the protection of human health

Nitrate:	10.0 mg/L
Nitrite:	1.0 mg/L
Flouride:	4.0 mg/L

Secondary Standards:
Based on aesthetic qualities

Chloride	250 mg/L
Sulfate	250 mg/L
pH	6.5 to 8.5
TDS	500 mg/L

otes:
g/L = milligrams per liter (equivalent to parts per million)
/L = micrograms per liter (equivalent to parts per billion)
)S = total dissolved solids
\ = not analyzed
) = not detected or below detection limit

Results reported higher than the noted detection limit signifies a positive detection. All constituents listed without detection limits are reported as actual detections. For results reported below the detection limit, these indicate

2004

Idaho State Department of Agriculture
2270 Old Penitentiary Road
Boise, Idaho 83712
(208) 332-8500

Well Analyses Report

JOSEPH BUCKWAY
584 N 250 W
SHOSHONE, ID 83352

Sample # 7500268 Sample Date: 5/29/2002 Project # 750

ANALYTES:	RESULTS:	DETECTION LIMITS:	UNITS OF MEASURE:
Temperature	14.000		degrees Celcius
pH	7.660		unitless
TDS	258.000		mg/L
Salinity			unitless
Nitrate	10.00		mg/L
Nitrite	ND	0.025	mg/L
OrthoP	BDL	0.025	mg/L
Sulfate	24.00	0.027	mg/L
Bromide	ND	0.150	mg/L
Chloride	18.00	0.038	mg/L
Flouride	0.27	0.090	mg/L
Ammonia	BDL	0.120	mg/L

Primary Standards:
Based on the protection of human health

Nitrate:	10.0 mg/L
Nitrite:	1.0 mg/L
Flouride:	4.0 mg/L

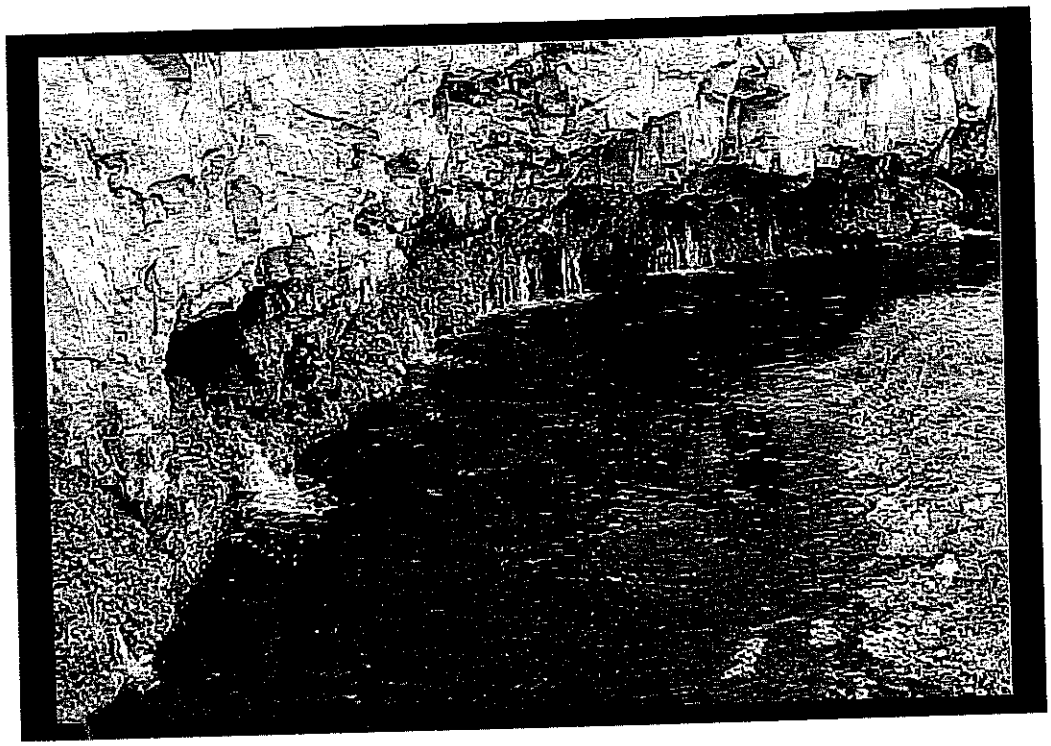
Secondary Standards:
Based on aesthetic qualities

Chloride	250 mg/L
Sulfate	250 mg/L
pH	6.5 to 8.5
TDS	500 mg/L

Notes:
mg/L = milligrams per liter (equivalent to parts per million)
µg/L = micrograms per liter (equivalent to parts per billion)
TDS = total dissolved solids
NA = not analyzed
ND = not detected or below detection limit

Results reported higher than the noted detection limit signifies a positive detection. All constituents listed without detection limits are reported as actual detections. For results reported below the detection limit, these indicate non-detectable levels.

Ground Water Quality Technical Report No. 14



Cumulative Impacts Assessment, Thousand Springs Area of the Eastern Snake River Plain, Idaho

State of Idaho
Department of Environmental Quality

July 2000

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Ground Water Quality Technical Report No. 14

Joe Baldwin
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COVER PHOTO: Thousand Springs as it discharges from basalt of the Eastern Snake River Plain

ABSTRACT

Nitrogen impacts to springs discharging from the Eastern Snake River Plain Aquifer along the reach from Thousand Springs to Clear Lakes were evaluated using two different ground water flow models (WhAEM and MODFLOW), statistical analysis of spring water quality data, and estimation of nitrogen loads from the sources within the study area. The purpose of this study was to evaluate nitrogen water quality data for springs which discharge along the north side of the Snake River canyon, from Clear Lakes to Thousand Springs. Objectives included estimation of ground water travel times, a delineation of the source area providing water to the springs, evaluation of sources of nitrogen to the aquifer supplying water to the springs and a statistical analysis of water quality data.

WhAEM model results identified areas of very rapid ground water flow in the aquifer, ranging from 100 to 180 feet per day. The highest velocities exist close to the Snake River where the hydraulic gradient steepens and the aquifer width is the smallest. The WhAEM model results indicated that the 10-year time of travel capture zone extended well to the east of the area of interest. The precision of the model simulation decreased with increasing time and distance. Therefore, the WhAEM simulation was limited to the 3-year time of travel capture zone. The simulation showed uniformly shaped time of travel zones, the result of uniform hydraulic conductivity, aquifer thickness and recharge rates which were used in the model.

To confirm the extremely high ground water flow velocities and also to more closely simulate actual hydrogeologic conditions, a simulation using MODFLOW was developed. Calibrated hydraulic conductivity, saturated aquifer thickness and recharge rates more closely matched actual aquifer conditions than for the WhAEM simulation, and the time of travel capture zones across the area of interest varied from less than six years in the northern part to more than 10 years in the southern part of the area. In general, the size of the capture zones were proportional to the spring discharge.

The MODFLOW results also fit well with the conceptual model of sources of recharge to the various springs as described by Clark and Ott (1996), who determined that water discharging from Crystal Springs and eastward is younger water derived primarily from recharge of surface water, either directly within the study area or as the primary source of ground water inflow from outside the model domain. Water in the central springs (Thousand, Box Canyon, Briggs) is older water derived mainly from recharge far upgradient of the study area. Water in the Malad Spring area is a mixture of younger surface water which leaks from the Big and Little Wood Rivers and older water similar to that described for the central springs.

An evaluation of potential nitrogen loads was conducted for sources.within the WhAEM 3-year time of travel capture zone. The evaluation included five major sources. The sources and estimated percent contributions are as follows: commercial fertilizer (54 percent), cattle manure (combined dairy and beef - 42 percent), legume crops (2 percent), human waste (1 percent), and precipitation (1 percent). Data for number of beef cattle within the delineation area are believed to under represent actual numbers, so the estimated nitrogen contribution from cattle sources is probably low. The estimated total nitrogen load within the WhAEM

delineation area from the five sources is about 28 million pounds per year. The potential error of the estimates may be large due to uncertainty about the various sources.

An evaluation of trends for nitrogen sources was conducted using Idaho Agricultural Statistics and EPA data for nitrogen fertilizer, irrigated acreage and total number of animals for Gooding and Jerome Counties during the period 1985 to 2000. The evaluation indicates the following changes: nitrogen fertilizer use - 17 percent decrease for both counties during the period 1985 to 1991; irrigated acreage - 5 percent increase for Gooding County, 12 percent increase for Jerome County during the period 1987 to 1997; total number of cattle - 109 percent increase for Gooding County and 92 percent increase for Jerome County during the period 1986 to 2000.

A statistical analysis of nitrate+nitrite data from five springs (Box Canyon, Crystal Springs #1 and #2, Clear Spring and Niagara Springs) was conducted. The statistical results, using a linear regression analysis, indicate that nitrate+nitrite concentrations increased significantly for all five springs from 1991 or 1994 through 1999 at the 95 percent confidence level. A linear regression analysis of data from the same season over several years was also conducted to minimize seasonality effects evident in the data. This analysis indicated that for Box Canyon, Niagara and Clear Springs, nitrate+nitrite concentrations increased significantly at the 95 percent confidence level for all four quarters. Crystal Spring #2 had a significant increase at the 95 percent confidence level in nitrate+nitrite concentration for three of four quarters through the period 1994 through 1999. At Crystal Spring #1 only one quarter out of four had a significant increase at the 95 percent confidence level in nitrate+nitrite concentration over time.

A liner regression analysis of long-term ground water nitrate+nitrate data was conducted for well 8S16E3ABC, located southwest of Jerome, where nitrate+nitrite data have been collected for 12 years. The regression results show that there is a statistically significant upward trend in nitrate+nitrite concentration at the 95 percent confidence level for this well. The mean nitrate+nitrite concentration in the well for 1990 was about 5.64 mg/l (n = 12), while the mean nitrate+nitrite concentration for 2000 is 9.22 mg/l (n = 9).

Most R^2 values for both spring and ground water quality data are less than 0.5, indicating that other factors such as seasonality effects, variation in nitrogen sources or variation of the concentration of an individual nitrogen source are occurring.

INTRODUCTION

Land use activities on the western part of the Eastern Snake River Plain (ESRP) have changed significantly over the past 10 years, and these changes may have the potential to degrade water quality to the point that treatment or alternate sources of drinking water may be needed. The primary land use activities in the area include irrigated agriculture, dairy and beef operations. The most important land use change in the western part of the ESRP is the increase in livestock over the past 10 years. The Department of Environmental Quality (DEQ) conducted a review of water quality data associated with springs which discharge from the Eastern Snake River Plain (ESRP) Aquifer along the reach of the Snake River from Clear Lakes to Thousand Springs to evaluate changes in water quality.

The primary contaminant of concern for the evaluation was nitrate plus nitrite as nitrogen. The Idaho Ground Water Quality Rule, adopted in 1997, established a Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/l) for nitrate plus nitrite (IDAPA 58.01.11). Nitrate is considered to be a conservative ion, in that it is transported though the unsaturated zone to the water table with little or no attenuation. Elevated levels of nitrate in ground water can serve as an indicator that other contaminants may be migrating to the water table.

One adverse health effect to humans exposed to nitrite or nitrate is a condition known as methemoglobinemia, which results in a reduced capacity of the blood to carry oxygen. Most methemoglobinemia health impacts have been observed in infants who have ingested nitrate-containing water used to prepare formula.

The Idaho Ground Water Quality Rule also states that appropriate actions should be taken when degradation of ground water quality occurs, even though numerical standards may not be exceeded (IDAPA 58.01.11, section 400).

PURPOSE AND OBJECTIVES

The purpose of this study was to evaluate nitrogen water quality data for springs which discharge along the north side of the Snake River canyon, from Clear Lakes to Thousand Springs. Objectives included estimation of ground water travel times, a delineation of the source area providing water to the springs, an evaluation of nitrogen sources within the delineation area and estimates of the total nitrogen load from the various sources. Two different ground water flow models were utilized to determine ground water travel times and areas of contribution to the springs. Sources of nitrogen were described and nitrogen loads from the various sources were estimated using methods similar to those used by Rupert (1996). A statistical analysis of water quality data from springs along the reach was conducted to analyze for trends in water quality.

STUDY AREA

The study area includes the western half of Jerome County, the southeastern portion of

Gooding County and a portion of southwestern Lincoln county (Figure 1). The study area is bounded on the south and west by the Snake River, and on the north by the Little Wood River and Malad rivers. The eastern side of the study area is defined by a line which runs south from Shoshone to the Snake River.

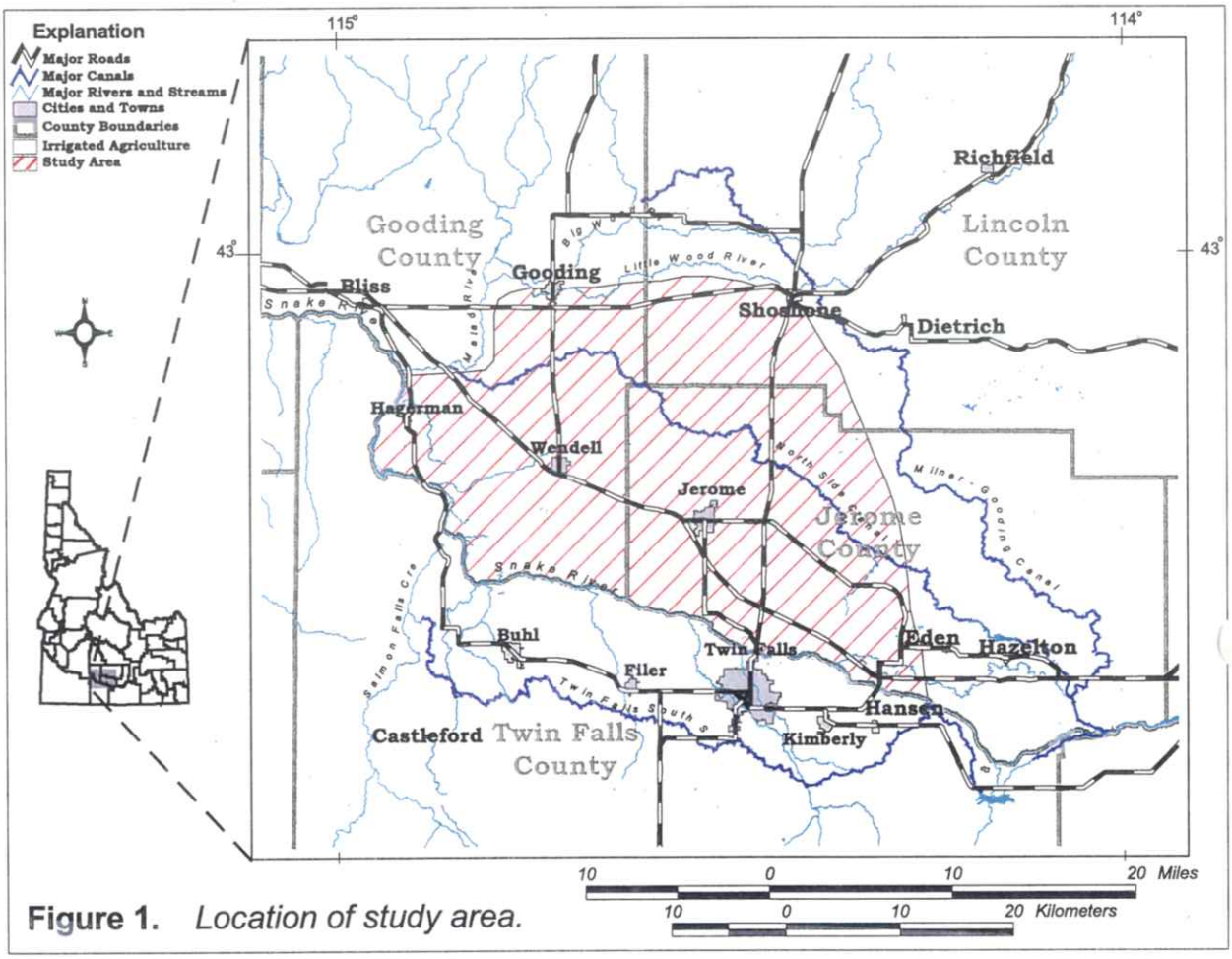


Figure 1. *Location of study area.*

Climate in the study area is semiarid; the average annual precipitation at Jerome for the period January 1961 through December 1990 was 10.76 inches (Western Regional Climate Center, 2000). Two major irrigation canals, the Milner-Gooding canal and the North Side canal, divert water from the Snake River at Milner Dam east of Twin Falls and traverse the study area. Both surface water and ground water are used for irrigation in the study area. Figure 2, a summer 1997 Landsat image, shows irrigated areas and the method of irrigation. From the image it is apparent that sprinkler irrigation predominates over flood irrigation. Figure 2 also shows the location of dairies in the study area and the location of major springs along the north canyon wall of the Snake River.

The study area lies within the western part of the Eastern Snake River Plain, a northeast-southwest trending structural feature. The uppermost rock unit within the study area is Quaternary age basalt flows of the Snake River Group. The total thickness of the basalt in the

eastern part of the study area is estimated to be about 1,000 feet (Whitehead, 1992, plate 3). The basalt thins toward the west and is interbedded with and underlain by deposits of clay, silt, sand and gravel. The combined thickness of the sediments and basalt along the Snake River is probably 300 to 400 feet (Whitehead, 1992, plate 3). Data from a U.S. Geological Survey test well located about 12 miles northeast of Thousand Springs show that individual basalt flows average about 20 feet thick (Whitehead, 1992, Figure 12).

The sedimentary material was deposited in ancestral valleys of the Snake River within the study area. As individual basalt flows moved across the landscape, the valleys were dammed, causing the river to shift its course. Basalt formed pillow lava in water ponded behind basalt dams. In a survey of the north wall of the Snake River canyon from Milner to King Hill, Covington and Weaver (1990, 1991) determined that springs with the largest discharge issue from areas with pillow lava.

Springs along the north wall of the Snake River canyon are the regional discharge points for the Snake River Plain aquifer. Ground water in the aquifer generally moves from northeast to southwest, but within the study area the direction of movement is mostly east to west (Figure 3). The hydraulic gradient on the eastern side of the study area is about 0.005 and increases to about 0.016 near the discharge area along the Snake River.

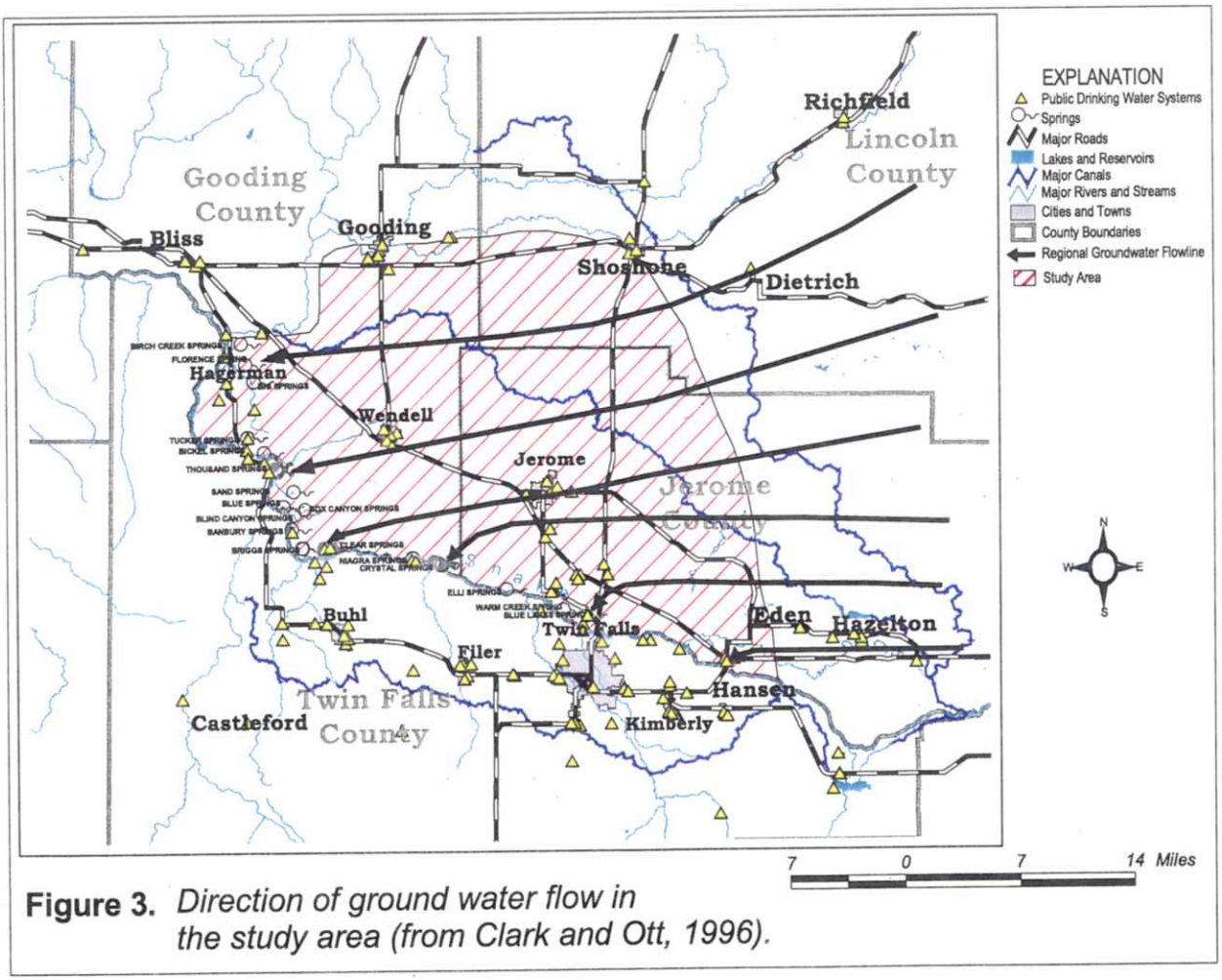


Figure 3. *Direction of ground water flow in the study area (from Clark and Ott, 1996).*

ANALYTICAL ELEMENT MODEL

The Wellhead Analytic Element Model (WhAEM 2000 for Windows) was used to estimate the source area providing ground water to the springs discharging from Clear Lakes through Thousand Springs. WhAEM is a public domain ground water flow model for capture zone delineation that was developed under contract with the EPA for Wellhead Protection and Source Water Assessment programs. There are typically two types of ground water models used in capture zone delineations: analytical and numerical. An analytical model uses simplified equations that have exact solutions. A numerical model approximates the partial differential equations describing groundwater flow and solute transport. Numerical models, though still simplifications of the actual hydrogeology, are typically much more complex than analytical models. Discussions held with personnel from the Idaho Department of Water Resources, U.S. Bureau of Reclamation, and the University of Idaho/Idaho Water Resources Research Institute determined it was appropriate to use an analytical model as an initial assessment. If the analytical model results compared well with observed data, then further modeling would not be necessary.

The conceptual hydrogeologic model of the aquifer was developed using data contained in USGS and IDWR publications. WhAEM requires that aquifer parameters (thickness, hydraulic conductivity, porosity, recharge, and base elevation) are constant throughout the model domain and do not change with time (steady-state conditions).

Model and Aquifer Parameters

A flux inspection line was used to calibrate the model to observed spring discharge. The flux inspection line extends from just north of Thousand Springs to just south of Clear Lakes Springs. A spring discharge of 3000 cfs (259,000,000 ft^3/day) was used in the simulation. This spring discharge value includes the discharge from Clear Lakes Springs through Thousand Springs (Covington and Weaver, 1991).

The aquifer parameters were varied within published ranges to match observed heads and to match flux. Different combinations of hydraulic conductivity, porosity, and aquifer thickness were used until the flux was matched. The combinations that decreased the time of travel distances were preferred. Less emphasis was placed on matching head values due to potential changes in water level elevations within the study area.

Hydraulic conductivity - The actual hydraulic conductivity varies significantly within the study area (see references below). A value of 6,300 feet/day was selected because it yielded reasonable results.

Garabedian, 1992	Ranges from 1,780 to 6,300 ft/day using 165 foot thick aquifer.
Moreland, 1976	Ranges from 810 to 24,000 ft/day using 165 foot thick aquifer.
Lindholm, 1993, Table 1	Ranges from 3,500 to 36,000 feet/day. Based on aquifer test data from wells in Gooding and Jerome Counties.
Whitehead & Lindholm, 1985	Approximately 4,000 feet/day

Effective Porosity - A porosity of 0.20 was used based on Ackerman, 1995. He used a porosity of 0.21 to calibrate his advective transport model of the Eastern Snake River Plain Aquifer. Ackerman cited a number of studies to support his porosity value. Additionally, visual observation of basalt outcrops in the study (March 8, 2000), and review of more than 100 well logs indicate an abundance of high porosity zones.

Areal Recharge - An areal recharge value of approximately 1 foot per year (0.003 feet/day) was used. Garabedian (1992, Plate 8) indicates recharge within the study area ranged from 2 to 20 inches per year during 1976 to 1980.

Saturated Aquifer Thickness - An aquifer thickness of 165 feet was used in the final model. Garabedian (1992, Plate 5) estimates the aquifer ranges in thickness from 100 to 200 feet in the study area and is 100 feet thick at the western end. This thickness provides reasonable results.

Boundary Conditions

Western and Southern Boundaries - A constant head linesink with an elevation of 3,051 to 3,050 feet above mean sea level (amsl) was used to simulate the elevation of spring discharge along the east and north sides of the Snake River. The linesink extends from 1 mile east of Clear Lakes to approximately Hagerman. The elevations of the springs were determined from Covington and Weaver, 1991. The base of the aquifer is set at 3,050 feet amsl. A no-flow boundary was placed west and south of the linesink. The no-flow boundary extends from Hagerman to 2 miles east of Twin Falls.

Eastern Boundary - A constant head line source with an elevation of 3,850 to 3,851 feet amsl is placed approximately 20 miles east of the city of Jerome. The location of the constant head boundary is based on water level elevations reported by Garabedian, 1992 and the desire to keep the model within the Twin Falls 1:100,000 quad map.

Northern Boundary - Infinite areal extent was used at the northern boundary.

Additional Spring Discharges

Ground water wells were placed at the locations of Niagara Springs, Crystal Springs, and Blue Lakes Springs to simulate spring discharges at these locations. The withdrawal rates are:

- Blue Lakes Springs = 18,000,000 ft^3/day,
- Crystal Springs = 39,000,000 ft^3/day, and
- Niagara Springs = 27,000,000 ft^3/day.

Model Calibration

The model was calibrated primarily to the spring discharge from Clear Lakes through Thousand Springs. Head values at eight locations monitored by the USGS also were used to help calibrate the model, but to a lesser degree. No combination of aquifer parameters

yields a solution with differences of less than 75 feet between the observed and modeled water level elevations at all eight locations. The differences between the observed heads and the modeled heads are smallest within 5 or 6 miles of the springs, indicating that the model parameters provide a reasonable representation of aquifer conditions in this area.

Numerous simulations were performed to evaluate the impact of aquifer parameters (aquifer thickness, hydraulic conductivity, and recharge) on head distribution and spring discharge (Figures 4-9). The best fit to observed head conditions occurred with a no-recharge scenario (Figure 4). In the no-recharge scenario, all modeled head values were within 100 feet or less of the observed heads. However, this scenario underestimated the spring discharge by approximately 10 percent. Increasing the areal recharge to 1 foot per year caused the spring discharge to increase to the observed value, but it also resulted in a greater difference in the modeled head versus the observed heads. No difference in ground water velocity was observed between the no-recharge and recharge scenarios. Because much of the study area is irrigated, and to maintain consistency with the USGS model by Garabedian (1992), the simulation with areal recharge was selected as the preferred scenario (Figure 9).

Model Results

Initially, the intent of the simulation was to identify the 10-year time of travel capture zone for the springs. However, preliminary model runs showed the 10-year time of travel extending well beyond the area of interest. Additionally, the precision of the WhAEM model decreases with increasing time and distance from the springs due to increasing hydrogeologic variability. To decrease the inaccuracy of the model, the simulation was limited to a 3-year time of travel with 1-, 2- and 3-year time of travel boundaries.

The results of the simulations indicate ground water near the Snake River Canyon is moving toward the springs at an extremely fast rate of approximately 180 feet per day within the 1-year time of travel zone. The ground water velocity decreases with increasing distance from the springs, due to a lower ground water gradient. The average ground water velocity in the 2-year to 3-year time of travel zone is 100 feet per day. The average ground water velocity during the entire 3-year time of travel is estimated to be 135 feet per day. To confirm this incredibly high ground water velocity, a more robust numerical model simulation was conducted.

The final 3-year time of travel capture zones (wellhead protection areas) estimated by the WhAEM simulations were aligned to reflect the results of the Groundwater Modeling System (GMS) simulations (discussed below). The spring-specific capture zones, shown on Figure 10, should only be considered approximations due to uncertainties in the model input parameters.

NUMERICAL SIMULATION

The goal of this numerical modeling exercise was to refine and improve the results produced by the WhAEM model. The GMS software package was used to verify the WhAEM simulations. GMS consists of a graphical user interface and a number of numerical ground

water models, including MODFLOW and MODPATH. Numerical models use approximations (e.g. finite differences, or finite elements) to solve the differential equations describing groundwater flow or solute transport. The approximations require that the model domain and time be discretized. In this discretization process, the model domain is represented by a network or grid cells or elements, and the time of the simulation is represented by time steps. The accuracy of numerical models depends upon the accuracy of the model input data, the size of the space and time discretization (the greater the discretization steps the greater the possible error), and the numerical method used to solve the model equations.

Numerical Model Overview

Two numerical models were selected to refine the source water delineations and time of travel capture zones developed using the Analytic Element method: the United States Geological Survey flow model MODFLOW (McDonald and Harbaugh, 1988) and the particle-tracking model MODPATH (Pollack, 1994), as implemented in the GMS software distributed by BOSS International, Inc.

The conceptual hydrogeologic model of the aquifer is identical to that described previously: an unconfined multilayer aquifer system in fractured basaltic media with springs providing the primary discharge points for the uppermost layers. Because of the difficulty of clearly delineating the various aquifer layers on geological evidence, most previous models of the Eastern Snake Plain aquifer have arbitrarily defined certain zones of saturated thickness for their model layers. The present model retains this convention and focuses on the upper 200-300 feet of saturated thickness as that which provides the bulk of water to the springs.

Given the modeling and calibration process used and the assumptions made, the solution presented represents a non-unique solution. A different combination for various aquifer properties could likely produce an equally well-calibrated simulation with different calibrated values of these properties and with varying results for capture zones and travel times. The level of uncertainty in this regard is not quantified. While it is not possible to describe the aquifer properties with complete certainty, this model provides our best scientific estimate given the available data.

Model and Aquifer Parameters

Several changes were made to the model domain used in the WhAEM model. The model domain was extended to the north to include several significant springs north of Thousand Springs that had the potential to alter ground water flow patterns. These include the Big/Billingsley/Bickel spring complex and Malad springs. In order to accommodate the flow of these additional springs, model boundary conditions to the north were simulated as specified head. Zones of hydraulic conductivity, recharge, and aquifer bottom elevation were developed to attempt to account for the variability of these parameters across the model domain. In addition, all springs were modeled as discrete discharge areas.

The flow model was calibrated, primarily through the adjustment of the hydraulic conductivity

distribution, aquifer bottom elevation and, to a lesser extent, surface water- supplied recharge areas, to contoured potentiometric head values. These contours were derived from observed water level measurements from 1980 (Garabedian, 1992). The calibration process also attempted to match estimates of surface recharge and ground water pumpage occurring within the model domain (Maupin, 1997).

The results of the calibrated flow model were then used in MODPATH to generate pathlines and times of travel zones from each of the spring groups modeled. Particles were placed in the fixed discharge cells representing the lateral extent of each of the spring groups and tracked backward for up to 10 years.

The discharge of the springs included in the model are presented in Table 1. Some springs in close proximity to one another were grouped together. Discharge data for the various springs are from USGS sources (Covington and Weaver, 1990, 1991).

Table 1. Modeled discharge of selected spring groups.

Spring Group	Discharge (ft^3/day)
Malad	106,253,000
Billingsley, Big, Tucker, and Bickel	28,345,900
Thousand	130,257,000
Box Canyon, Blueheart, and Sand	79,778,000
Briggs and Banbury	20,544,600
Clear	42,713,000
Crystal and Niagara	66,011,000
Blue Lakes	18,285,400
Devil's Corral/Washbowl	6,212,800
Total Discharge All Springs	498,436,000 (5769 cfs)

Hydraulic conductivity – Hydraulic conductivity zones were developed based on the calibrated steady-state transmissivity distribution of Moreland (1976). Initial hydraulic conductivity values for these zones were also derived from Moreland (1976), assuming a saturated thickness of 200 feet, similar to that assumed by Garabedian (1992). Hydraulic conductivity values in the delineated zones were then adjusted manually during the calibration process. The range of final calibrated hydraulic conductivity values was 328 to 9840 ft/day. Specific values for each zone are presented in Figure 11. These values generally agree with those used or measured in other studies referenced earlier.

Effective Porosity - 0.20 –This estimate is based on the work of Ackerman (1995) as described in the earlier WhAEM modeling section.

Areal Recharge – Zones of recharge were developed based on the map of land use and source of irrigation water in Rupert (1997, Figure 6). Three zones were developed representing native rangeland, irrigated agriculture supplied by ground water pumpage, and irrigated agriculture supplied by surface water diversions. These zones and associated final calibrated model values are presented in Figure 12.

Total recharge estimates for the study area and starting values for irrigated agricultural zones were based on estimates of water withdrawal, consumptive use, and conveyance losses for surface water and ground water irrigated areas taken from Maupin (1997). Native rangeland recharge rates were taken from Garabedian (1992) and were 1 inch per year (0.084 feet per year). Recharge rate values were adjusted as part of the calibration process. It was assumed that irrigated areas supplied by ground water experienced a net loss of water from the aquifer due to consumptive use by crops using sprinkler irrigation. Recharge rate estimates for irrigated areas supplied by surface water include canal conveyance losses.

The estimated total recharge or removal from the aquifer for surface water or ground water supplied irrigated agriculture in the study area was calculated by adjusting the total volume of surface water withdrawals in Gooding, Jerome, and Lincoln counties for 1992 from Maupin (1997, Table 7) by the fraction of surface water or ground water irrigated land present in each county in the model domain compared to total county acreages presented by Maupin (1997, Table 3).

Simulated recharge to the aquifer from surface water supplied areas in the final flow budget (Table 2) represented 122 percent of the estimated total recharge for surface-supplied irrigated acreage in the study area. Simulated removals from the aquifer from ground water pumping and sprinkler irrigation were 93 percent of estimated withdrawals. Contributions from rangeland were considered insignificant and were included with surface water supplied agricultural land recharge.

Saturated Aquifer Thickness - Using a stepped series of zones of aquifer bottom elevation (Figure 13) along with the final simulated head values (Figure 14) resulted in aquifer thickness varying from about 150 to 300 feet. Garabedian (1992, Plate 5) estimates the aquifer ranges in thickness from 100 to 200 feet in the study area and is 100 feet thick at the western end.

Boundary conditions

The general location of boundary conditions for the modeled domain is shown in Figure 15.

Western and Southern Boundary - Individual springs were modeled using wells in groups of cells with a cumulative specified discharge equal to the measured discharge. A

cumulative spring discharge of 498,436,000 ft3/day (5769 cfs) was used in the simulation. This spring discharge value includes the discharge of major springs from Devil's Corral Springs through Malad Springs (Covington and Weaver, 1990a, 1990b, 1991 and Moreland, 1976) and is similar to measured discharge from the springs from the late 1980's (Clark and Ott, 1998). Areas between these specified discharge areas were modeled with no-flow boundary conditions.

Eastern Boundary - A constant head boundary with an elevation of 3,800 feet amsl was placed in the location where potentiometric contours with this water level elevation have been reported in several earlier studies (Garabedian, 1992 and Moreland, 1976), about 14 miles east of the City of Jerome.

Northern Boundary - The majority of the northern boundary was modeled using a specified head. The head specified along this boundary varied from 3800 to 3200 feet based on measured water level elevations. The objective of using a specified head condition along this border was to provide additional inflow to the model domain that represents leakage from the Big Wood and Little Wood River and inflow from the Snake Plain Aquifer outside the model domain. The remaining western portion of this boundary, not accounted for by the fixed discharge cells representing Malad Springs, was modeled as no flow.

Model Results

Flow Simulation - Table 2 presents a summary of the water budget for the final calibrated flow simulation. Excellent balance was achieved between inflows and outflows. It can be seen that, over the entire study domain, ground water inflows from outside the study area are the dominant source of water input and approximately balance the amount of water discharged at the springs. If more localized regions of the study area, such as the capture zones of individual springs, are examined the flow budget components will have different proportions. For example, surface recharge will be more dominant in the budgets of the southern springs.

Table 2. Water budget for the Box Canyon MODFLOW flow simulation.
(All values expressed as cubic feet per day.)

	In	Out
Storage	0.0	0.0
Constant Head	5.789E+8	1.470E+8
Wells	0.0	4.988E+8
Recharge	7.932E+7	1.249E+7
Total	6.582E+8	6.582E+8
In - Out	0.0	
Percent Discrepancy	0.0	

Figure 14 illustrates the final simulated calibrated isocontour values of the potentiometric surface compared to contoured values based on water level observations from 1980 obtained from the Idaho Department of Water Resources GIS web site. The overall shape and configuration of the water table is reproduced with simulated water levels tending to be somewhat higher than observed water levels.

This trend is also illustrated by a plot of simulated versus observed water levels for selected observation points from the 1980 contours (Figure 16). The mean error in heads was 25 feet. Two areas with large discrepancies occur near Thousand Springs and in the far southeastern portion of the study area (Figure 14).

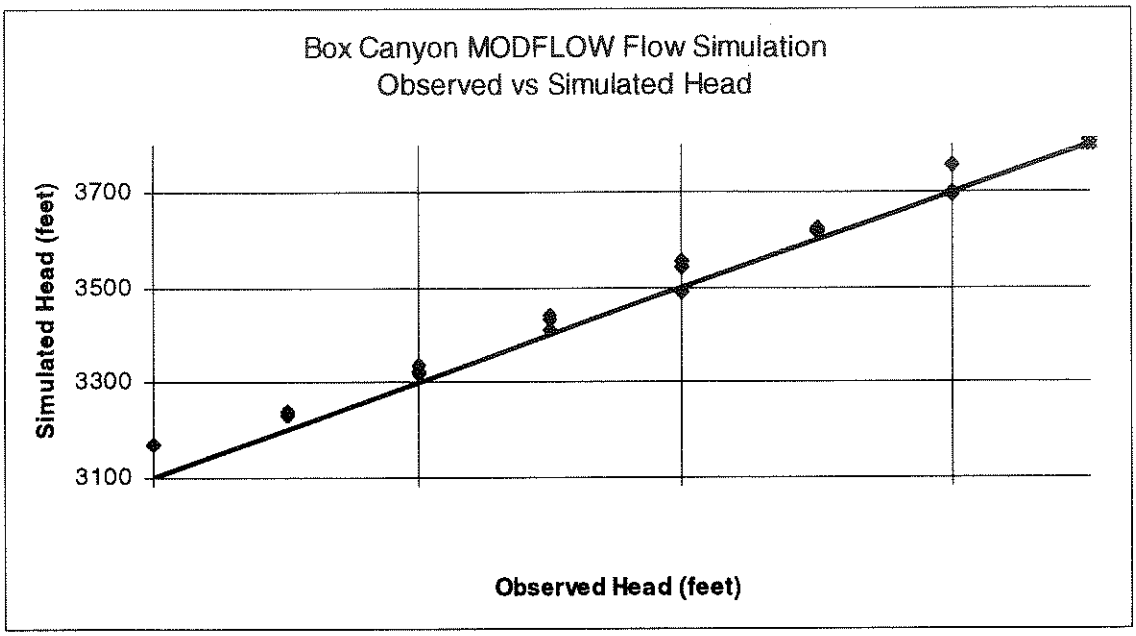


Figure 16. Box Canyon MODFLOW flow simulation, simulated versus observed heads for selected observation points in the study area.

Time of Travel Capture Zones

The results of the MODPATH particle tracking of ground water backward from the points of spring discharge were simplified and are presented as 0 to 3, 3 to 6, and 6 to 10 year time of travel capture zones in Figure 15. It can be seen that time of travel zones for springs discharging in the upper three-quarters of the study area do not exceed six years, while times of travel for portions of Crystal springs, Blue Lakes and Devil's Corral springs to the eastern edge of the model domain exceed ten years. A more realistic result, different from that of the WhAEM model, is that the sizes of capture zones are generally proportional to the magnitude of discharge at the various springs.

Ground water velocities for the various springs ranged over an order of magnitude from about 10 to 130 feet per day.

Table 3. Ground water velocity estimates (feet per day) for various springs, based on MODFLOW results.

Spring/Spring Group	Ground water velocity (ft/day)
Malad, Thousand, Briggs/Banbury and Box/Blueheart/Sand	120-130
Big/Billingsley/Bickel	75
Clear	110
Crystal/Niagara	25-100
Blue Lakes	15
Devil's Corral	10

While the results of this numerical modeling effort illustrate the variability in ground water velocities which likely occur across the study area, they support the very high velocities (up to 180 feet per day) estimated by the WhAEM modeling, especially in the northern three-quarters of the study area.

The segregation of springs by velocity as well as the shape and orientation of their capture zones fits well with the conceptual model of the sources of recharge to the various springs as described by Clark and Ott (1996), based on isotope and other chemical sampling results along with evaluation of stream flow and discharge data. Water discharging from Crystal Springs and eastward is postulated to be younger water derived primarily from recharge of surface water, either directly within the study area or as the primary source of ground water inflow from outside the model domain. Water at the central springs (Thousand, Box Canyon, Briggs) is older water derived primarily from mountain recharge far upgradient of the study area. Water in the Malad Spring area is a mixture of younger water recharged from leakage from the Big and Little Wood rivers and older water similar to that described for the central springs.

The GMS simulation provides a more accurate depiction of ground water flow because the aquifer parameters vary within the model domain to reflect spatially variable hydrogeologic conditions. Thus, the data input requirements are more intensive. The aquifer parameters used in GMS were consistent with the simulation used by Moreland (1976) to describe ground water flow in the Snake River Plain Aquifer. The ground water flow velocity and flow direction calculated by GMS were very similar to the WhAEM results. Differences in flow direction were evident beyond the one-year time of travel boundary. The GMS ground water flow paths were aligned in a more east to west direction as compared to a northeast to southwest flow direction estimated by WhAEM.

NITROGEN LOADING EVALUATION

One of the objectives of this report was to evaluate the various sources of nitrogen within the WhAEM model delineation area (Figure 10) and to prepare estimates of the total load

of nitrogen from these sources for 1999. The WhAEM delineation results show the one-, two- and three-year time of travel zones for ground water moving from the eastern side of the delineation area to a spring discharge area along the north wall of the Snake River canyon. The area included within all three time of travel zones was used for the nitrogen source estimates.

Rupert (1996) developed a nutrient budget for the upper Snake River Basin, an area which extends from Yellowstone Park in Wyoming to King Hill and includes 35,800 square miles. In that study, the following sources and percent of total nitrogen load were estimated: domestic septic systems (1 percent), precipitation (6 percent), cattle manure (29 percent), fertilizer (45 percent), and legume crops (19 percent). The same nitrogen sources and conversion factors used in the upper Snake River Basin study were used to evaluate loads for the WhAEM delineation area. The following sections describe the various nitrogen sources, methods used to estimate nitrogen loads from each source for 1999 and the estimated nitrogen loads. Tables 4-10 list the various sources of nitrogen in the delineation area and the estimated load from each source.

Crop Nitrogen Requirements - Actual commercial fertilizer application rates are not available for cropland in Idaho, and so nitrogen application rates were estimated by calculating the amount of nitrogen fertilizer that should be applied to the eight major crops (alfalfa, barley, corn, wheat, dry beans, beets, potatoes and oats) by following the University of Idaho fertilizer guides (Tindall, 1991). A GIS coverage developed by DEQ indicates that there are about 163,400 irrigated acres in the delineation area. Irrigated acreage for the eight major crops grown in Gooding and Jerome Counties and the total irrigated acreage in the two counties were determined from Idaho Agricultural Statistics Services (IASS) data. Irrigated acres of the eight major crops within the delineation area were then determined by proportion.

The amount of nitrogen fertilizer applied to each crop was estimated by using University of Idaho fertilizer guides and the reported crop yields (IASS data) for the major crops. A soil test nitrogen value of 20 milligram/kilogram (mg/kg) was assumed to determine the nitrogen application rate for each crop. The estimated acreage for each crop within the delineation area and the estimated nitrogen requirement by crop is shown in Table 4. The estimated crop nitrogen requirement in the delineation area is 15,220,000 pounds (7,610 tons) of nitrogen per year. The estimated crop nitrogen requirement divided by the irrigated acreage within the delineation area (163,400 acres) gives an average nitrogen application rate of about 93 pounds per acre.

Table 4. Estimated crop nitrogen requirements, WhAEM delineation area.

Estimated Crop Nitrogen Requirement, Delineation Area

Crop	Crop Year	Gooding (acres)	Jerome (acres)	Total Acres
Alfalfa	1998	37300	41900	79200
Barley	1999	2300	12400	14700
Corn	1998	23000	19200	42200
Wheat (all)	1999	7700	20900	28600
Dry Beans	1998	1700	13300	15000
Beets	1998	5200	15100	20300
Potatoes	1998	14000	16000	30000
Oats	1999	1500	3000	4500
Crop Totals		92700	141800	
Total Irr Acreage		154400	204700	**359100**

Total irrigated acres in delineation area = **163360**

Crop	Delineation Acreage	Nitrogen Reqmt (lbs)
Alfalfa	36029	0
Barley	6687	1003089
Corn	19197	3839488
Wheat (all)	13011	2602118
Dry Beans	6824	341187
Beets	9235	692609
Potatoes	13647	2183595
Oats	2047	307068
Pasture	56684	4251300
Total Ac	163362	15220455

Total N Requirement **15,220,000** lbs

Crop	UoI Fertilizer Guide (lbs/acre) Nitrogen	Yield Goal
Alfalfa	0	6 tons/ac
Barley	150	100 bu/ac
Corn	200	25 t/acre
Wheat	200	100 b/ac
Beans	50	2200 lbs/a
Beets	75	25 t/acre
Potatoes	160	400 cwt/ac
Oats (1)	150	100 bu/ac
Pasture	75	

Fertilizer application rates for all crops were estimated based on the following soil test values: N=20 mg/kg, P=10 mg/kg, K=100 mg/kg.

(1) - Used same fertilizer guide as barley

Table 4 shows that there is a difference of about 56,700 acres between the total irrigated acreage in the WhAEM delineation area (163,400 acres) and the 8 major irrigated crops in the delineation area (106,700 acres). This difference amounts to about 35 percent of the total irrigated acreage; the 56,700 acres may be used as pasture land, or the acreage may be used for other crops. For the purposes of this study it was assumed that this acreage was planted to pasture. The University of Idaho Fertilizer Guide states that irrigated pasture responds well to a nitrogen application of up to 150 pounds per acre nitrogen (Tindal, 1991); for this evaluation a value of 75 pounds nitrogen per acre was chosen to calculate nitrogen applications to the 56,700 acres. The application rate of 75 pounds per acre represents a midrange value of the recommended nitrogen application rate, and also accounts for nitrogen deposition from grazing animals.

No credit was taken for nitrogen in manure applied to irrigated crop land in the delineation area. If producers are considering the nitrogen content in manure as they should, then the commercial fertilizer requirement for crops grown in the WhAEM delineation area would be reduced. The estimated nitrogen fertilizer application to irrigated farmland in the WhAEM delineation area is about 93 pounds per acre.

An independent estimate of nitrogen fertilizer use in the area can be derived from county fertilizer estimates (EPA, 1990) and irrigated acreage for the same period (IASS, 2000). A summary of fertilizer data from 1985 through 1989 for the upper Snake River Basin is available in Rupert (1994, Table 1); data for Gooding and Jerome Counties are summarized in the following table.

Table 5. Estimated annual nitrogen fertilizer use in Gooding and Jerome Counties, 1985-89 (from Rupert, 1994).

County	Nitrogen Use by Year (tons)				
	1985	1986	1987	1988	1989
Gooding	4364	3786	3779	3810	4220
Jerome	6530	5665	5655	5701	6315

Total irrigated acreage for Gooding and Jerome Counties (IASS, 2000) was 107,793 acres and 135,272 acres respectively for 1987. These data show an average annual nitrogen application of about 70 and 84 pounds per irrigated acre for Gooding and Jerome Counties, respectively, compared with the above estimate of about 93 pounds per acre for the WhAEM delineation area.

Domestic and Urban Nitrogen Sources - The 1990 Census data (Idaho Department of Commerce, 1992) show the population within the delineation was 22,245 persons. This population includes a rural component as well as urban dwellers living in the cities of Jerome and Wendell. The city of Jerome has a NPDES permit which allows the city to treat and discharge treated municipal wastewater to a manmade waterway which flows to

the Snake River. This nitrogen source is therefore transported out of the area.

The city of Wendell treats municipal wastewater in five lagoons and land applies the treated wastewater to 43 acres of pasture under a DEQ Wastewater Land Application Permit. The most recent report states that the annual nitrogen load to the land application site is 117 pounds per acre for a nitrogen load of approximately 5,000 pounds per year (DEQ Wastewater Land Application permit files).

DEQ data indicate that wastewater treated in facultative lagoons has a total nitrogen load of about 0.02 pounds of nitrogen per person per day. The nitrogen load in domestic wastewater is estimated to range from 0.01 to 0.04 pounds per person per day (U.S. Environmental Agency, 1980). The nitrogen factor of 0.04 pounds of nitrogen per person per day and the total population within the delineation area was used to estimate the total nitrogen load of 324,800 pounds per year from human sources in the delineation area (Table 6). This calculation probably overestimates nitrogen input from human sources by choosing the higher domestic nitrogen loading factor and also by including the city of Jerome load that is actually removed from the area. The calculations do not include nitrogen fertilizer applications to lawns in the urban areas of Wendell and Jerome.

Table 6. Domestic and urban nitrogen contribution in the WhAEM delineation area

	Delineation Area Population	Human Nitrogen Contribution (lbs/person/day)	Total Human N Contribution (lbs/day/yr)	Total Human N Contribution (lbs/year)
Rural Jerome and Gooding Counties	15,012	0.04	600.48	219,175
Urban Jerome and Gooding Counties	7233	0.04	289.32	105,601
Total	22,245	0.04	889.8	**324,776**

Livestock Sources of Nitrogen - Nitrogen contribution in the delineation area was estimated for both dairy and beef cattle. The number of milking dairy cows in the delineation area for 1999 was obtained from a DEQ GIS coverage; the number of milking dairy cows was multiplied by a factor of 0.25 to estimate the number of dry dairy cows and heifers and calves in the delineation area. The total number of dairy cows was then multiplied by a factor of 90 lbs nitrogen per cow per year to give an estimated nitrogen load of 11,129,900 pounds per year. The nitrogen generation factor per dairy cow was selected as the midrange from several sources including ISDA nutrient management plans, The American Society of Agricultural Engineers (ASAE, 1998), Natural Resources Conservation Service Agricultural Waste Management Field Handbook and Overcash, Humenik and Miner (1983, vol. I and II). This estimate represents total nitrogen remaining after storage, handling and spreading losses. The estimate assumes that manure application rates and mineralization from organic to inorganic forms of nitrogen in the delineation area are at steady state.

Estimates were made for nitrogen contribution from classes of cattle other than dairy animals. Idaho Agricultural Statistics Service data (2000) list two additional classes of cattle: beef cows that have calved and "other cattle" which includes calves, bulls, steers and heifers. The total of these two classes of cattle was 164,500 head in Gooding and Jerome Counties for 1999. The only non-dairy cattle information available for the delineation area was a DEQ GIS coverage which shows about 15,800 head of beef cattle. Although this number probably seriously underestimates the number of cattle other than dairy cows in the delineation area, it was the best number available at the time of the study. Therefore, nitrogen contribution from cattle other than dairy animals was estimated by multiplying 15,800 head of beef cattle by a factor of 40 pounds of nitrogen per head per year. The estimated nitrogen load from this source is 632,000 pounds per year.

Table 7. Nitrogen contribution from cattle in the WhAEM delineation area

Cattle Type	Number of Cattle	Estimated N Contribution (lbs/cow/year)	Total N (lbs)
Dairy Cattle (Milkers)	98,932	90	8,903,900
Dairy Cattle (Dry)[1]	24,733	90	2,226,000
Beef Cattle	15,800	40	632,000
Total All Cattle	139,465	--	**11,761,900**

[1] Also includes dairy heifers and calves

Precipitation - Total nitrogen deposited by precipitation in the delineation area was estimated using the same methods employed by Rupert (1996, p. 6). The following equation includes the factors used to estimate total nitrogen input from precipitation (modified from Rupert, 1996):

$$B = (E \times Q \times I) \times D,$$

where

B = total nitrogen input from precipitation, in kilograms;
E = total nitrogen concentration in precipitation, in milligrams per liter;
Q = annual rainfall, in meters;
I = land area within WhAEM delineation area, in square meters; and
D = dry deposition constant (unitless).

Maupin (1995) estimated total nitrogen concentration in precipitation for the upper Snake River Basin to range from 0.18 to 0.27 mg/l. The midrange concentration of 0.225 mg/l total nitrogen in precipitation was used to calculate nitrogen loading from precipitation in the delineation area. The 29-year precipitation average of 10.76 inches at Jerome was multiplied by 0.225 mg/l total nitrogen to estimate the nitrogen contribution from precipitation. The estimated nitrogen contribution from precipitation is 201,700 pounds per year.

Legume Crops - Nitrogen contribution from plow down of legume crops (alfalfa and beans) was estimated by multiplying the acreage for each crop by a factor of 60 pounds per acre for alfalfa and 40 pound per acre for beans (Tindall, 1991). The alfalfa and bean acreage within the delineation area was assumed to be in proportion to the total alfalfa and bean acreage in Gooding and Jerome Counties. It was assumed that one quarter of the legume acreage would be rotated out each year, so one quarter of the total nitrogen load from legume crops (2,434,800 pounds) would be contributed each year. The estimated nitrogen contribution from these two sources is 608,700 pounds per year (Table 8).

Table 8. Legume crop nitrogen contribution in the WhAEM delineation area

Crop	Acres	N contribution (lbs/acre)	Total Nitrogen (lbs)
Alfalfa	36,029	60	2,161,800
Beans	6824	40	273,000
Total Legumes	42,853	100	**2,434,800**

Wastewater Land Application - There is one wastewater land application site in the delineation area. The City of Wendell land applies wastewater to 43 acres of pasture under a Wastewater Land Application Permit issued by DEQ. For purposes of simplification, the nitrogen load from this segment of the population was included in the human sources of nitrogen section. Domestic wastewater contains a larger concentration of nitrogen than treated municipal wastewater, so including the Wendell nitrogen source with the domestic nitrogen load probably overestimates nitrogen loading from human sources.

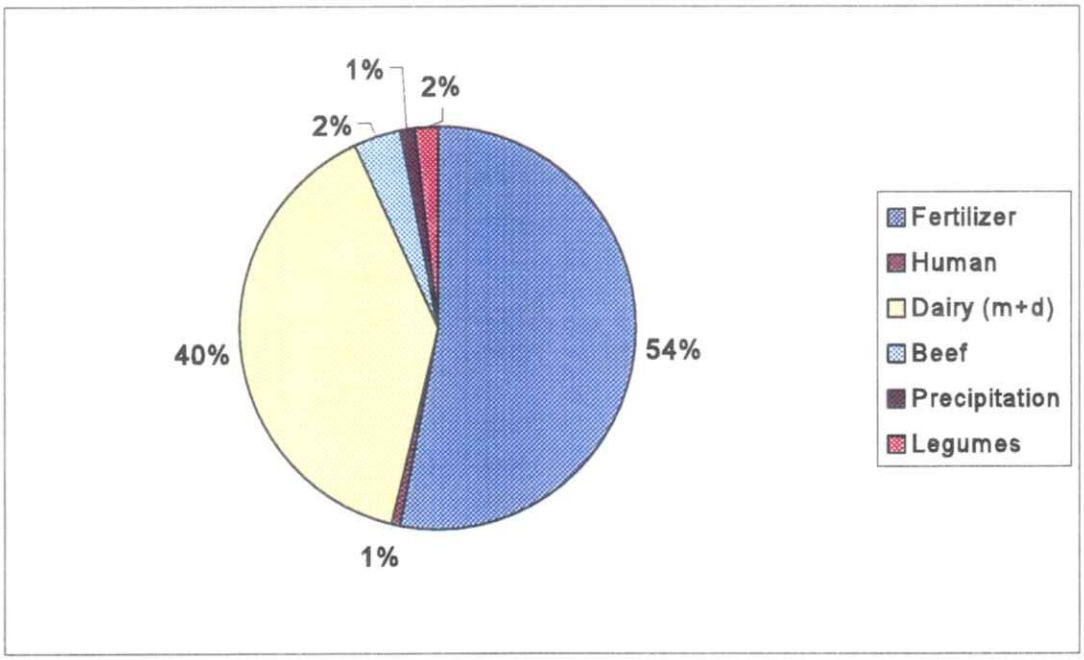
Table 9. Total estimated nitrogen contribution in the WhAEM delineated area

Source	Nitrogen (lbs)	Percent Contribution
Fertilizer	15,220,000	54.0
Human	324,800	1.0
Dairy (milkers, drys, heifers and calves)	11,129,900	40.0
Beef	632,000	2.0
Precipitation	201,700	1.0
Legumes	608,700	2.0
Total	**28,117,100**	100.0

A graphical summary of the above nitrogen estimates (Figure 17) shows that commercial fertilizer, cattle (dairy - milking and dry cows, and beef animals) and legume sources

account for about 98 percent of the nitrogen load in the WhAEM delineation area. As more accurate estimates of nitrogen contribution from the various sources become available, the relative percentage contributed from each source would be expected to change.

Figure 17. Percentage estimates of nitrogen load from various sources in Box Canyon delineation area



Nitrogen Load Trends

Impacts to ground water quality, either increasing or decreasing trends, may not be evident due to the transit time of pollutants through the vadose zone to the water table. In addition, once pollutants reach the water table, the travel time in ground water to the point of use can vary depending on ground water flow velocities and the location of the point of use relative to pollutant sources. Therefore, it is worthwhile to review trends for areas overlying the aquifer which have the potential to impact groundwater quality. The preceding nitrogen load analysis shows that the major sources of nitrogen in the study area are from fertilizer and livestock sources. In order to address potential trends, these two nitrogen sources should be compared to the irrigated acreage over the same period. If the irrigated acreage and nitrogen sources remain the same, then the nitrogen load per acre should be constant; changes in irrigated acreage and/or nitrogen load will result in an increase or decrease in nitrogen on a per acre basis.

Although data are not available for these three factors for the delineation area, county level data for irrigated acreage and total number of animals are available (Idaho Agricultural Statistics Service, 2000). As discussed above, estimates of nitrogen fertilizer use on a county level basis also are available during the period from 1985 through 1991 (EPA, 1990). Table 10 shows nitrogen fertilizer use, irrigated acreage and animal data

which are available during the period 1985 to 2000, while Figure 18 shows a graphical presentation of the same factors over the period.

Table 10. Estimated nitrogen fertilizer use, irrigated acreage and total cattle, Jerome and Gooding Counties, 1985-2000

	Jerome County			Gooding County		
Year	Nitrogen Fertilizer Use (tons)	Irrigated Acreage	Total # of Cattle (IASS)	Nitrogen Fertilizer Use (tons)	Irrigated Acreage	Total # of Cattle (IASS)
1985	6530			4364		
1986	5665		82000	3786		76000
1987	5655	135272	70000	3779	107793	65000
1988	5701			3810		
1989	6315		70000	4220		78000
1990			74000			82000
1991	5437		81000	3633		90000
1992		150444	89000		115398	97000
1993			90000			102000
1994			93500			112500
1995			109000			130000
1996			116000			133500
1997		151726	122000		112665	138000
1998			133500			140000
1999			137500			141500
2000			157500			158000

Estimated nitrogen fertilizer use decreased by 17 percent for both Gooding and Jerome counties from 1985 to 1991, while irrigated acreage increased by five percent for Gooding County and 12 percent for Jerome County over the period 1987 to 1997. Taken together, these data indicate that nitrogen fertilizer application decreased on a per acre basis during the late 1980s in Gooding and Jerome Counties. Data are not available to analyze fertilizer application rates during the 1990s.

The total number of animals in Gooding County has increased by 92 percent for the period 1986 to 2000, while the total number of animals has increased by 108 percent in Jerome County during the same period (Table 11 and Figure 18). The change in nitrogen load associated with the increased number of animals in the two counties is difficult to estimate since the number of animals in a given weight class is unknown. On a pounds per acre basis, an overall increase in nitrogen load from cattle sources probably has occurred in the two counties over the past ten to 15 years. The slight increase in irrigated acreage from

1987 to 1997 (up to 12 percent) is probably more than offset by nitrogen generated by the increased cattle numbers from 1985 to 2000 (up to 108 percent).

STATISTICAL ANALYSIS OF NITROGEN DATA

Potential ground water contamination has been a major concern to the citizens in south-central Idaho for several years. The level of concern by the citizens has increased as the land use above the aquifer for dairy and animal feeding operations has intensified. Several ground water studies have been conducted on the Snake River aquifer. Most of the studies have concluded that nitrate+nitrite is elevated in the groundwater of Gooding and Jerome Counties. These previous studies, however, were conducted over a limited time frame, typically one to two years.

The purpose of this part of the study was to analyze water quality data that had been collected over a sufficiently long time frame at regular intervals to determine if changes in nitrate+nitrite concentration are occurring and, if a trend was evident, at what rate it was increasing or decreasing. DEQ was able to locate sufficient data for regression analysis on five springs in Gooding and Jerome Counties: Box Canyon Spring, Crystal Spring #1 and #2, Clear Spring, and Niagara Springs. Long-term ground water nitrate+nitrate data are available for one well located in the delineation area, southwest of Jerome. Data have been collected from this well starting in 1989 and continuing to the present.

Data Analysis

The spring data used in this analysis was collected by the aquaculture industry, Idaho Power, and Idaho State University (ISU). The aquaculture industry began sampling nitrate+nitrite levels in these springs in the summer of 1994 due to concerns that nitrate levels would become a permit condition in upcoming NPDES permit renewals. These entities are also dependent on the discharge of good quality water from springs in the study area. The Box Canyon, Crystal Springs #1 and #2, and Clear Spring samples were collected and analyzed using accepted procedures by a local lab. The lab follows EPA protocols and conducts periodic Quality Assurance/Quality Control (QA/QC) on all of their samples. Sampling frequency was reduced in 1997 due to a redirection of resources by the aquaculture industry. The number of data points ranged from about 50 samples at Box Canyon Springs during 1995 to 5 to 10 samples per year at other springs. These spring water quality data allow for a more robust analysis of ground water trends than data from monitoring wells where samples may be collected once every one to three years.

Niagara Springs data has been collected from 1994 to the present by Idaho Power at the Niagara Springs fish hatchery. The Niagara Springs samples were sent to Alchem Laboratories, Inc., Boise, Idaho, and Rangen's Laboratory for analysis. Idaho Power collects the samples following accepted procedures and conducts periodic QA/QC.

The ISU data were collected by Dr. Chuck Brockway in 1991 and 1992 as part of a water quality study funded by DEQ. The samples were sent to the Idaho Bureau of Labs. The samples were collected following accepted procedures and 10% of the samples had

QA/QC run on them. The data used in this analysis are available upon request from the DEQ Twin Falls Regional Office.

Because the spring sampling intervals were not consistent within the study period, a formal trend analysis could not be performed. The data were, however, sufficient for DEQ to conduct several regression analyses. The first analysis conducted was a linear regression analysis on each of the five springs. In all cases, there was a statistically significant upward trend in nitrate+nitrite concentrations from 1991 or 1994 through 1999, at the 95 percent confidence level.

For the springs, visual inspection of the data reveals that the nitrate+nitrite concentrations exhibited some periodicity or seasonality (Figure 19). This seasonality could result in the erroneous conclusion that a trend exists when in fact the trend is only an artifact of sampling frequency. To determine if the increase in nitrate+nitrite was an artifact of sampling frequency a regression analysis was conducted by calendar quarter, so only data collected in the same calendar quarters were regressed against data for the six-year period. The calendar quarters were January - March, April - June, July - September and October - December. Analyzing the data by calendar quarter should minimize or eliminate any effect of sampling frequency on the analysis. Although analyzing data from similar calendar quarters may eliminate the effect of seasonality on the data analysis, it also decreases the power of the statistical test due to the smaller sample size.

The quarter-by-quarter analysis of the Box Canyon, Niagara, and Clear Springs data indicated that there were significant increases in nitrate+nitrite through time for all four quarters (Figures 20, 21, and 22). Crystal Spring #2 had a significant increase in nitrate+nitrite through time for three out of the four quarters (Figure 23). At Crystal Spring #1 only one quarter out of the four had a significant increase over time (Figure 24).

A total of 146 nitrate+nitrite data points from the well located at Township 8 South, Range 16 East, Section 3ABC (8S16E3ABC) were available for statistical evaluation. The drillers log indicates the well is 170 feet deep and has casing set to 143 feet below land surface. There is a casing seal to a depth of 18 feet below land surface. The subsurface material at the well consists of top soil from 0 to 9 feet, basalt from 9 to 163 feet, and sand and gravel from 163 to 170 feet. The well was drilled in 1977 and the depth to water reported on the drillers log was 138 feet below land surface. On June 17, 1991 the depth to water was measured by DEQ at 143.09 feet below land surface. Water samples for nitrate-nitrogen analysis were collected from the well by the owner after the well had been pumping for some time. The samples were collected in sample bottles supplied by DEQ and analyzed at the Idaho Bureau Of Laboratories in Boise, Idaho. From 1 to 25 samples per year were collected from the well over a 12 year period.

In addition to nitrate+nitrite sample analysis, ISDA collected a sample from the well on February 2000 for analysis of the stable isotope of nitrogen, ^{15}N. (For a summary of nitrogen isotope analysis and its use in evaluation of nitrogen sources in ground water, the reader is referred to Howarth, 1999 and Seiler, 1996.) The sample was analyzed at the Water Sciences Laboratory at the University of Nebraska-Lincoln, using Method

N15IRMS.0002 -Isotope Ratio Mass Spectrometric analysis. The lab returned an $\delta^{15}N$ value of 8.90 ‰, which indicates an organic nitrogen source, either from plant residue, animal or human waste. Typical $\delta^{15}N$ values are listed in Table 12. The $\delta^{15}N$ value from the domestic well indicates that neither commercial nitrogen fertilizer nor precipitation is the source of the nitrogen in the well water.

Table 11. Typical $\delta^{15}N$ values.

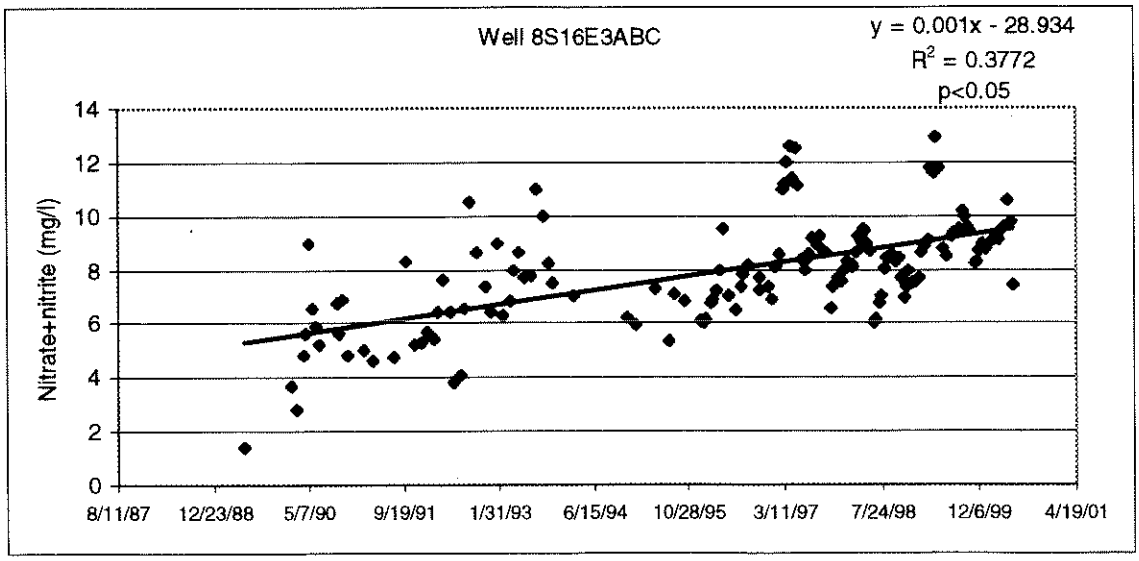
Potential Contaminant Source	$\delta^{15}N$ (‰)
Commercial fertilizer	-4 to +4
Animal or human waste	Greater than +10
Precipitation	-3
Organic nitrogen in soil	+4 to +9

(after Seiler, 1996)

A dye tracer test of the septic tank at the residence where the well is located, conducted from March 1997 through November 1998, indicated that effluent from the septic tank at the residence is not the source of the elevated nitrogen in the well.

A linear regression analysis was conducted on the nitrate data from well 8S16E3ABC. The regression results show that there is a statistically significant upward trend in nitrate+nitrite concentration at the 95 percent confidence level (Figure 25). The mean nitrate+nitrite concentration in the well for 1990 was about 5.64 mg/l (n = 12), while the mean nitrate+nitrite concentration for 2000 is 9.22 mg/l (n = 9).

Figure 25. Regression for the complete data set for well 8S16E3ABC.



The data indicate that there may be seasonal variations in the data, so a linear regression analysis was conducted on the data set on a calender quarter basis in the same manner as the spring water quality regression analysis. This analysis showed that for all four calender quarters there has been a significant increase in nitrate+nitrite concentrations at the 95 percent confidence level.

The R^2 value (coefficient of determination) associated with each data plot is the fraction of the total variation in nitrate+nitrite concentration that can be accounted for by the association between nitrate+nitrite and sample. The value can vary between zero and one. Most R^2 values for both spring and ground water quality data are less than 0.5, indicating that other factors such as seasonality effects or variation in nitrogen sources or the concentration of an individual nitrogen source are occurring.

Discussion

The analysis performed in this paper indicates that a statistically significant upward trend in nitrate+nitrite concentrations exists in 4 of the 5 springs (Box Canyon, Niagara, Clear Springs and Crystal Springs #2). The fifth spring (Crystal Spring #1) may also have an upward trend but due to the variability in the data and the low number of sample points only one of the four calendar quarters had a statistically significant upward trend. This analysis also indicates that the rate of nitrate+nitrite increase is not consistent between quarters. The second quarter had the greatest increase in both Box Canyon and Crystal Spring #2, whereas the first and fourth quarters had a greater positive slope for Clear Springs.

DEQ has established an action level for areas where concentrations of nitrate + nitrite reach 5 mg/l and also exhibit an upward trend. In an attempt to determine when a spring may reach the action level of 5 mg/l the regressions were extended until the action level was intercepted. Table 13 gives the year that the limit would be reached for the quarter with the greatest slope and the quarter with the shallowest slope. The predicted dates for reaching the action level assume that the amount of nitrate+nitrite being introduced into the ground water will continue to increase at the same rate. It is possible that the slopes of the lines may increase or decrease, thereby making these predictions inaccurate.

Table 13. Estimated date when nitrate+nitrite concentrations will reach 5 mg/l. The estimate assumes that the rate of increase does not change from current levels.

Spring Name	Earliest Date[1]	Latest Date[2]
Clear Springs	2005	2015
Crystal Springs #2	2006	2013
Niagara Springs	2019	2027
Box Canyon Springs	2058	2124
Crystal Springs #1	2028	NA

[1]Based on quarters with the steepest slopes.

[2]Based on quarters with the shallowest slopes.

Two of the springs (Clear Springs and Crystal Springs #2) could reach a concentration of 5 mg/l nitrate+nitrite within 5 to 6 years, whereas the remaining springs may not reach a concentration of 5 mg/l for 20 to 120 years. Even though some of the springs may not reach the action level for several decades this should not mean that there is not a significant concern. These springs' increases in nitrate+nitrite may accelerate, making these long term predictions an underestimate of the severity of the problem.

Well 8S16E3ABC is located within the 0 to 3 year time of travel zone, as predicted by the MODFLOW flow simulation. The well lies on a ground water flow path that contributes water to the Crystal Springs/Niagara Springs complex. Recharge to ground water feeding these springs is postulated to be from primarily from surface water, and isotopic evidence indicates that the water is young relative to the central springs (Thousand, Box Canyon, Briggs). The nitrate+nitrite concentrations in water discharging from Crystal Springs/Niagara Springs was about 2.4 mg/l in 1994 (Clark and Ott, 1996), while the nitrate+nitrite concentration from two samples from well 8S16E3ABC averaged 6.7 mg/l for 1994. This difference probably reflects the fact that water samples from the springs reflect a composite of the entire saturated thickness of the aquifer while the well withdraws water from the upper part of the aquifer.

This analysis points out the need to develop a plan that will decrease nitrates in the springs. This plan should include long-term monitoring to track the nitrate+nitrite levels in the springs in this region. An extended monitoring record will help to confirm the trends found in this analysis. The analysis also points out the need to install properly constructed ground water monitoring wells which sample the uppermost part of the aquifer. Mixing in ground water flow systems is more dominant in the horizontal rather than in the vertical direction, and therefore contaminants entering an aquifer tend to remain in the uppermost part of an aquifer. Wells withdrawing water from deeper in the aquifer will record lower contaminant concentrations than ones completed in the uppermost part of the aquifer, and therefore impacts to an aquifer will be underestimated.

This analysis also suggests that there may be an overabundance of nitrogen being applied to areas upgradient of the springs. A more detailed analysis of nitrogen inputs, nitrogen cycling and ground water transport should be done to determine the level of nitrogen that can be safely applied to lands above and upgradient of these springs.

CONCLUSIONS AND RECOMMENDATIONS

Concerns about nitrogen impacts to ground water in the western portion of the Eastern Snake Plain aquifer prompted an analysis of water quality data for springs discharging from the north canyon wall of the Snake River from Clear Lakes Springs to Thousand Springs. Land use activities, including agricultural activity and animal industry operations, have the potential to generate significant nitrogen loads, which if not managed properly can impair ground water quality.

The study included ground water flow simulation using two different modeling methods, analysis of sources of nitrogen within the study area, and a statistical evaluation of water quality data from spring samples. The ground water flow models WhAEM and MODFLOW were used to simulate ground water movement in the study area. Based on data published in USGS and IDWR reports, a conceptual model of the aquifer was developed: that is, an unconfined multilayer aquifer system in fractured basalt with most discharge occurring from springs in the uppermost layers. Aquifer parameters used in both model simulations were taken from previously published modeling reports.

The most reasonable scenario selected for the WhAEM model evaluation included a simulation with areal recharge of about 1 foot per year, a hydraulic conductivity of 6,300 feet per day, an aquifer thickness of 165 feet and an effective porosity of 0.20. Model predicted heads were in fair agreement with measured heads; no combination of aquifer parameters yielded solution differences of less than 75 feet between predicted and measured heads.

Preliminary model results indicated that ground water flow velocities are extremely rapid, especially in the western part of the study area, so the simulation was limited to the area included within the 3-year time of travel. This convention helped reduce the inaccuracy of the model results since the model precision decreased with increasing time and distance from the springs. The WhAEM model results indicate ground water flow velocities range from 100 feet per day in the 3-year time of travel area to as much as 180 feet per day in the 1-year time of travel area. These ground water travel velocities are a factor of 10 to 20 higher than any previously reported for ground water flow systems in Idaho, so a more robust numerical model simulation using MODFLOW was conducted to confirm the WhAEM results.

The same conceptual hydrogeologic model used for the WhAEM simulation was used for the MODFLOW simulation. Changes made to the WhAEM model domain included extension of the model boundary to the north to account for several significant springs, simulation of the northern boundary as a specified head boundary and treating all springs as discrete discharge areas. Also, zones of hydraulic conductivity, recharge and aquifer bottom elevation were developed to account for the variable aquifer properties observed in the study area.

Calibrated hydraulic conductivity values ranged from 328 to 9,840 ft/day and a porosity value of 0.2 was used throughout the model domain. Saturated aquifer thickness varied from about 300 feet on the east to about 150 feet in the western part of the model domain. MODFLOW model results were imported into MODPATH to generate flow lines and time of travel zones for each of the major spring groups modeled. Time of travel results were simplified into three general time of travel capture zones: 0 to 3, 3 to 6, and 6 to 10 years. A general observation is that the size of each capture zone is generally proportional to the magnitude of discharge at the various springs. Estimated ground water velocities for springs included in the model domain are shown in Table 14.

Table 14. Ground water flow velocities (in feet per day) estimated from MODFLOW model results.

Spring/Spring Group	Ground water velocity (ft/day)
Malad, Thousand, Briggs/Banbury and Box/Blueheart/Sand	120-130
Big/Billingsley/Bickel	75
Clear	110
Crystal/Niagara	25-100
Blue Lakes	15
Devil's Corral	10

The variable ground water flow velocities reflect the variable hydraulic conductivity values which are known to exist across the study area. The higher ground water flow velocities support the large flow velocities estimated by the WhAEM modeling efforts. The MODFLOW/MODPATH model results also fit well with the conceptual model of sources of recharge to the various springs as described by Clark and Ott (1996). Water discharging from Crystal Springs and eastward is believed to be younger water derived primarily from recharge of surface water, either directly within the study area or as the primary source of ground water inflow from outside the model domain. Water in the central springs (Thousand, Box Canyon, Briggs) is older water derived mainly from recharge far upgradient of the study area. Water in the Malad Spring area is a mixture of younger surface water which leaks from the Big and Little Wood Rivers and older water similar to that described for the central springs.

An evaluation of potential nitrogen loads within the WhAEM delineation area included the following sources: domestic septic systems, precipitation, cattle manure, commercial fertilizer, and nitrogen released from plow down of legume crops. Nitrogen from the various sources is estimated to total about 15,000 tons per year (Table 15).

Table 15. Summary of nitrogen sources within WhAEM delineation area and estimated nitrogen loads per year.

Nitrogen source	Nitrogen load, lbs	Percent of total
Fertilizer	15,220,000	54
Human waste	324,800	1
Dairy manure	11,129,900	40
Beef manure[1]	1,185,000	2
Precipitation	201,700	1
Legumes	608,700	2
Total	28,670,100	100

[1] Accurate count of beef animals not available.

The total nitrogen fertilizer use divided by the irrigated acreage in the delineation area gives an application rate of about 93 pounds per acre. This number compares well with previous estimates of nitrogen fertilizer use (EPA, 1990) where estimates of about 70 and 84 pounds per acre were derived for Gooding and Jerome Counties, respectively. The estimated nitrogen contribution from human waste is probably high for three reasons: 1) the amount of nitrogen generated per person was selected from the high end of the range of values; 2) nitrogen from urban dwellers (Wendell) was included with rural dwellers, while the city has a wastewater treatment system which removes more nitrogen than a septic tank and drain field system; and 3) the population of Jerome was included in the calculations, while in actuality treated wastewater from the Jerome wastewater treatment plant is discharged to surface water and effectively removed from the study area. The human nitrogen source calculations did not include nitrogen fertilizer applied to lawns in the urban areas of Wendell and Jerome.

The estimated nitrogen load contributed from dairy cows is probably reasonable since the number of dairy cows in the delineation area was derived from current ISDA dairy herd numbers. This number includes nitrogen contributed by dairy heifers and calves. The estimate for nitrogen contributed from beef cattle is believed to be low due to an incomplete count of beef animal numbers in the delineation area. Estimates of nitrogen from precipitation were based on USGS precipitation sample data collected at a station in the Snake River Basin and precipitation data from the City of Jerome. Estimates of nitrogen from plow down of legume crops were based on values presented in Tindall (1991).

IASS data were used to evaluate trends in the major nitrogen sources (cattle and fertilizer) within Gooding and Jerome Counties during the period 1985 to 2000. Estimates for the period 1985 to 1991 indicate that nitrogen fertilizer use decreased by about 17 percent for both Gooding and Jerome Counties. For the period 1987 to 1997 irrigated acreage

increased slightly in the two counties (5 and 12 percent for Gooding and Jerome Counties, respectively). The total number of cattle increased by 108 and 92 percent for the two counties, respectively, during the period 1986 to 2000. These data indicate that on a pounds per acre basis, the increase in nitrogen load from animal sources has more than offset the slight increase in irrigated acreage available for application of nitrogen generated by the increased cattle numbers.

A statistical analysis was conducted on water quality data from five springs which discharge along the north canyon wall of the Snake River: Box Canyon Springs, Crystal Springs #1 and#2, Clear Spring and Niagara Springs. Water quality data are available for the springs from 1991 or 1994 through 1999. Results of a linear regression analysis indicate that nitrate+nitrite concentrations increased significantly at the 95 percent confidence level for each of the five springs. A quarter-by-quarter linear regression analysis of the data, conducted to minimize seasonal water quality variations, indicated that for Box Canyon, Niagara and Clear Springs nitrate+nitrite concentrations increased significantly at the 95 percent confidence level for all four quarters. Crystal Spring #2 had a significant nitrate+nitrite concentration increase at the 95 percent confidence level for three of the four quarters. At Crystal Spring #1 there was a significant nitrate+nitrite concentration increase at the 95 percent confidence level in one of four quarters through time. To estimate when the DEQ action level of 5 mg/l nitrate+nitrate will be exceeded, the regressions were extended until the action level was intercepted. This evaluation assumes that the amount of nitrate+nitrite transported to the ground water continues to increase at the same rate. The estimates suggest that for springs with the steepest regression slopes (Clear Springs and Crystal Springs #2) the 5 mg/l action level could be reached in 5 to 6 years.

A statistical analysis was also conducted on water quality data from a well located at 8S16E3ABC, where water samples have been analyzed for nitrate+nitrite concentrations. Results of a linear regression analysis indicate that nitrate+nitrite concentrations increased significantly at the 95 percent confidence level over a 12 year period. A linear regression analysis done on a calender quarter basis also confirmed that nitrate+nitrite concentrations increased significantly at the 95 percent confidence level for each calender quarter (January-March, April-June, July-September, and October-December). A nitrogen isotope analysis of water from the well gave a $\delta^{15}N$ value of 8.9 ‰, indicative of nitrogen from animal or human waste, or from organic nitrogen in soil. A dye tracer test conducted over a 20 month period on the septic tank associated with the well indicated that the septic tank is not the source of nitrogen in the well.

Most R^2 values for both spring and ground water quality data are less than 0.5. These values indicate that other factors such as seasonality effects due to variation in nitrogen sources or variation of the concentration of an individual nitrogen source are creating large variations in ground water nitrate concentrations.

In order to assist in evaluating land use and water quality issues, the following activities are suggested:

- A better estimate of cattle numbers is needed for the western part of the ESRP so

that updated estimates of nitrogen input from manure sources can be prepared.

- Commercial fertilizer use in the same area should be tabulated to improve estimates of nitrogen input from this source.

- The installation of properly constructed ground water monitoring wells should be considered for selected locations in the western part of the ESRP. The locations should take into consideration the time of travel variations across the area and existing land use activities.

- Analysis of the stable isotopes of oxygen ($^{18}O/^{16}O$) and hydrogen ($^{2}H/^{1}H$) should be considered for future water sampling programs in the area to augment nitrogen isotopes data being collected. These parameters can provide additional information about the sources of contamination and the timing and location of recharge events. Temporal variations in nitrogen sources in the area could be more accurately described through the use of the stable isotopes of oxygen, hydrogen and nitrogen. Isotope data currently being collected in the area by all organizations should be shared so that solutions to water quality issues can be developed.

- The Agricultural Ground Water Coordination Committee should be considered as a forum for presentation of the study results.

FIGURES

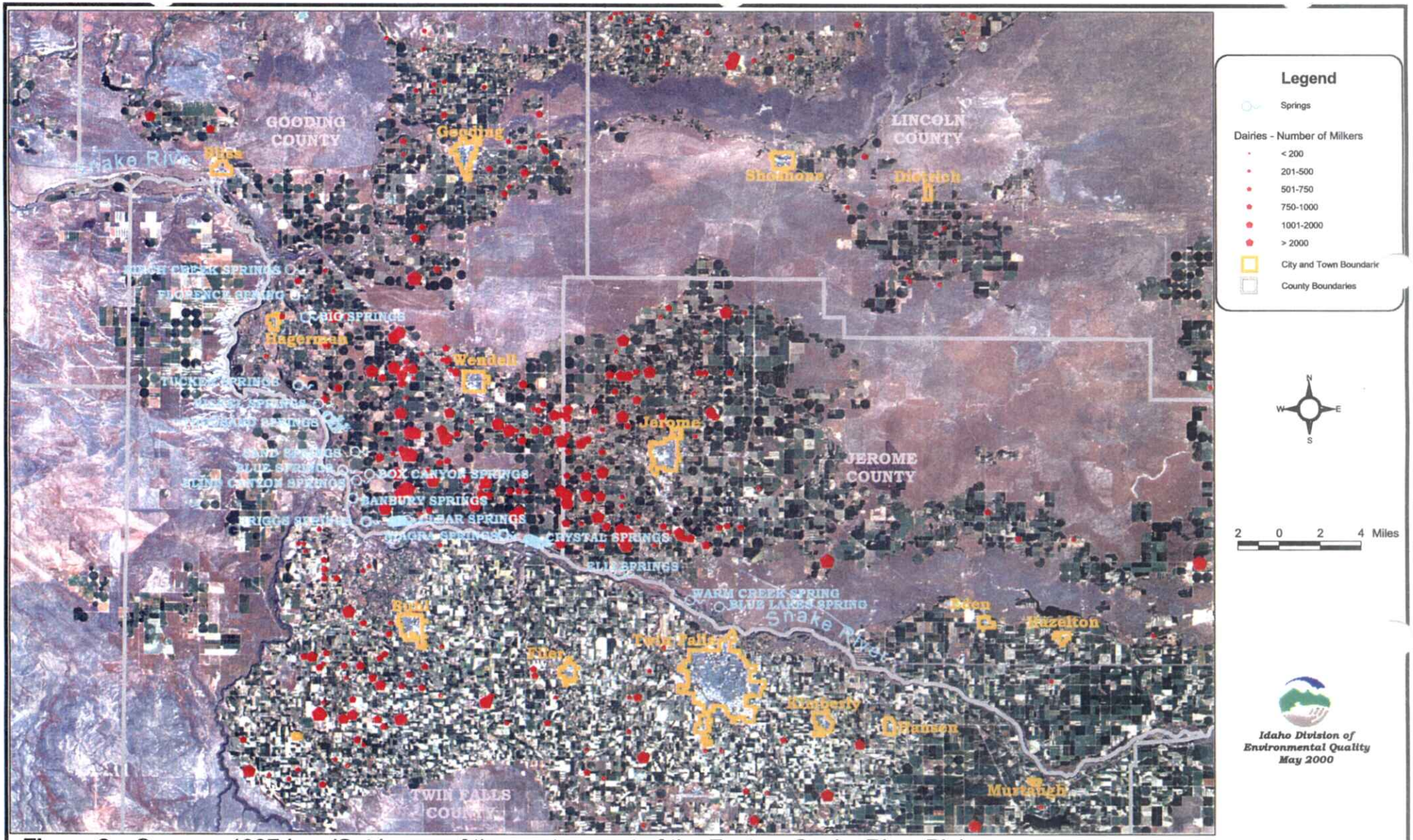


Figure 2. *Summer 1997 LandSat image of the western part of the Eastern Snake River Plain.*

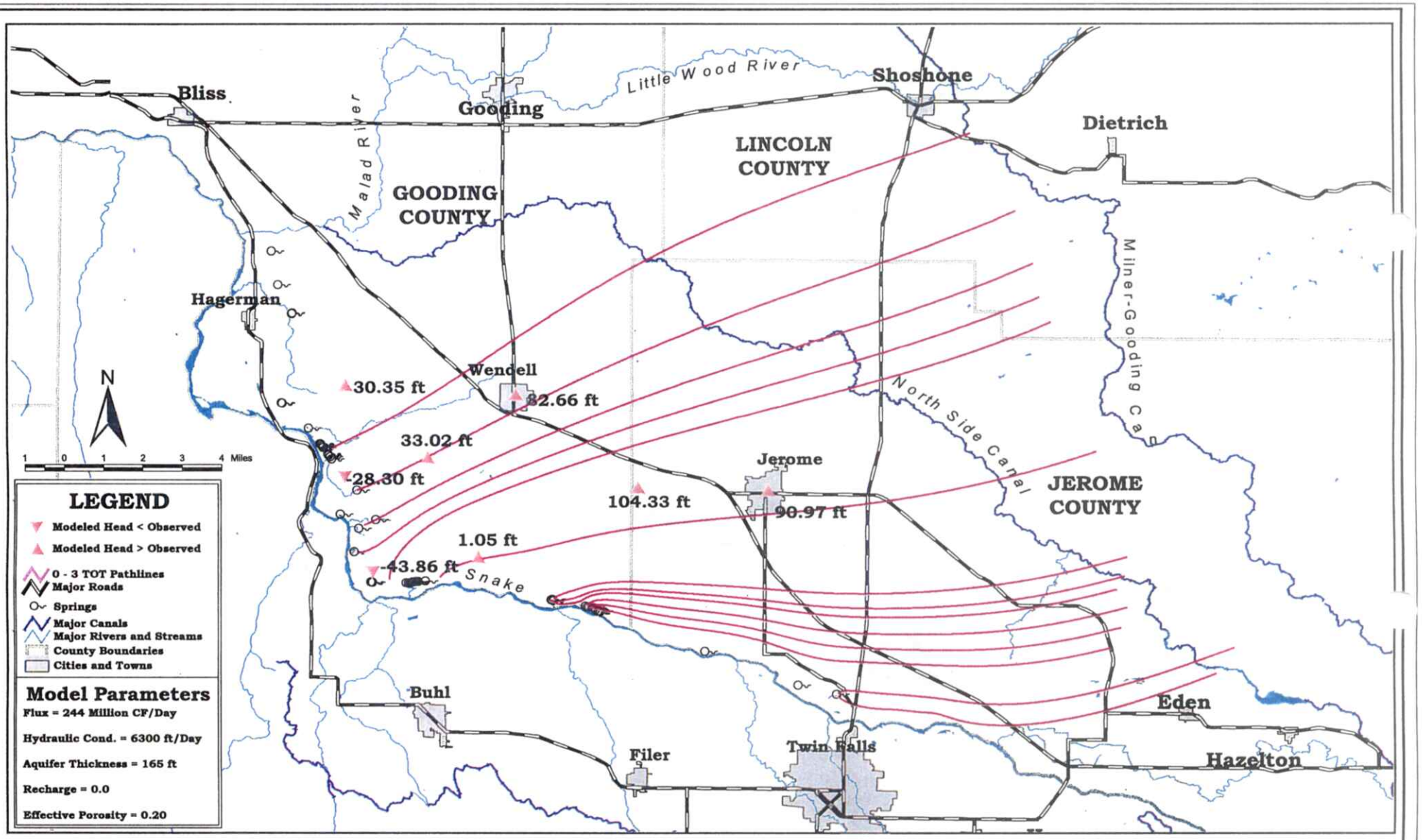


Figure 4. *WhAEM model results using no recharge scenario.*

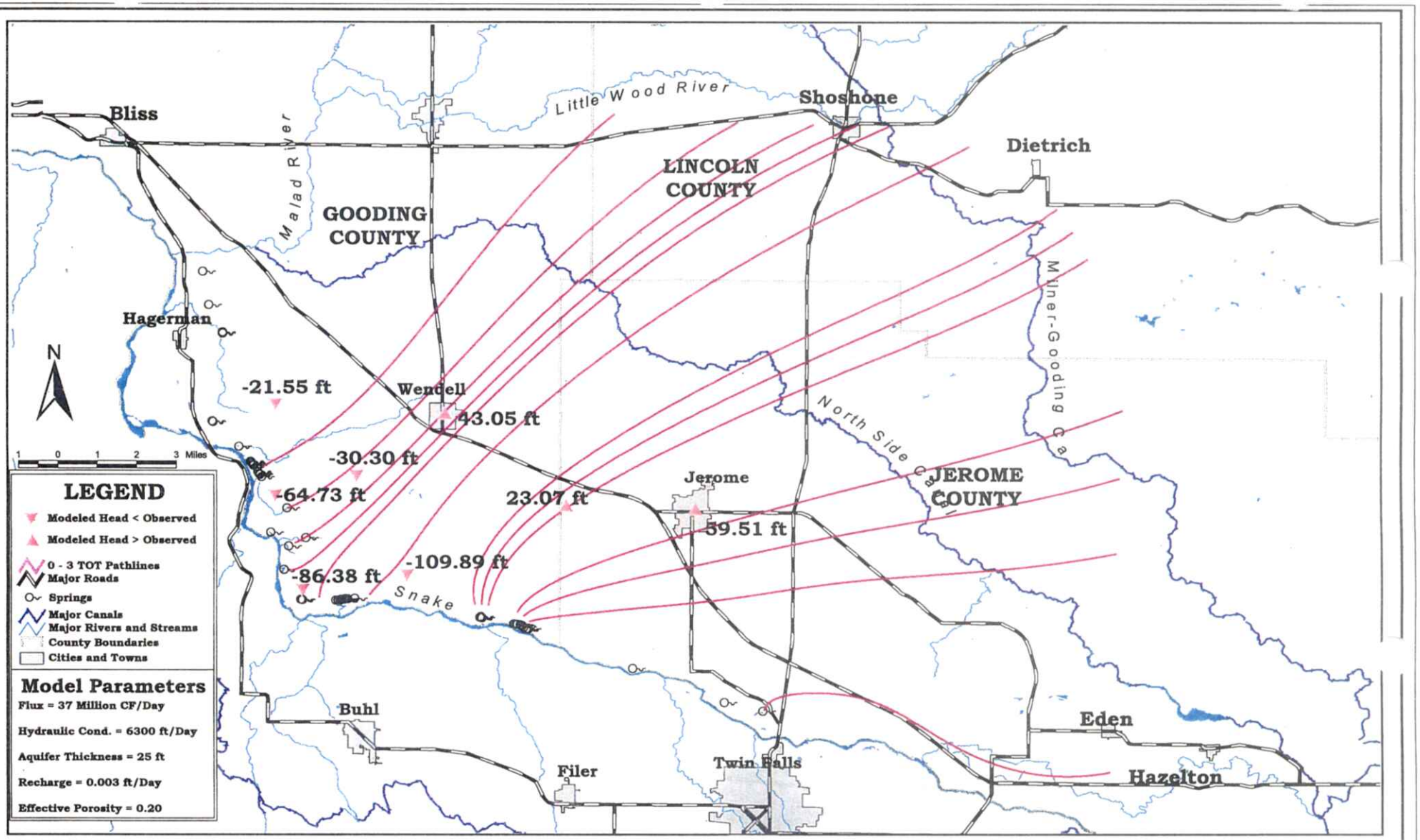


Figure 5. *WhAEM model results using thin aquifer scenario.*

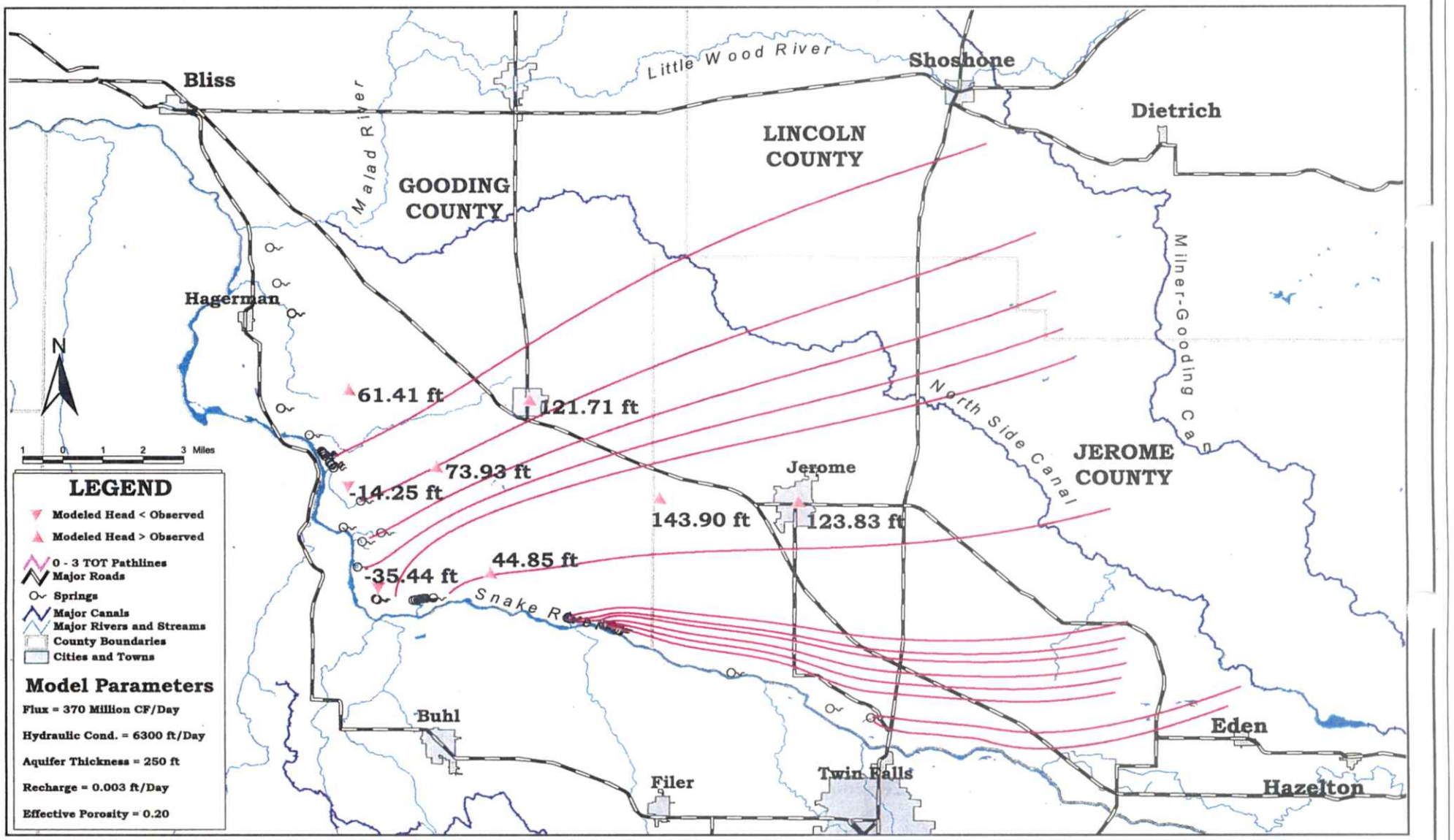


Figure 6. *WhAEM model results using thick aquifer scenario.*

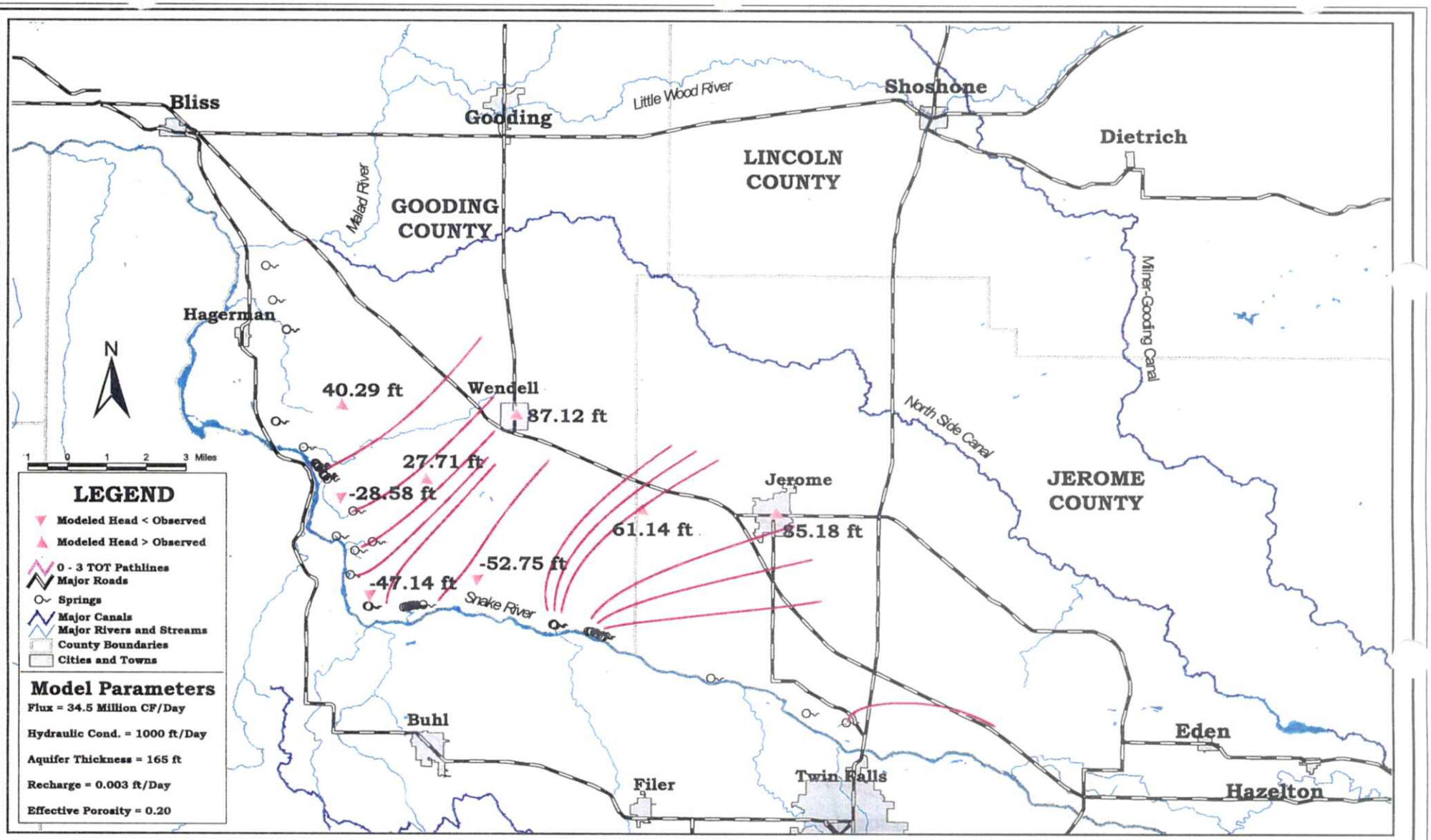


Figure 7. *WhAEM model results using low hydraulic conductivity scenario.*

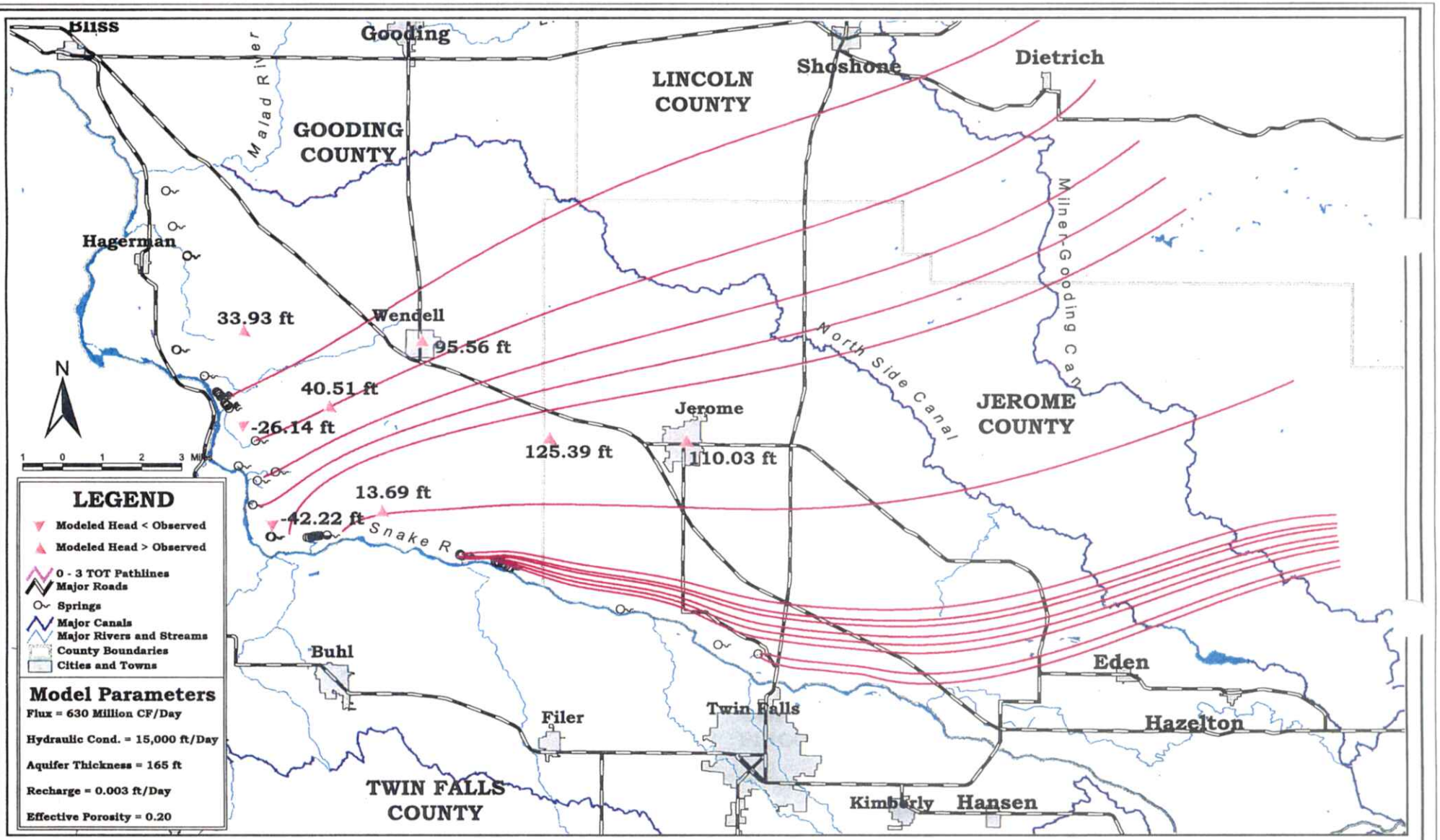


Figure 8. *WhAEM model results using high hydraulic conductivity scenario.*

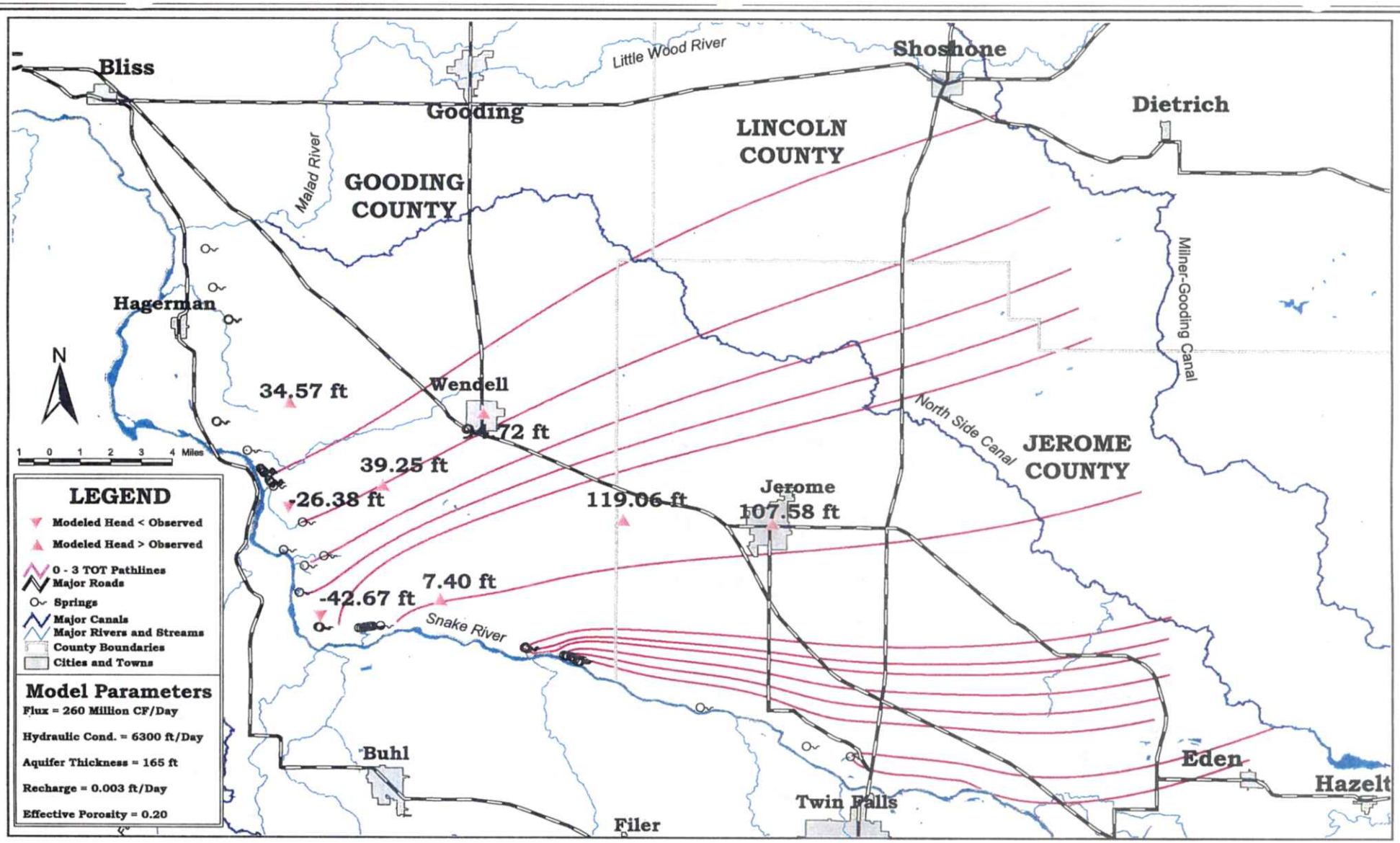


Figure 9. *WhAEM model results preferred scenario.*

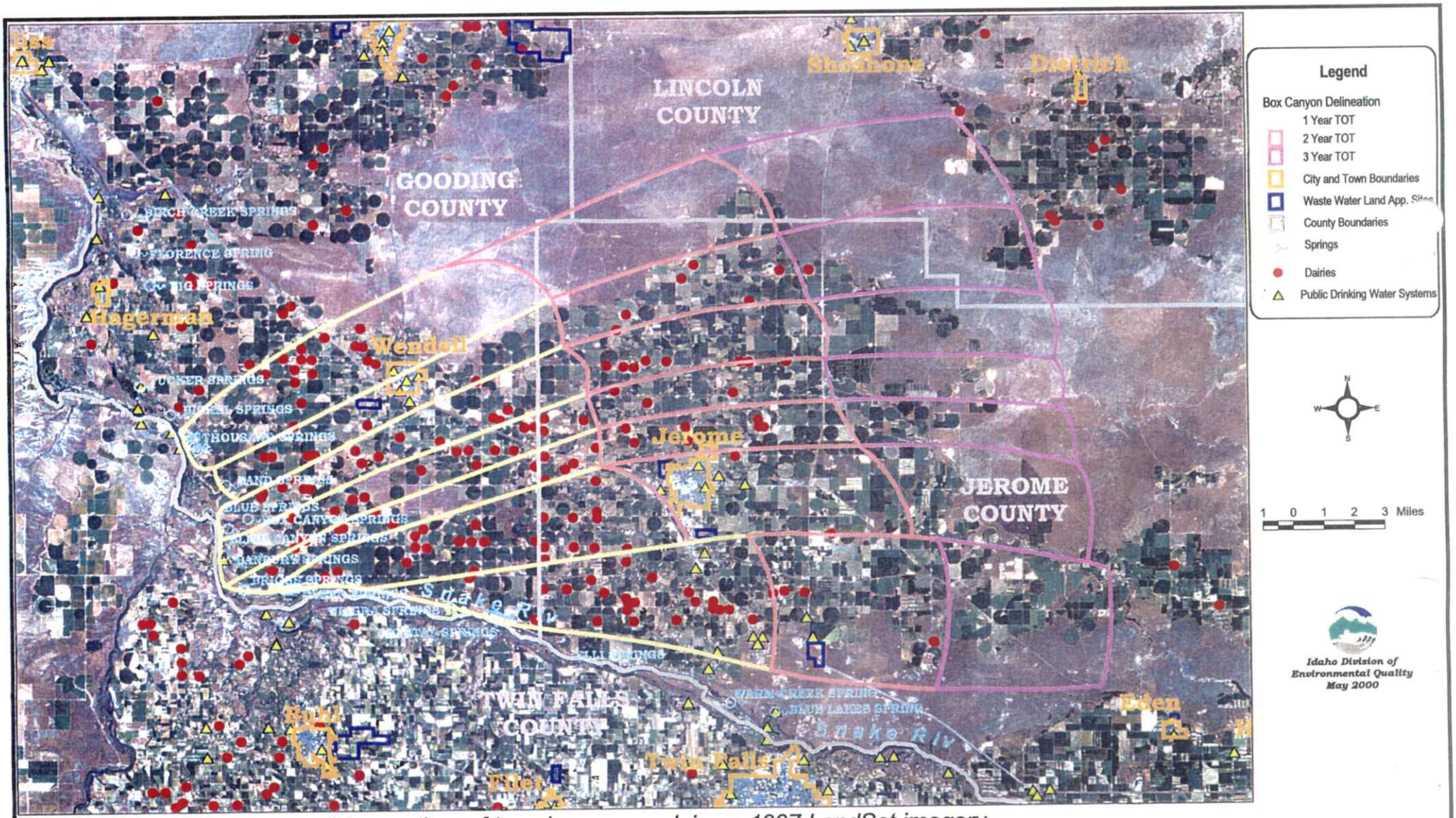


Figure 10. *WhAEM 1, 2, and 3-year time of travel zones overlain on 1997 LandSat imagery.*

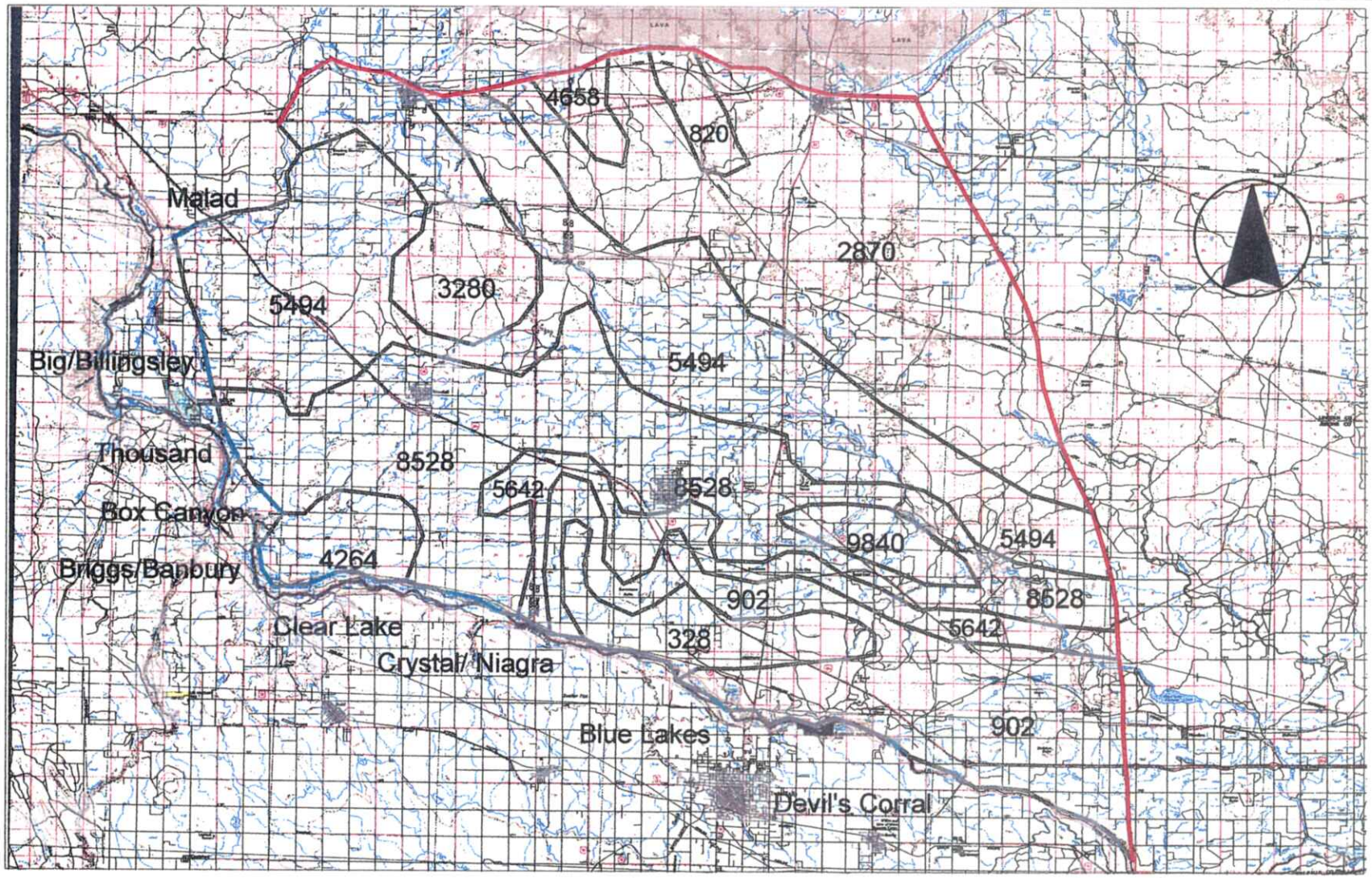


Figure 11. *Hydraulic conductivity zones and model boundary conditions.*

Hydraulic conductivity expressed in feet/day. Spring discharge values provided in Table 1.

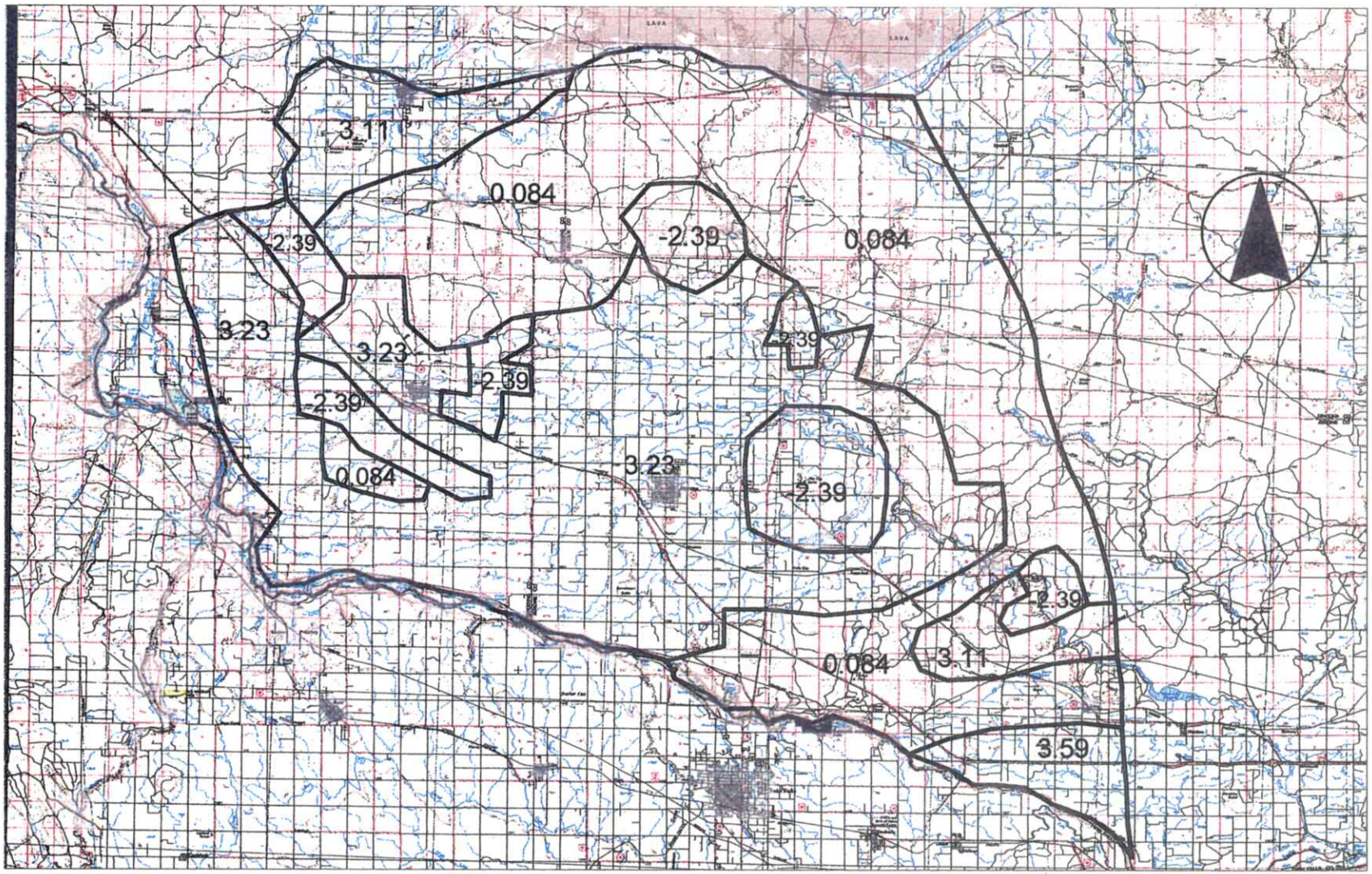


Figure 12. *Aquifer recharge zones.* Recharge expressed in feet/year.

10 0 10 Miles

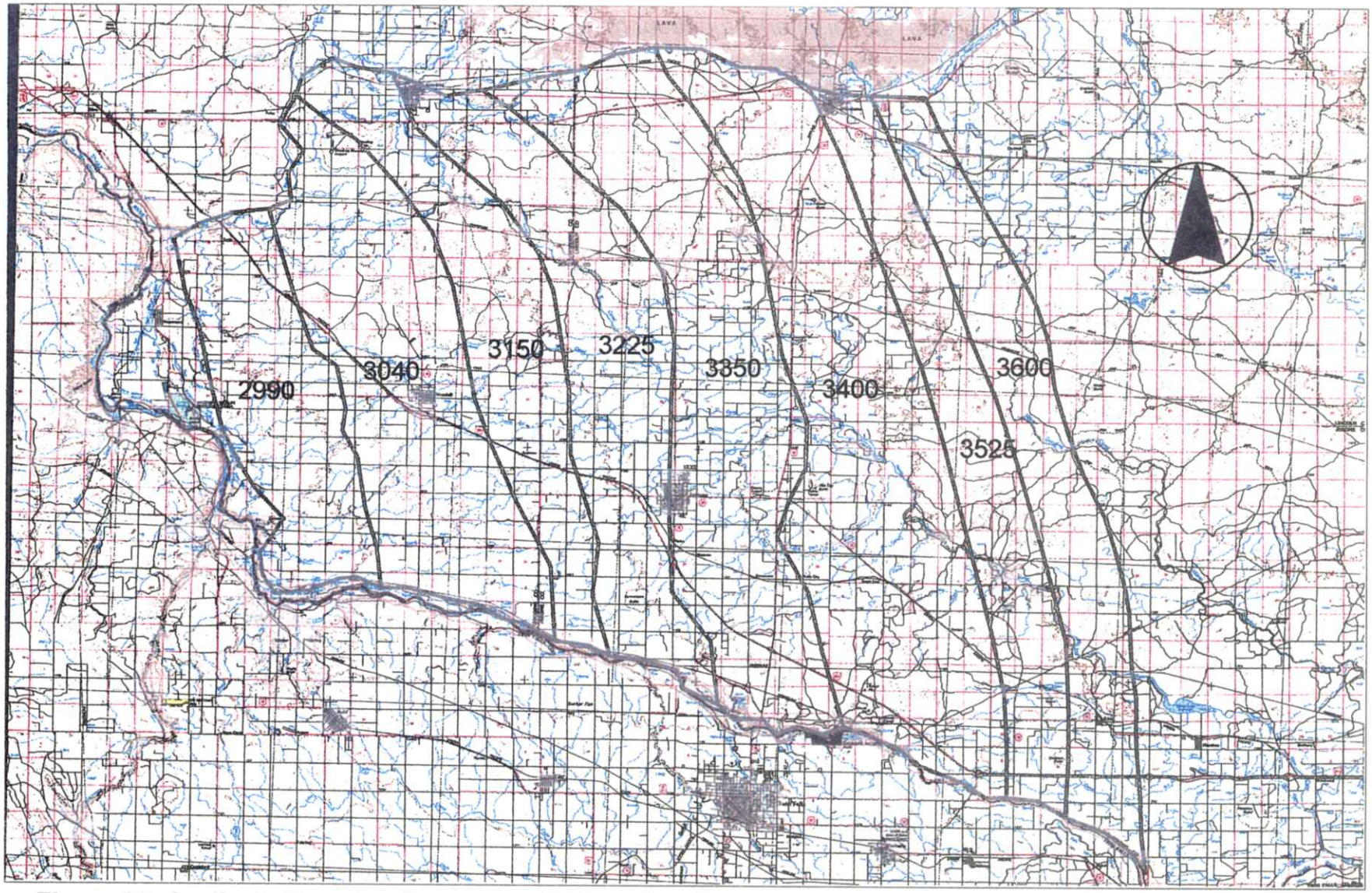


Figure 13. *Aquifer bottom elevation zones.* Bottom elevation expressed in feet

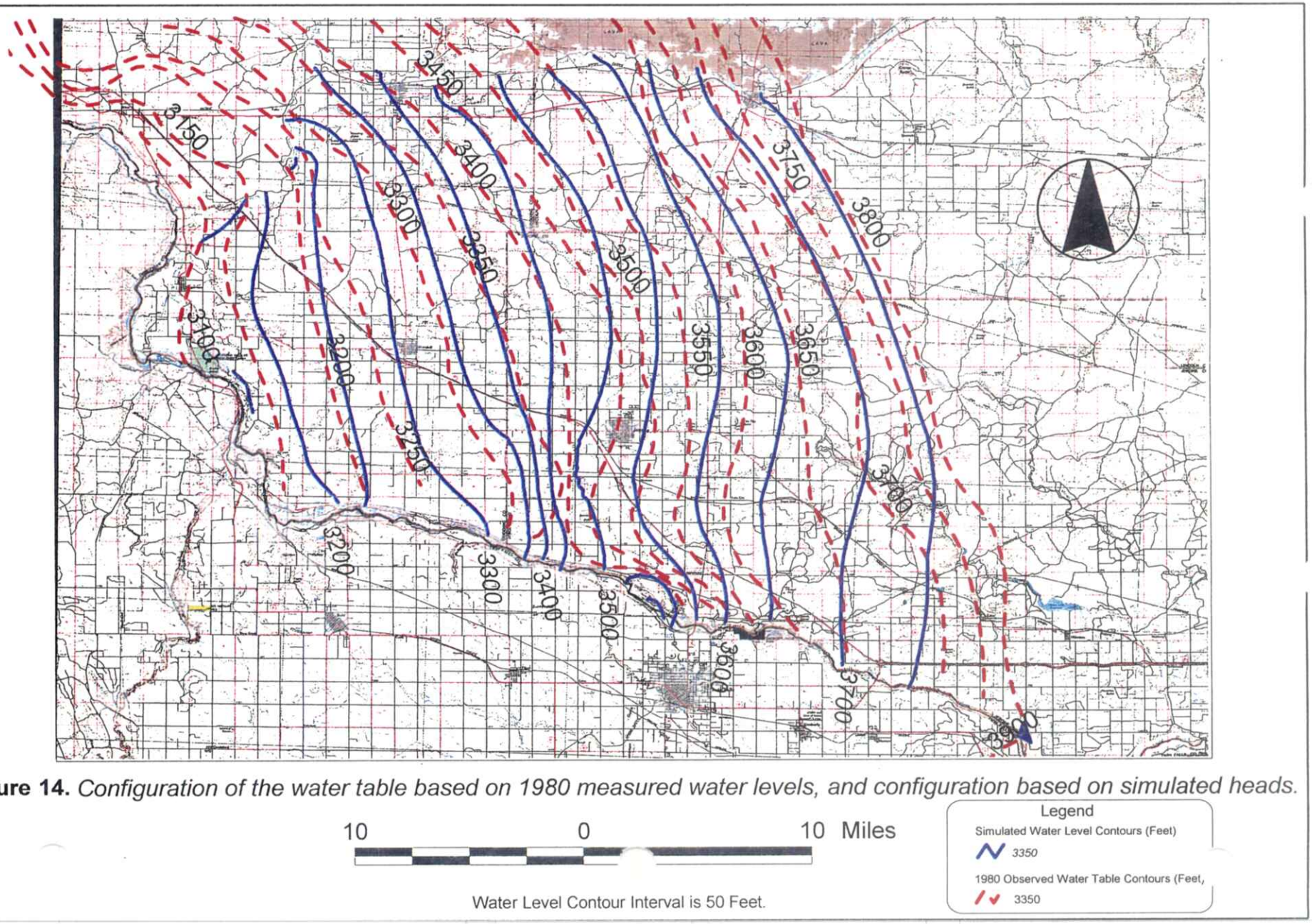


Figure 14. *Configuration of the water table based on 1980 measured water levels, and configuration based on simulated heads.*

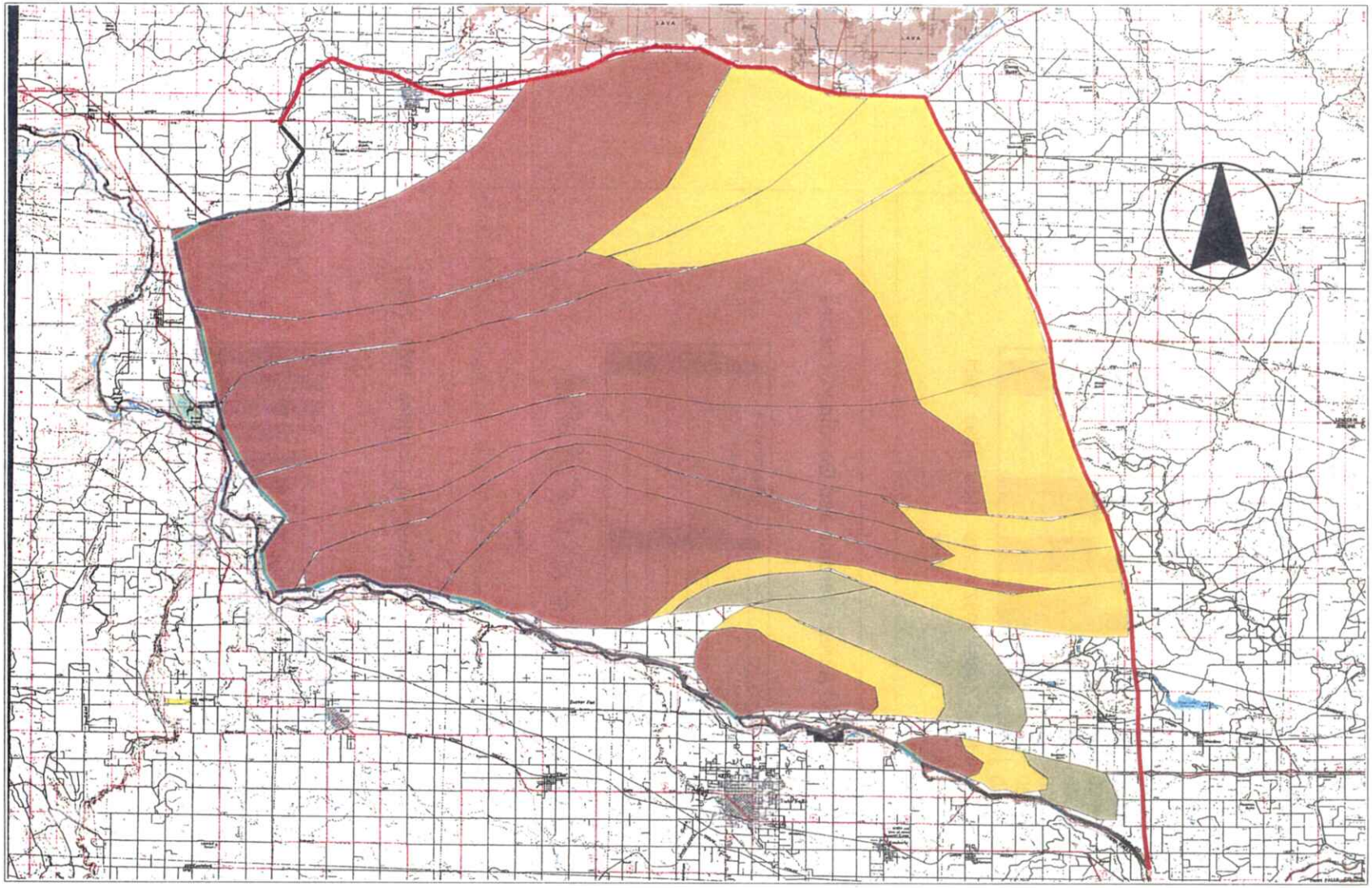
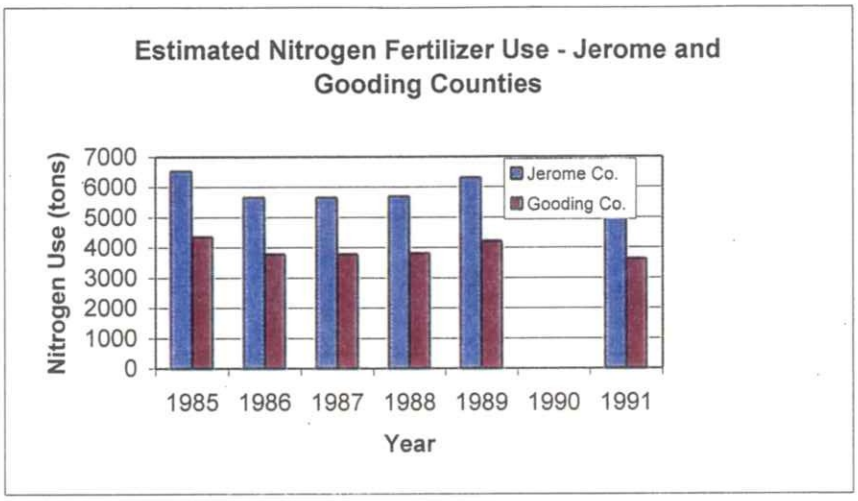
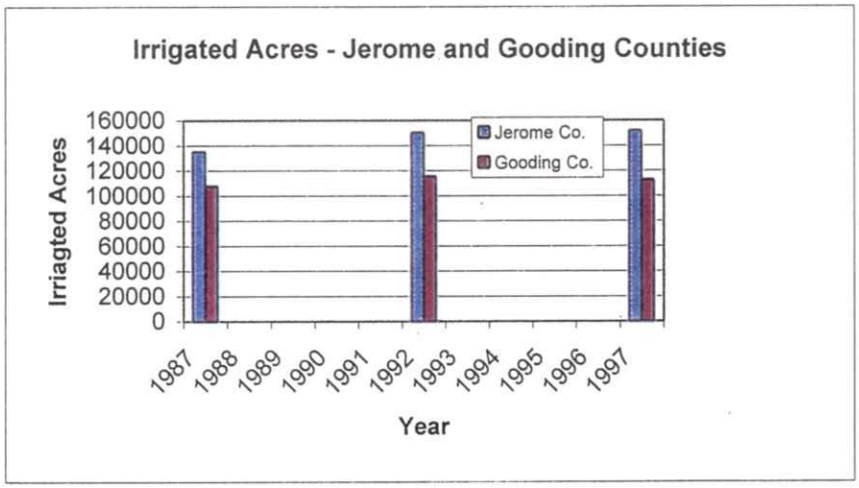
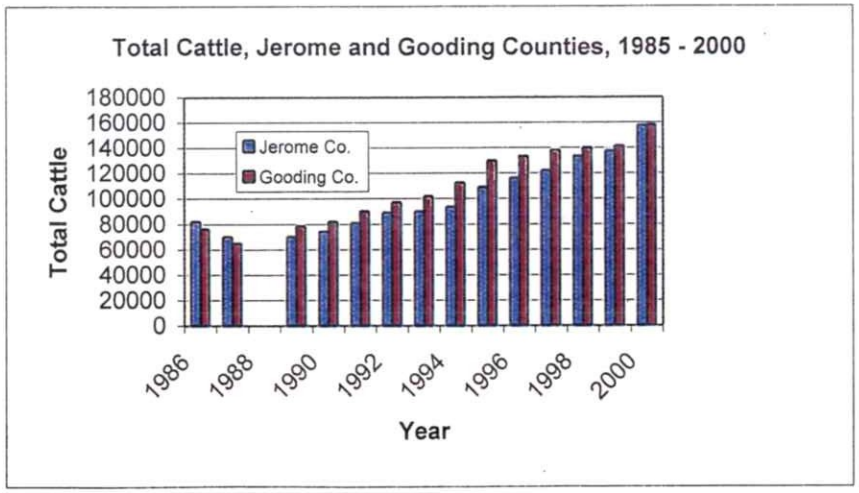


Figure 15. *Map showing MODFLOW flow simulation time of travel capture zones.*

Figure 18. Charts showing estimated nitrogen fertilizer use, irrigated acreage and total cattle numbers for Jerome and Gooding Counties.

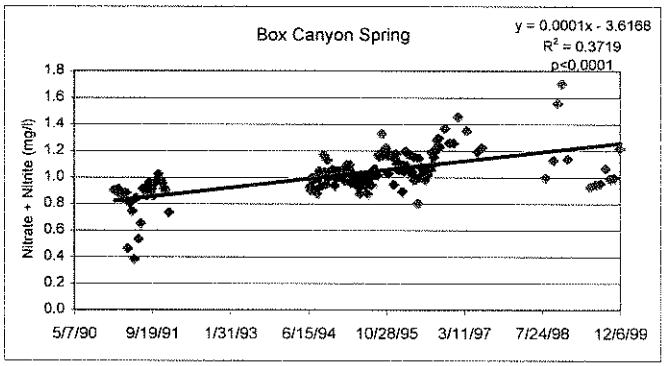


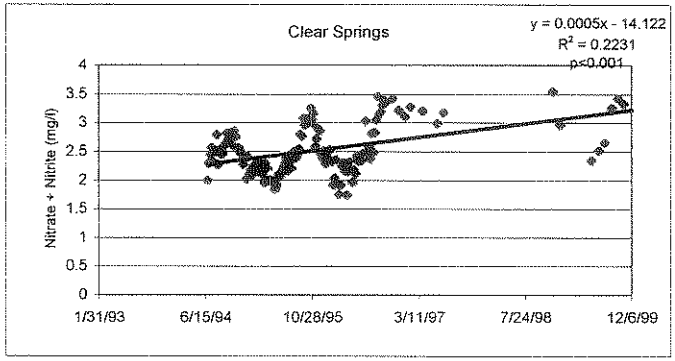


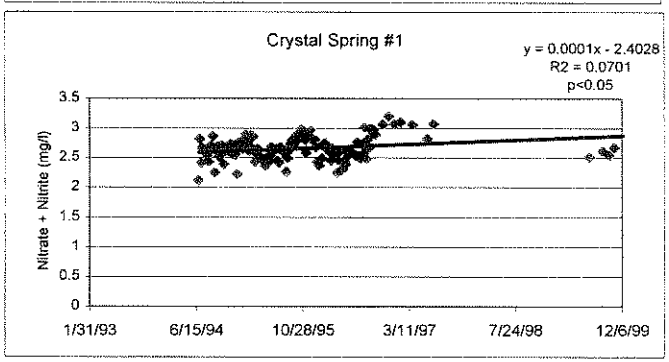


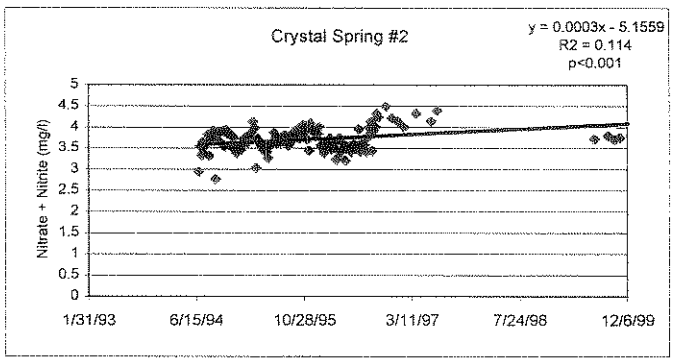
Notes: Estimated fertilizer use from EPA, 1990. Irrigated acres and cattle numbers from Idaho Agricultural Statistics Service, 2000.

Figure 19. Regressions for the complete data sets for Box Canyon, Clear Springs, Crystal Spring #1 and #2, and Niagra Springs.









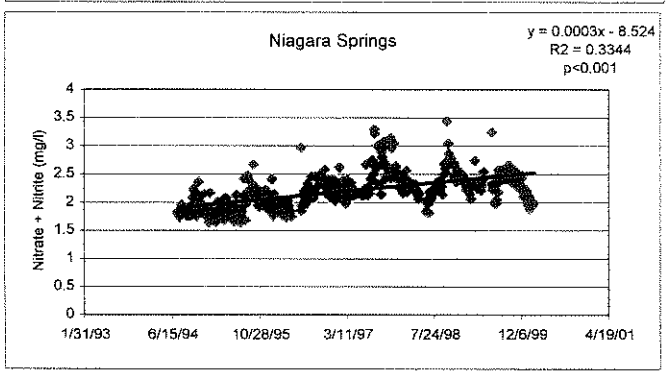


Figure 20. Box Canyon regressions by quarter.

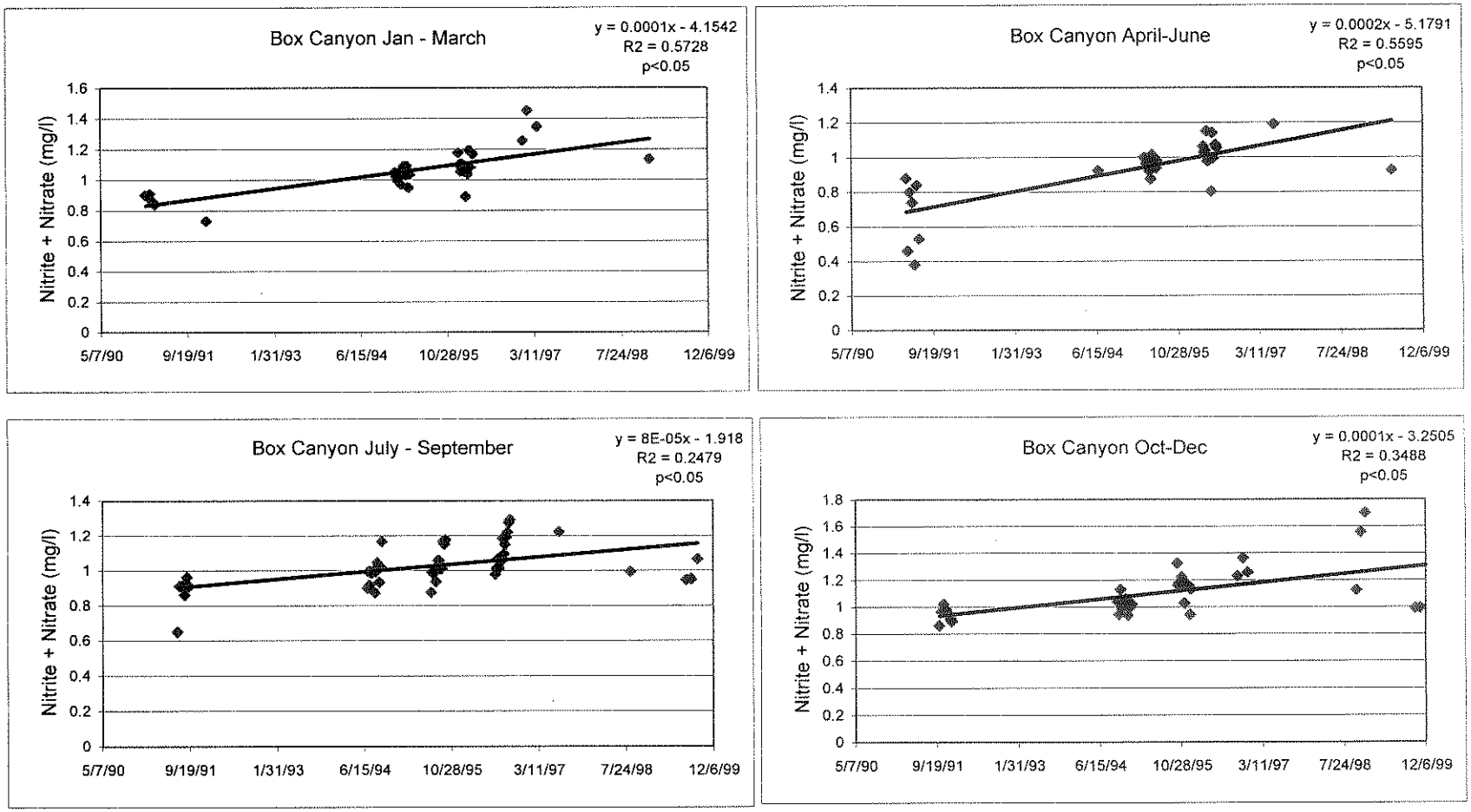
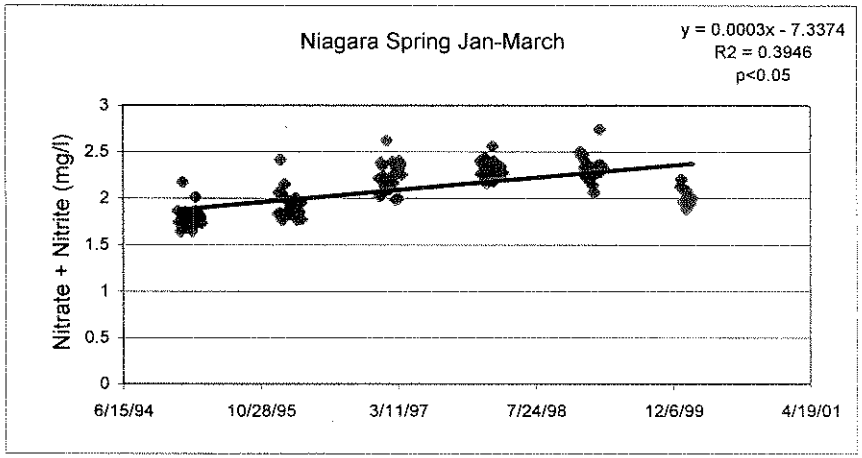
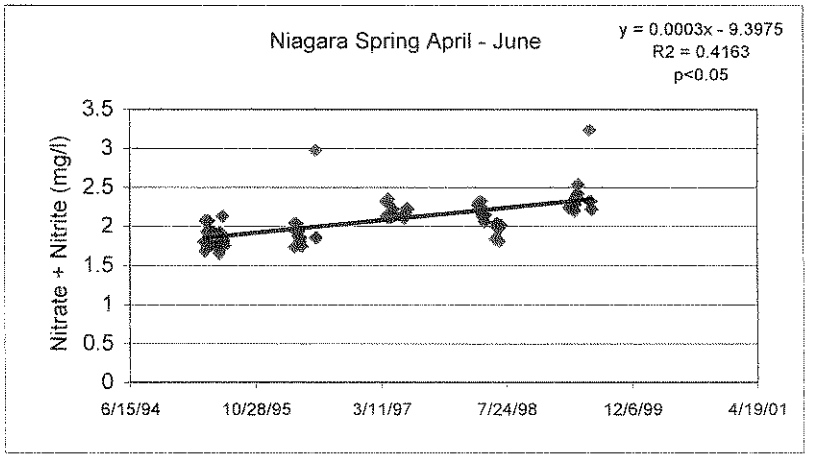
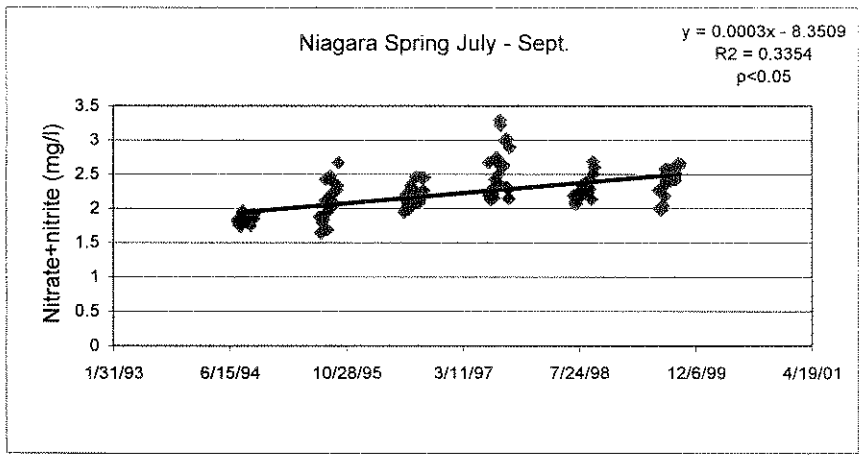


Figure 21. Niagara Springs regressions by quarter.







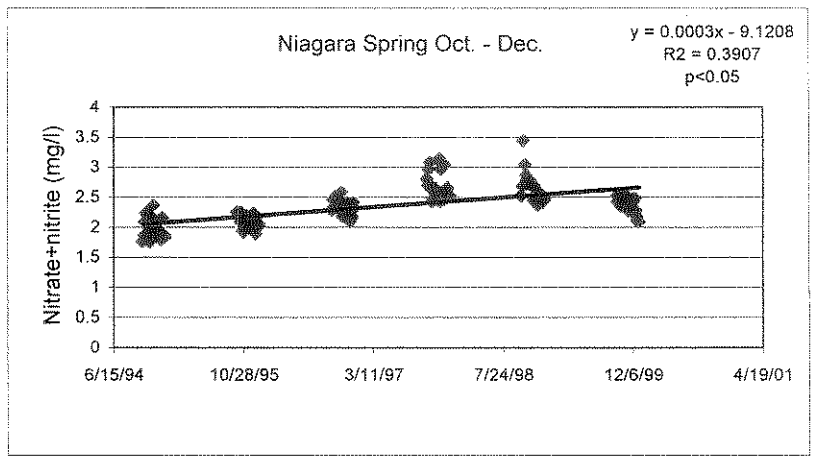


Figure 22. Clear Springs regressions by quarter.

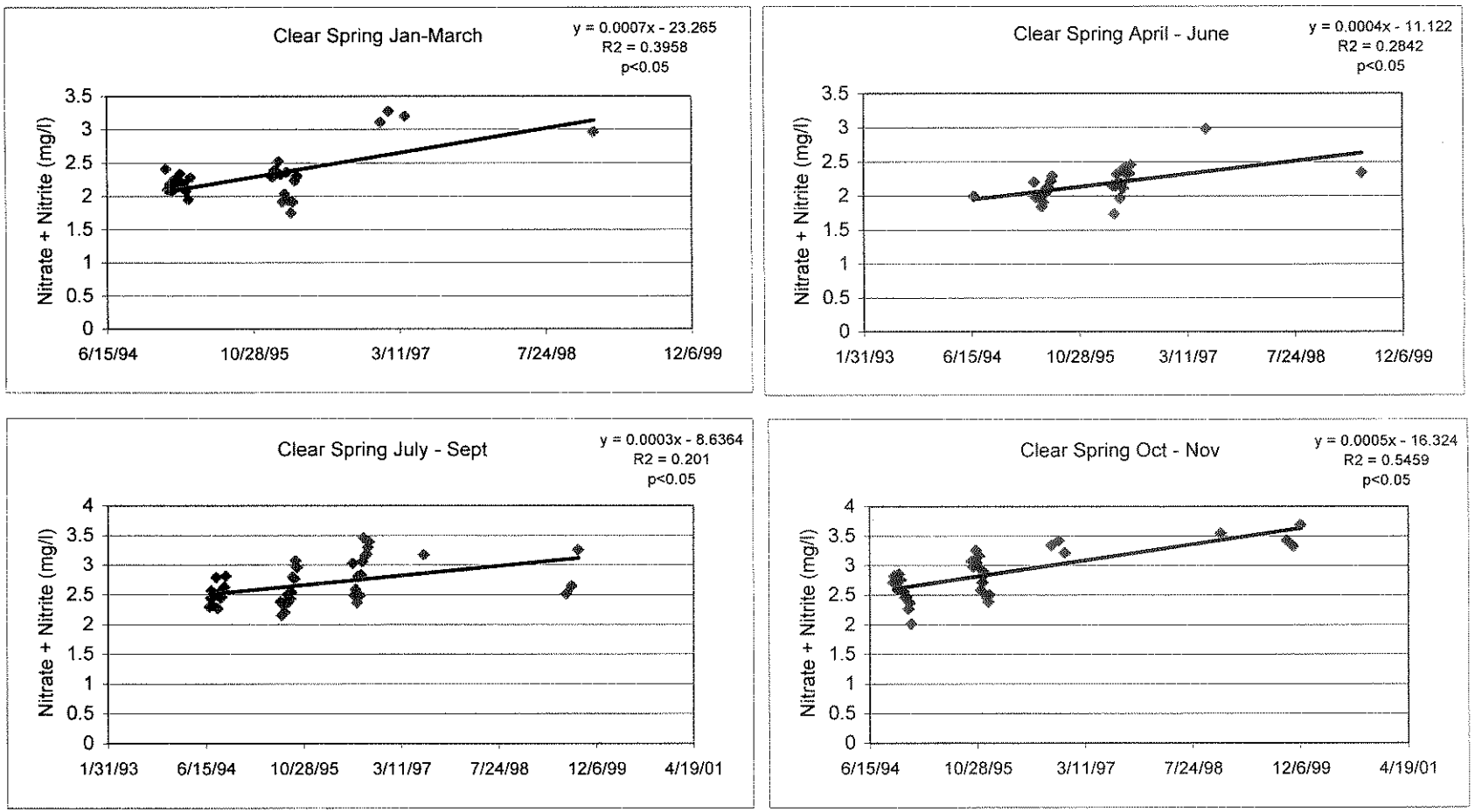
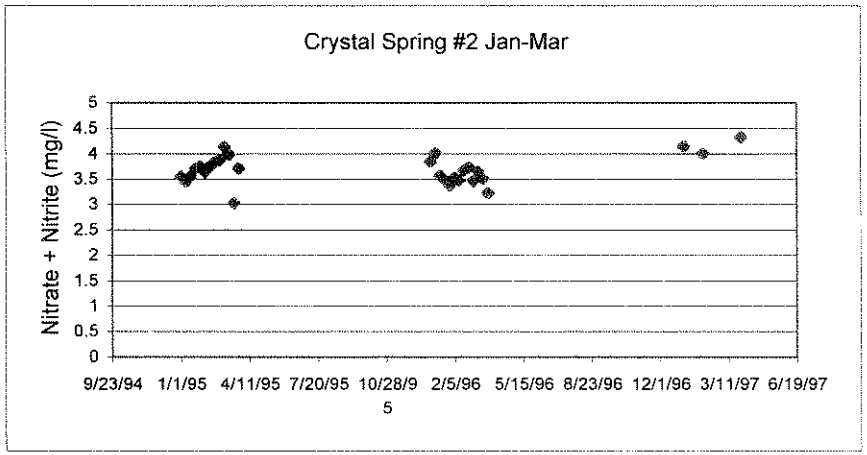
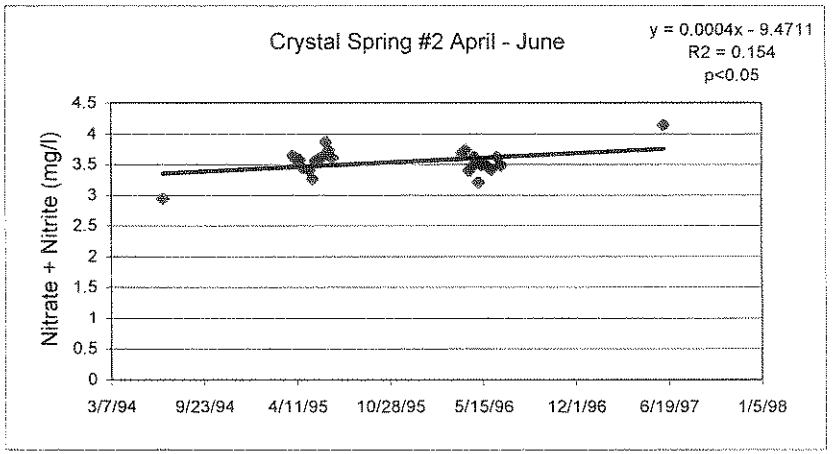
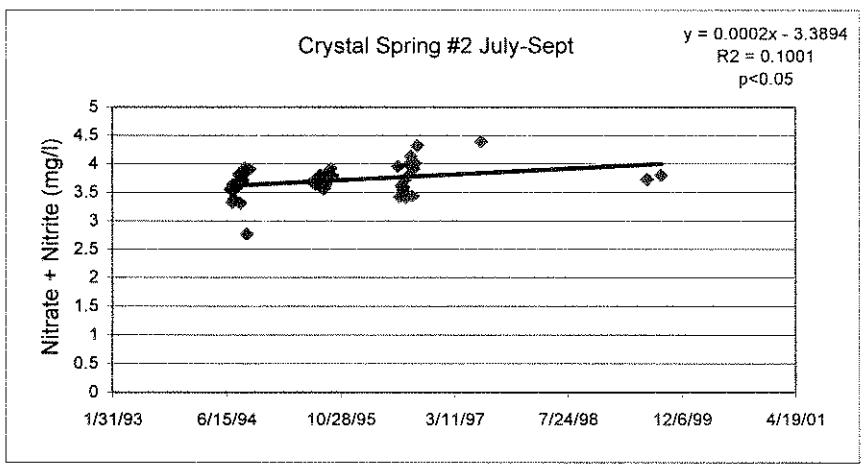


Figure 23. Crystal Spring #2 regresssions by quarter.







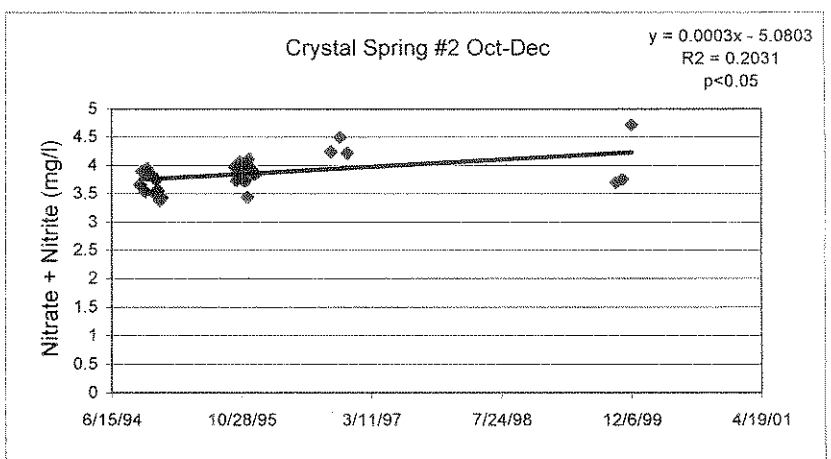
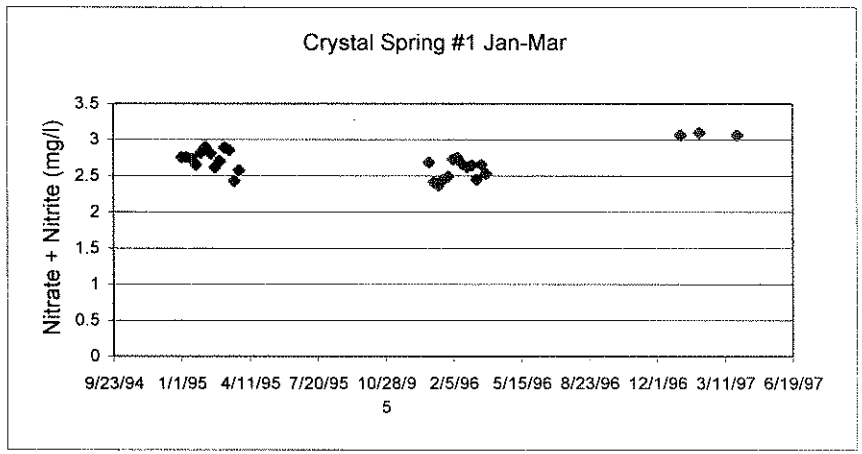
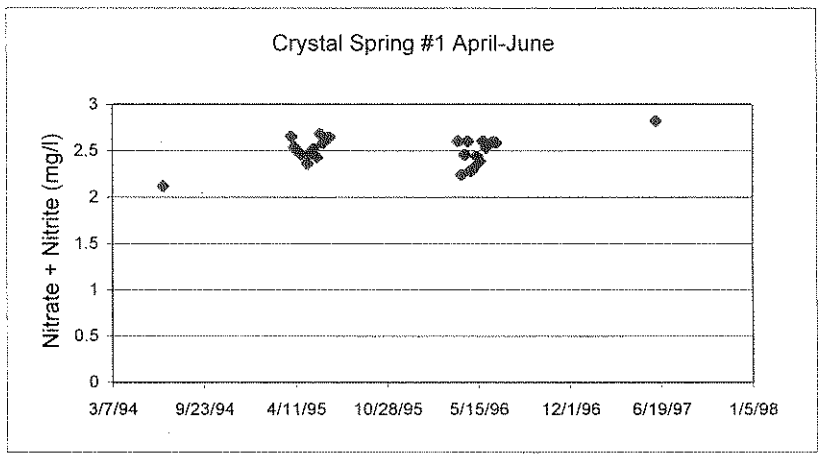
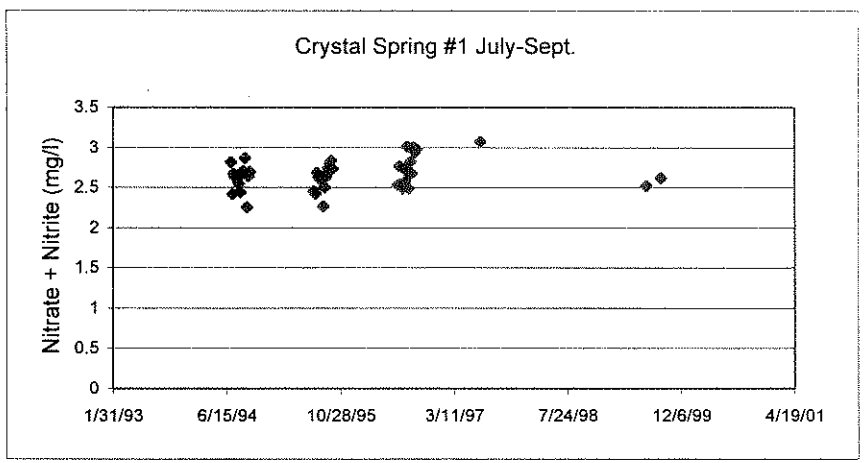
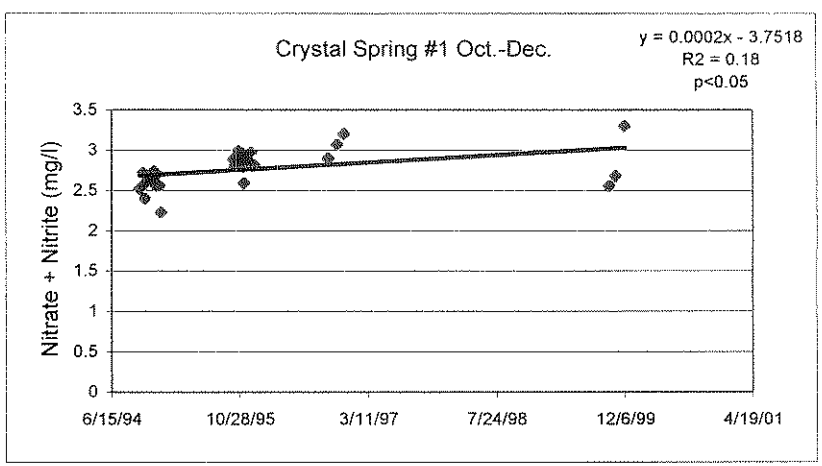


Figure 24. Crystal Spring #1 regressions by quarter.









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Idaho Crop Group													
Commodity	Practice	Year	State	County	District	Planted	Harvested	Yield	Yield Unit	Production	Production Unit	Sucrose	Sucrose Unit
Corn For Silage	Total For Crop	1990	ID	D10 North	10		300	16.7	TON	5000	TON		
Corn For Silage	Total For Crop	1990	ID	D70 Southwest	70		34600	23.6	TON	815000	TON		
Corn For Silage	Total For Crop	1990	ID	D80 South Central	80		26100	23.4	TON	612000	TON		
Corn For Silage	Total For Crop	1990	ID	D90 East	90		7000	18.9	TON	132000	TON		
Corn For Silage	Total For Crop	1990	ID	State Total	99		68000	23	TON	1564000	TON		
Corn For Silage	Total For Crop	1991	ID	D10 North	10		300	20	TON	6000	TON		
Corn For Silage	Total For Crop	1991	ID	D70 Southwest	70		26600	24.8	TON	660000	TON		
Corn For Silage	Total For Crop	1991	ID	D80 South Central	80		24900	22.5	TON	561000	TON		
Corn For Silage	Total For Crop	1991	ID	D90 East	90		8200	18.7	TON	153000	TON		
Corn For Silage	Total For Crop	1991	ID	State Total	99		60000	23	TON	1380000	TON		
Corn For Silage	Total For Crop	1992	ID	D10 North	10		200	15	TON	3000	TON		
Corn For Silage	Total For Crop	1992	ID	D70 Southwest	70		24300	24.8	TON	603000	TON		
Corn For Silage	Total For Crop	1992	ID	D80 South Central	80		27300	23.8	TON	649000	TON		
Corn For Silage	Total For Crop	1992	ID	D90 East	90		5200	16.3	TON	85000	TON		
Corn For Silage	Total For Crop	1992	ID	State Total	99		57000	23.5	TON	1340000	TON		
Corn For Silage	Total For Crop	1993	ID	D10 North	10		100	20	TON	2000	TON		
Corn For Silage	Total For Crop	1993	ID	D70 Southwest	70		34700	24.7	TON	858000	TON		
Corn For Silage	Total For Crop	1993	ID	D80 South Central	80		34900	21.2	TON	740000	TON		
Corn For Silage	Total For Crop	1993	ID	D90 East	90		7300	18.2	TON	133000	TON		
Corn For Silage	Total For Crop	1993	ID	State Total	99		77000	22.5	TON	1733000	TON		
Corn For Silage	Total For Crop	1994	ID	D10 North	10		100	13	TON	1300	TON		
Corn For Silage	Total For Crop	1994	ID	D70 Southwest	70		27400	25	TON	685400	TON		
Corn For Silage	Total For Crop	1994	ID	D80 South Central	80		29000	22.9	TON	663000	TON		
Corn For Silage	Total For Crop	1994	ID	D90 East	90		5500	19.5	TON	107300	TON		
Corn For Silage	Total For Crop	1994	ID	State Total	99		62000	23.5	TON	1457000	TON		
Corn For Silage	Total For Crop	1995	ID	D10 North	10		100	5	TON	500	TON		

Corn For Silage	Total For Crop	1995	ID	D70 Southwest	70		25200	25.3	TON	637800	TON		
Corn For Silage	Total For Crop	1995	ID	D80 South Central	80		28600	22.4	TON	641600	TON		
Corn For Silage	Total For Crop	1995	ID	D90 East	90		4100	20.3	TON	83100	TON		
Corn For Silage	Total For Crop	1995	ID	State Total	99		58000	23.5	TON	1363000	TON		
Corn For Silage	Total For Crop	1996	ID	D10 North	10		200	10	TON	2000	TON		
Corn For Silage	Total For Crop	1996	ID	D70 Southwest	70		25700	24.9	TON	639000	TON		
Corn For Silage	Total For Crop	1996	ID	D80 South Central	80		37400	24.1	TON	902000	TON		
Corn For Silage	Total For Crop	1996	ID	D90 East	90		4700	18.9	TON	89000	TON		
Corn For Silage	Total For Crop	1996	ID	State Total	99		68000	24	TON	1632000	TON		
Corn For Silage	Total For Crop	1997	ID	D10 North	10		200	20	TON	4000	TON		
Corn For Silage	Total For Crop	1997	ID	D70 Southwest	70		22900	25.1	TON	575000	TON		
Corn For Silage	Total For Crop	1997	ID	D80 South Central	80		50700	26.1	TON	1325000	TON		
Corn For Silage	Total For Crop	1997	ID	D90 East	90		6200	21.9	TON	136000	TON		
Corn For Silage	Total For Crop	1997	ID	State Total	99		80000	25.5	TON	2040000	TON		
Corn For Silage	Total For Crop	1998	ID	D10 North	10		300	13.3	TON	4000	TON		
Corn For Silage	Total For Crop	1998	ID	D70 Southwest	70		27300	25.6	TON	700000	TON		
Corn For Silage	Total For Crop	1998	ID	D80 South Central	80		56100	26	TON	1456000	TON		
Corn For Silage	Total For Crop	1998	ID	D90 East	90		6300	21.4	TON	135000	TON		
Corn For Silage	Total For Crop	1998	ID	State Total	99		90000	25.5	TON	2295000	TON		
Corn For Silage	Total For Crop	1999	ID	D10 North	10		300	13.3	TON	4000	TON		
Corn For Silage	Total For Crop	1999	ID	D70 Southwest	70		33200	24.7	TON	820000	TON		
Corn For Silage	Total For Crop	1999	ID	D80 South Central	80		65000	24.9	TON	1620000	TON		
Corn For Silage	Total For Crop	1999	ID	D90 East	90		7500	20.4	TON	153000	TON		
Corn For Silage	Total For Crop	1999	ID	State Total	99		106000	24.5	TON	2597000	TON		
Corn For Silage	Total For Crop	2000	ID	D10 North	10		300	16.7	TON	5000	TON		
Corn For Silage	Total For Crop	2000	ID	D70 Southwest	70		43500	24.8	TON	1080000	TON		
Corn For Silage	Total For Crop	2000	ID	D80 South Central	80		79100	25.7	TON	2036000	TON		
Corn For Silage	Total For Crop	2000	ID	D90 East	90		12100	21	TON	254000	TON		
Corn For	Total For												

Silage	Crop	2000	ID	State Total	99		135000	25	TON	3375000	TON		
Corn For Silage	Total For Crop	2001	ID	D10 North	10		200	20	TON	4000	TON		
Corn For Silage	Total For Crop	2001	ID	D70 Southwest	70		36700	25.4	TON	932000	TON		
Corn For Silage	Total For Crop	2001	ID	D80 South Central	80		78400	25.4	TON	1995000	TON		
Corn For Silage	Total For Crop	2001	ID	D90 East	90		9700	20	TON	194000	TON		
Corn For Silage	Total For Crop	2001	ID	State Total	99		125000	25	TON	3125000	TON		
Corn For Silage	Total For Crop	2002	ID	D10 North	10		300	20	TON	6000	TON		
Corn For Silage	Total For Crop	2002	ID	D70 Southwest	70		35500	25.4	TON	903000	TON		
Corn For Silage	Total For Crop	2002	ID	D80 South Central	80		91400	26.8	TON	2446000	TON		
Corn For Silage	Total For Crop	2002	ID	D90 East	90		12800	22.3	TON	285000	TON		
Corn For Silage	Total For Crop	2002	ID	State Total	99		140000	26	TON	3640000	TON		
Corn For Silage	Total For Crop	2003	ID	D10 North	10		300	20	TON	6000	TON		
Corn For Silage	Total For Crop	2003	ID	D70 Southwest	70		35700	27.1	TON	966000	TON		
Corn For Silage	Total For Crop	2003	ID	D80 South Central	80		87100	26.1	TON	2270000	TON		
Corn For Silage	Total For Crop	2003	ID	D90 East	90		11900	22.5	TON	268000	TON		
Corn For Silage	Total For Crop	2003	ID	State Total	99		135000	26	TON	3510000	TON		

70 Records Displayed

Idaho Crop Group

Commodity	Practice	Year	State	County	District	Planted	Harvested	Yield	Yield Unit	Production	Production Unit	Sucrose	Sucrose Unit
Hay Alfalfa (Dry)	Total For Crop	1990	ID	D10 North	10		68000	2.38	TON	161700	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	D70 Southwest	70		164000	4.93	TON	809000	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	D80 South Central	80		277000	4.3	TON	1190400	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	D90 East	90		451000	3.51	TON	1582900	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	State Total	99		960000	3.9	TON	3744000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	D10 North	10		71000	2.18	TON	155000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	D70 Southwest	70		176000	4.59	TON	807000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	D80 South Central	80		304000	4.05	TON	1232000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	D90 East	90		479000	3.59	TON	1720000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	State Total	99		1030000	3.8	TON	3914000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	D10 North	10		71000	1.59	TON	113000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	D70 Southwest	70		158000	4.66	TON	736000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	D80 South Central	80		239000	4.25	TON	1015000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	D90 East	90		442000	3.4	TON	1503000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	State Total	99		910000	3.7	TON	3367000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	D10 North	10		70000	2.63	TON	184000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	D70 Southwest	70		200000	4.79	TON	957000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	D80 South Central	80		290000	4.32	TON	1253000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	D90 East	90		490000	3.69	TON	1806000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	State Total	99		1050000	4	TON	4200000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	D10 North	10		60000	2.03	TON	122000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	D70 Southwest	70		195000	4.82	TON	940000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	D80 South Central	80		290000	4.19	TON	1215000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	D90 East	90		475000	3.58	TON	1701000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	State Total	99		1020000	3.9	TON	3978000	TON		
Hay Alfalfa (Dry)	Total For Crop	1995	ID	D10 North	10	0	63000	2.3	TON	145000	TON	0	

Hay Alfalfa (Dry)	Total For Crop	1995	ID	D70 Southwest	70	0	218000	5	TON	1089000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	D80 South Central	80	0	316000	4.41	TON	1394000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	D90 East	90	0	503000	3.74	TON	1882000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	State Total	99	0	1100000	4.1	TON	4510000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	D10 North	10	0	62000	2.13	TON	132000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	D70 Southwest	70	0	210000	4.97	TON	1044000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	D80 South Central	80	0	280000	4.47	TON	1253000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	D90 East	90	0	448000	3.95	TON	1771000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	State Total	99	0	1000000	4.2	TON	4200000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1997	ID	D10 North	10		63000	2.21	TON	139000	TON		
Hay Alfalfa (Dry)	Total For Crop	1997	ID	D70 Southwest	70		212000	4.76	TON	1010000	TON		
Hay Alfalfa (Dry)	Total For Crop	1997	ID	D80 South Central	80		283000	4.56	TON	1291000	TON		
Hay Alfalfa (Dry)	Total For Crop	1997	ID	D90 East	90		442000	3.76	TON	1660000	TON		
Hay Alfalfa (Dry)	Total For Crop	1997	ID	State Total	99		1000000	4.1	TON	4100000	TON		
Hay Alfalfa (Dry)	Total For Crop	1998	ID	D10 North	10		58000	2.31	TON	134000	TON		
Hay Alfalfa (Dry)	Total For Crop	1998	ID	D70 Southwest	70		227000	4.96	TON	1125000	TON		
Hay Alfalfa (Dry)	Total For Crop	1998	ID	D80 South Central	80		305000	4.78	TON	1458000	TON		
Hay Alfalfa (Dry)	Total For Crop	1998	ID	D90 East	90		510000	3.95	TON	2013000	TON		
Hay Alfalfa (Dry)	Total For Crop	1998	ID	State Total	99		1100000	4.3	TON	4730000	TON		
Hay Alfalfa (Dry)	Total For Crop	1999	ID	D10 North	10		75000	2.01	TON	151000	TON		
Hay Alfalfa (Dry)	Total For Crop	1999	ID	D70 Southwest	70		235000	4.72	TON	1109000	TON		
Hay Alfalfa (Dry)	Total For Crop	1999	ID	D80 South Central	80		323000	4.46	TON	1440000	TON		
Hay Alfalfa (Dry)	Total For Crop	1999	ID	D90 East	90		517000	3.68	TON	1900000	TON		
Hay Alfalfa (Dry)	Total For Crop	1999	ID	State Total	99		1150000	4	TON	4600000	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	D10 North	10		69000	2.22	TON	153000	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	D70 Southwest	70		238000	4.92	TON	1172000	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	D80 South Central	80		312000	4.77	TON	1489000	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	D90 East	90		511000	3.78	TON	1932000	TON		
Hay Alfalfa	Total For												

(Dry)	Crop	2000	ID	State Total	99		1130000	4.2	TON	4746000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	D10 North	10		64000	2.03	TON	130000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	D70 Southwest	70		244000	4.74	TON	1156000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	D80 South Central	80		313000	4.43	TON	1386000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	D90 East	90		499000	3.4	TON	1696000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	State Total	99		1120000	3.9	TON	4368000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	D10 North	10		62000	2.02	TON	125000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	D70 Southwest	70		245000	4.9	TON	1200000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	D80 South Central	80		327000	4.52	TON	1479000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	D90 East	90		536000	3.5	TON	1876000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	State Total	99		1170000	4	TON	4680000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	D10 North	10		64000	1.97	TON	126000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	D70 Southwest	70		251000	4.7	TON	1179000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	D80 South Central	80		328000	4.21	TON	1380000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	D90 East	90		557000	3.15	TON	1755000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	State Total	99		1200000	3.7	TON	4440000	TON		

70 Records Displayed

Idaho Crop Group													
Commodity	Practice	Year	State	County	District	Planted	Harvested	Yield	Yield Unit	Production	Production Unit	Sucrose	Sucrose Unit
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Ada	70		27000	5.24	TON	141600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Adams	70		9200	2.61	TON	24000	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Bannock	90		22000	3.01	TON	66300	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Bear Lake	90		37000	2.2	TON	81500	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Benewah	10		1700	1.88	TON	3200	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Bingham	90		37000	4.78	TON	177000	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Blaine	80		22400	3.55	TON	79500	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Boise	70		1600	2.63	TON	4200	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Bonner	10		7400	1.85	TON	13700	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Bonneville	90		43700	3.36	TON	147000	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Boundary	10		10300	3.63	TON	37400	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Butte	90		28000	4.13	TON	115600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Camas	80		43400	1.79	TON	77600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Canyon	70		30000	5.66	TON	169900	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Caribou	90		21000	2.51	TON	52600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Cassia	80		41500	4.57	TON	189800	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Clark	90		13600	4.21	TON	57200	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Clearwater	10		3300	1.79	TON	5900	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Custer	90		22800	2.91	TON	66300	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Elmore	70		13400	5.64	TON	75600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Franklin	90		40100	3.42	TON	137200	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Fremont	90		17700	2.65	TON	46900	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Gem	70		12200	4.15	TON	50600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Gooding	80		43100	4.49	TON	193500	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Idaho	10		18200	2.34	TON	42500	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Jefferson	90		75500	4.62	TON	348700	TON		

Hay Alfalfa (Dry)	Total For Crop	1990	ID	me	80		28900	5.37	TO	155200	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Kootenai	10		4000	2.53	TON	10100	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Latah	10		7300	1.99	TON	14500	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Lemhi	90		28800	3	TON	86400	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Lewis	10		3500	2.14	TON	7500	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Lincoln	80		20300	3.39	TON	68800	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Madison	90		17000	3.64	TON	61900	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Minidoka	80		18800	5.43	TON	102000	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Nez Perce	10		11800	2.21	TON	26100	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Oneida	90		22000	3.1	TON	68100	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Owyhee	70		37200	5.79	TON	215400	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Payette	70		9500	5.19	TON	49300	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Power	90		9500	3.38	TON	32100	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Shoshone	10		500	1.6	TON	800	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Teton	90		15300	2.49	TON	38100	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Twin Falls	80		58600	5.53	TON	324000	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Valley	70		900	1.78	TON	1600	TON		
Hay Alfalfa (Dry)	Total For Crop	1990	ID	Washington	70		23000	3.34	TON	76800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Ada	70		29000	4.55	TON	131900	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Adams	70		8900	2.23	TON	19800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Bannock	90		25900	3.23	TON	83700	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Bear Lake	90		39900	2.68	TON	107000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Benewah	10		1500	1.87	TON	2800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Bingham	90		40100	4.29	TON	171900	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Blaine	80		25000	3.46	TON	86600	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Boise	70		2100	2.48	TON	5200	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Bonner	10		7600	2.05	TON	15600	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Bonneville	90		45800	3.28	TON	150400	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Boundary	10		9800	3.14	TON	30800	TON		

Hay Alfalfa (Dry)	Total For Crop	1991	ID	ıtte	90		32800	3.86	TOI	126600	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Camas	80		50000	.87	TON	43300	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Canyon	70		30600	5.45	TON	166800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Caribou	90		23200	3.82	TON	88500	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Cassia	80		46000	4.33	TON	199200	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Clark	90		10800	3.73	TON	40300	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Clearwater	10		3000	1.87	TON	5600	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Custer	90		24800	2.9	TON	71900	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Elmore	70		18100	5.86	TON	106100	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Franklin	90		36700	3.86	TON	141700	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Fremont	90		18100	2.74	TON	49600	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Gem	70		13100	4.41	TON	57800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Gooding	80		46500	5.01	TON	232800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Idaho	10		22700	1.99	TON	45100	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Jefferson	90		78400	4.53	TON	355100	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Jerome	80		34000	5.06	TON	171900	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Kootenai	10		4300	1.81	TON	7800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Latah	10		8000	1.89	TON	15100	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Lemhi	90		31300	3.05	TON	95300	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Lewis	10		3800	2.37	TON	9000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Lincoln	80		21300	2.73	TON	58200	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Madison	90		17800	3.8	TON	67600	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Minidoka	80		22200	5.05	TON	112000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Nez Perce	10		9800	2.3	TON	22500	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Oneida	90		23700	3.16	TON	74800	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Owyhee	70		38000	4.58	TON	174200	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Payette	70		10500	5.43	TON	57000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Power	90		12800	3.95	TON	50500	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Shoshone	10		500	1.4	TON	700	TON		

Hay Alfalfa (Dry)	Total For Crop	1991	ID	ton	90		16900	2.67	TO	45100	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Twin Falls	80		59000	5.56	TON	328000	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Valley	70		900	2.11	TON	1900	TON		
Hay Alfalfa (Dry)	Total For Crop	1991	ID	Washington	70		24800	3.48	TON	86300	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Ada	70		24000	4.75	TON	114000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Adams	70		5800	1.9	TON	11000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Bannock	90		19400	3.04	TON	58900	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Bear Lake	90		35500	1.81	TON	64200	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Benewah	10		3000	1.1	TON	3300	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Bingham	90		37900	4.67	TON	176900	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Blaine	80		18600	3.3	TON	61400	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Boise	70		3700	2.62	TON	9700	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Bonner	10		4800	2.44	TON	11700	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Bonneville	90		33600	3.47	TON	116700	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Boundary	10		10000	2.94	TON	29400	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Butte	90		27700	3.52	TON	97500	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Camas	80		39500	.66	TON	26000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Canyon	70		25600	5.37	TON	137500	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Caribou	90		20100	2.99	TON	60000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Cassia	80		39000	4.47	TON	174400	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Clark	90		22000	2.88	TON	63400	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Clearwater	10		5800	.59	TON	3400	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Custer	90		25000	3.2	TON	79900	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Elmore	70		13800	5.67	TON	78300	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Franklin	90		31900	3.37	TON	107400	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Fremont	90		17600	2.97	TON	52200	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Gem	70		19100	4.56	TON	87100	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Gooding	80		35200	5.85	TON	205800	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Idaho	10		22800	1.26	TON	28700	TON		

Hay Alfalfa (Dry)	Total For Crop	1992	ID	J son	90		76900	4.46	TO	343200	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Jerome	80		28500	5.56	TON	158600	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Kootenai	10		4100	2.12	TON	8700	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Latah	10		6000	1.55	TON	9300	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Lemhi	90		28200	3.12	TON	88000	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Lewis	10		7000	1.16	TON	8100	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Lincoln	80		18000	3.32	TON	59700	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Madison	90		17700	2.98	TON	52800	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Minidoka	80		18700	5.2	TON	97300	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Nez Perce	10		7300	1.4	TON	10200	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Oneida	90		21100	2.69	TON	56700	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Owyhee	70		25900	6.32	TON	163800	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Payette	70		10400	4.95	TON	51500	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Power	90		9900	3.7	TON	36600	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Shoshone	10		200	1	TON	200	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Teton	90		17500	2.78	TON	48600	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Twin Falls	80		41500	5.59	TON	231800	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Valley	70		700	3	TON	2100	TON		
Hay Alfalfa (Dry)	Total For Crop	1992	ID	Washington	70		29000	2.79	TON	81000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Ada	70		23600	5.09	TON	120100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Adams	70		12400	2.69	TON	33300	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Bannock	90		20400	3.45	TON	70300	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Bear Lake	90		27800	2.82	TON	78300	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Benewah	10		2100	1.43	TON	3000	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Bingham	90		44900	4.33	TON	194500	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Blaine	80		22300	4.29	TON	95700	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Boise	70		6000	2.75	TON	16500	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Bonner	10		5200	2.33	TON	12100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Bonneville	90		35500	3.3	TON	117100	TON		

Hay Alfalfa (Dry)	Total For Crop	1993	ID	E dary	10		9700	3.72	TO	36100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Butte	90		28500	3.5	TON	99800	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Camas	80		64400	1.76	TON	113100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Canyon	70		31500	5.57	TON	175500	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Caribou	90		28100	3	TON	84300	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Cassia	80		53000	4.65	TON	246700	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Clark	90		22900	3.49	TON	79900	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Clearwater	10		3700	2.76	TON	10200	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Custer	90		32000	3.27	TON	104500	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Elmore	70		24300	5.4	TON	131300	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Franklin	90		34800	3.93	TON	136800	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Fremont	90		20900	2.89	TON	60400	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Gem	70		14700	4.64	TON	68200	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Gooding	80		40100	5.45	TON	218400	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Idaho	10		21400	2.26	TON	48300	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Jefferson	90		92700	4.65	TON	431100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Jerome	80		31500	5.11	TON	160900	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Kootenai	10		3800	2.92	TON	11100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Latah	10		6100	2.36	TON	14400	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Lemhi	90		28300	3.04	TON	85900	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Lewis	10		6900	2.7	TON	18600	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Lincoln	80		16300	4.34	TON	70800	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Madison	90		15700	4.08	TON	64100	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Minidoka	80		15800	5.1	TON	80600	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Nez Perce	10		10900	2.72	TON	29700	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Oneida	90		25700	3.67	TON	94400	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Owyhee	70		33000	5.63	TON	185800	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Payette	70		17600	5.01	TON	88200	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Power	90		12900	4.19	TON	54100	TON		

Hay Alfalfa (Dry)	Total For Crop	1993	ID	S one	10		200	2.5	TO	500	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Teton	90		18900	2.67	TON	50500	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Twin Falls	80		46600	5.73	TON	266800	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Valley	70		4000	2.98	TON	11900	TON		
Hay Alfalfa (Dry)	Total For Crop	1993	ID	Washington	70		32900	3.84	TON	126200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Ada	70		25300	5.09	TON	128800	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Adams	70		12000	1.84	TON	22100	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Bannock	90		21700	3.14	TON	68100	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Bear Lake	90		27600	1.82	TON	50200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Benewah	10		1200	1.58	TON	1900	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Bingham	90		45400	4.4	TON	199800	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Blaine	80		19500	3.98	TON	77600	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Boise	70		4400	3.61	TON	15900	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Bonner	10		4600	1.35	TON	6200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Bonneville	90		38300	3.83	TON	146700	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Boundary	10		9900	2.55	TON	25200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Butte	90		28400	3.44	TON	97800	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Camas	80		58700	1.24	TON	73000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Canyon	70		32300	5.46	TON	176500	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Caribou	90		27800	3.17	TON	88200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Cassia	80		49800	4.54	TON	226000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Clark	90		17800	3.89	TON	69200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Clearwater	10		2900	1.97	TON	5700	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Custer	90		28400	2.75	TON	78000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Elmore	70		24500	6.35	TON	155600	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Franklin	90		34000	3.4	TON	115600	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Fremont	90		18800	3.19	TON	60000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Gem	70		14000	4.29	TON	60100	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Gooding	80		39300	5.43	TON	213300	TON		

Hay Alfalfa (Dry)	Total For Crop	1994	ID	aho	10		17400	1.97	TO	34200	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Jefferson	90		94500	4.58	TON	433000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Jerome	80		36700	5.5	TON	201900	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Kootenai	10		3500	2.86	TON	10000	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Latah	10		6200	1.71	TON	10600	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Lemhi	90		25500	2.73	TON	69700	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Lewis	10		7500	1.88	TON	14100	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Lincoln	80		19700	3.57	TON	70400	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Madison	90		17400	4.06	TON	70600	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Minidoka	80		18800	5.6	TON	105300	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Nez Perce	10		6600	2.08	TON	13700	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Oneida	90		22300	3.17	TON	70800	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Owyhee	70		37000	5.52	TON	204400	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Payette	70		13200	5.36	TON	70800	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Power	90		9800	3.97	TON	38900	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Shoshone	10		200	2	TON	400	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Teton	90		17300	2.57	TON	44400	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Twin Falls	80		47500	5.21	TON	247500	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Valley	70		5000	2.66	TON	13300	TON		
Hay Alfalfa (Dry)	Total For Crop	1994	ID	Washington	70		27300	3.39	TON	92500	TON		
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Ada	70	0	27700	5.14	TON	142500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Adams	70	0	12000	2.61	TON	31300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Bannock	90	0	22000	3.08	TON	67700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Bear Lake	90	0	30500	2.54	TON	77400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Benewah	10	0	1400	1.36	TON	1900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Bingham	90	0	52300	4.62	TON	241400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Blaine	80	0	21400	3.92	TON	83900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Boise	70	0	4500	3	TON	13500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Bonner	10	0	3800	2.03	TON	7700	TON	0	

Hay Alfalfa (Dry)	Total For Crop	1995	ID	Bc ille	90	0	43100	3.78	TO	162800	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Boundary	10	0	9900	3.1	TON	30700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Butte	90	0	32400	4.01	TON	130000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Camas	80	0	64000	1.69	TON	108400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Canyon	70	0	37000	5.98	TON	221100	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Caribou	90	0	28900	2.97	TON	85900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Cassia	80	0	54100	4.72	TON	255400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Clark	90	0	16500	3.66	TON	60400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Clearwater	10	0	3200	1.91	TON	6100	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Custer	90	0	29300	3.29	TON	96400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Elmore	70	0	28400	5.29	TON	150200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Franklin	90	0	37800	3.8	TON	143700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Fremont	90	0	20500	2.73	TON	55900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Gem	70	0	15000	4.49	TON	67300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Gooding	80	0	41000	5.22	TON	213900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Idaho	10	0	18400	2.05	TON	37700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Jefferson	90	0	92100	4.51	TON	415200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Jerome	80	0	41300	5.48	TON	226400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Kootenai	10	0	4700	2.68	TON	12600	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Latah	10	0	6700	2.03	TON	13600	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Lemhi	90	0	29000	3.21	TON	93200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Lewis	10	0	8000	2.21	TON	17700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Lincoln	80	0	20300	4.28	TON	86900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Madison	90	0	20100	4.13	TON	83000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Minidoka	80	0	20800	5.72	TON	118900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Nez Perce	10	0	6700	2.46	TON	16500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Oneida	90	0	21900	3.9	TON	85400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Owyhee	70	0	43000	5.89	TON	253300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Payette	70	0	13200	5.33	TON	70300	TON	0	

Hay Alfalfa (Dry)	Total For Crop	1995	ID	wer	90	0	9400	4.17	TO	39200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Shoshone	10	0	200	2.5	TON	500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Teton	90	0	17200	2.58	TON	44400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Twin Falls	80	0	53100	5.65	TON	300200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Valley	70	0	2200	3	TON	6600	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1995	ID	Washington	70	0	35000	3.8	TON	132900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Ada	70	0	24000	4.89	TON	117400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Adams	70	0	9000	2.49	TON	22400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Bannock	90	0	17000	3.45	TON	58700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Bear Lake	90	0	25000	2.32	TON	58000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Benewah	10	0	1400	2.14	TON	3000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Bingham	90	0	41200	5.23	TON	215400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Blaine	80	0	20500	3.66	TON	75100	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Boise	70	0	3800	3.11	TON	11800	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Bonner	10	0	4100	2.27	TON	9300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Bonneville	90	0	36000	4.21	TON	151700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Boundary	10	0	10000	3.25	TON	32500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Butte	90	0	26000	4.07	TON	105800	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Camas	80	0	49000	1.14	TON	55700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Canyon	70	0	35500	6.35	TON	225500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Caribou	90	0	26500	3.33	TON	88300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Cassia	80	0	49200	4.86	TON	239300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Clark	90	0	14000	4.52	TON	63300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Clearwater	10	0	3200	1.34	TON	4300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Custer	90	0	29300	2.89	TON	84800	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Elmore	70	0	27500	5.53	TON	152000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Franklin	90	0	35400	4.19	TON	148500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Fremont	90	0	19300	2.51	TON	48400	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Gem	70	0	11000	4.46	TON	49100	TON	0	

Hay Alfalfa (Dry)	Total For Crop	1996	ID	[illegible]ing	80	0	33900	5.8	TO	196500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Idaho	10	0	20800	1.79	TON	37200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Jefferson	90	0	82000	4.95	TON	406000	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Jerome	80	0	37300	5.88	TON	219500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Kootenai	10	0	5100	2.73	TON	13900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Latah	10	0	6800	1.99	TON	13500	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Lemhi	90	0	28500	3.25	TON	92600	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Lewis	10	0	4500	1.58	TON	7100	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Lincoln	80	0	17100	3.52	TON	60200	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Madison	90	0	20900	3.81	TON	79700	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Minidoka	80	0	20000	5.45	TON	108900	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Nez Perce	10	0	5800	1.78	TON	10300	TON	0	
Hay Alfalfa (Dry)	Total For Crop	1996	ID	Oneida	90	0	23000	3.65	TON	83900	TON	0	

300 Records Displayed

Idaho Crop Group

Commodity	Practice	Year	State	County	District	Planted	Harvested	Yield	Yield Unit	Production	Production Unit	Sucrose	Sucrose Unit
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Ada	70		28600	5	TON	143100	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Adams	70		8000	2.44	TON	19500	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Bannock	90		17400	3.31	TON	57600	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Bear Lake	90		26800	1.66	TON	44400	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Benewah	10		1000	1.8	TON	1800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Bingham	90		52300	4.95	TON	258800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Blaine	80		18400	3.99	TON	73400	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Boise	70		2100	2.38	TON	5000	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Bonner	10		7000	2.17	TON	15200	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Bonneville	90		34000	3.78	TON	128500	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Boundary	10		10000	3.49	TON	34900	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Butte	90		29000	4.26	TON	123600	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Camas	80		45000	1.38	TON	62100	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Canyon	70		50000	5.92	TON	296000	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Caribou	90		27000	2.81	TON	75800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Cassia	80		47600	4.84	TON	230200	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Clark	90		21100	4.21	TON	88900	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Clearwater	10		4300	1.79	TON	7700	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Custer	90		27000	2.86	TON	77200	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Elmore	70		38300	5.56	TON	213100	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Franklin	90		47000	3.94	TON	185300	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Fremont	90		27300	3.47	TON	94800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Gem	70		15500	3.6	TON	55800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Gooding	80		39900	5.93	TON	236800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Idaho	10		22600	1.93	TON	43700	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Jefferson	90		98400	4.85	TON	477600	TON		

Hay Alfalfa (Dry)	Total For Crop	2000	ID	ome	80		48000	5.56	TC	266800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Kootenai	10		5300	2.81	TON	14900	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Latah	10		5400	1.74	TON	9400	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Lemhi	90		28800	3.19	TON	91800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Lewis	10		7000	2.09	TON	14600	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Lincoln	80		20100	4.38	TON	88100	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Madison	90		20000	4.1	TON	81900	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Minidoka	80		25900	5.43	TON	140700	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Nez Perce	10		6300	1.7	TON	10700	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Oneida	90		26500	2.51	TON	66500	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Owyhee	70		48900	5.53	TON	270400	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Payette	70		12900	5.25	TON	67700	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Power	90		9900	3.78	TON	37400	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Teton	90		18500	2.26	TON	41900	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Twin Falls	80		67100	5.83	TON	390900	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Valley	70		2100	2.76	TON	5800	TON		
Hay Alfalfa (Dry)	Total For Crop	2000	ID	Washington	70		31600	3.03	TON	95600	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Ada	70		29000	4.86	TON	141000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Adams	70		9200	2.3	TON	21200	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Bannock	90		18600	2.25	TON	41800	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Bear Lake	90		28300	1.6	TON	45400	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Bingham	90		54300	4.35	TON	236400	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Blaine	80		19500	3.36	TON	65500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Boise	70		1800	2.5	TON	4500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Bonner	10		5900	1.97	TON	11600	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Bonneville	90		34500	3.51	TON	121000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Boundary	10		10500	2.58	TON	27100	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Butte	90		27800	3.44	TON	95600	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Camas	80		44000	.89	TON	39300	TON		

Hay Alfalfa (Dry)	Total For Crop	2001	ID	,yon	70		51100	6.13	TC	313200	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Caribou	90		26500	2.4	TON	63500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Cassia	80		51400	4.44	TON	228200	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Clark	90		19000	4.12	TON	78300	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Clearwater	10		3200	1.78	TON	5700	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Custer	90		27000	2.93	TON	79000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Elmore	70		38900	4.57	TON	177600	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Franklin	90		44000	3.28	TON	144200	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Fremont	90		26200	2.84	TON	74500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Gem	70		15000	3.78	TON	56700	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Gooding	80		34600	6.03	TON	208800	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Idaho	10		19700	1.75	TON	34500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Jefferson	90		91500	4.57	TON	417800	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Jerome	80		48500	5.59	TON	271000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Kootenai	10		3800	2.97	TON	11300	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Latah	10		5700	1.79	TON	10200	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Lemhi	90		27200	2.79	TON	76000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Lewis	10		7500	2.13	TON	16000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Lincoln	80		19000	3.69	TON	70200	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Madison	90		21000	3.67	TON	77100	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Minidoka	80		26800	5.22	TON	140000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Nez Perce	10		6500	1.77	TON	11500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Oneida	90		26500	2.6	TON	68900	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Owyhee	70		49700	5.37	TON	266800	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Payette	70		14000	5.11	TON	71500	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Power	90		11200	3.85	TON	43100	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Teton	90		15400	2.17	TON	33400	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Twin Falls	80		69200	5.25	TON	363000	TON		
Hay Alfalfa (Dry)	Total For Crop	2001	ID	Valley	70		2300	2.83	TON	6500	TON		

Hay Alfalfa (Dry)	Total For Crop	2001	ID	W gton	70		33000	2.94	TC	97000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Ada	70		28400	4.5	TON	127900	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Adams	70		9500	2.16	TON	20500	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Bannock	90		23000	2.7	TON	62100	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Bear Lake	90		30900	1.63	TON	50500	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Bingham	90		67000	4.24	TON	284200	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Blaine	80		19800	3.67	TON	72700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Boise	70		1600	2.31	TON	3700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Bonner	10		5400	1.8	TON	9700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Bonneville	90		34700	3.7	TON	128400	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Boundary	10		10700	2.73	TON	29200	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Butte	90		31100	3.8	TON	118100	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Camas	80		45700	1.44	TON	65600	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Canyon	70		50600	5.94	TON	300700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Caribou	90		27500	2.6	TON	71500	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Cassia	80		61500	4.81	TON	295700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Clark	90		20100	4.41	TON	88700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Clearwater	10		3000	1.9	TON	5700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Custer	90		28400	2.56	TON	72800	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Elmore	70		36500	5.36	TON	195700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Franklin	90		43500	3.3	TON	143600	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Fremont	90		24000	3.17	TON	76000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Gem	70		14800	4.85	TON	71800	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Gooding	80		33000	5.25	TON	173300	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Idaho	10		19700	1.66	TON	32700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Jefferson	90		97500	4.68	TON	456600	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Jerome	80		42000	5.68	TON	238600	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Kootenai	10		4100	2.37	TON	9700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Latah	10		5600	2.09	TON	11700	TON		

Hay Alfalfa (Dry)	Total For Crop	2002	ID	mhi	90		27600	2.5	TC	68900	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Lewis	10		6800	1.93	TON	13100	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Lincoln	80		24000	3.77	TON	90400	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Madison	90		20500	3.95	TON	80900	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Minidoka	80		30800	5.27	TON	162400	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Nez Perce	10		6000	2.02	TON	12100	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Oneida	90		32500	3	TON	97500	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Owyhee	70		51500	5.7	TON	293700	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Payette	70		14500	4.88	TON	70800	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Power	90		12500	3.2	TON	40000	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Teton	90		15200	2.38	TON	36200	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Twin Falls	80		70200	5.42	TON	380300	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Valley	70		2600	2.65	TON	6900	TON		
Hay Alfalfa (Dry)	Total For Crop	2002	ID	Washington	70		35000	3.09	TON	108300	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Ada	70		28900	3.75	TON	108500	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Adams	70		9900	2.2	TON	21800	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Bannock	90		22300	2.12	TON	47200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Bear Lake	90		34500	1.56	TON	53700	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Bingham	90		66900	3.83	TON	256000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Blaine	80		19000	3.64	TON	69100	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Boise	70		1400	1.79	TON	2500	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Bonner	10		5200	1.69	TON	8800	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Bonneville	90		38800	3.2	TON	124000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Boundary	10		12800	2.58	TON	33000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Butte	90		33600	3.3	TON	111000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Camas	80		51500	1.17	TON	60400	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Canyon	70		52100	5.43	TON	282900	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Caribou	90		28700	1.89	TON	54300	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Cassia	80		58300	4.21	TON	245600	TON		

Hay Alfalfa (Dry)	Total For Crop	2003	ID	lark	90		20400	4.39	TC	89500	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Clearwater	10		3000	1.67	TON	5000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Custer	90		27200	2.24	TON	60800	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Elmore	70		40000	5.22	TON	208800	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Franklin	90		45200	3.07	TON	138900	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Fremont	90		24000	2.89	TON	69300	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Gem	70		15400	4.88	TON	75200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Gooding	80		31400	4.74	TON	148900	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Idaho	10		20400	1.66	TON	33800	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Jefferson	90		101700	4.55	TON	463200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Jerome	80		42100	5.73	TON	241300	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Kootenai	10		5000	2.08	TON	10400	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Latah	10		5300	2.13	TON	11300	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Lemhi	90		29100	2.31	TON	67200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Lewis	10		6400	1.95	TON	12500	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Lincoln	80		24000	3.84	TON	92200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Madison	90		21600	3.13	TON	67500	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Minidoka	80		28900	5.27	TON	152400	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Nez Perce	10		5200	2	TON	10400	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Oneida	90		33700	2.74	TON	92500	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Owyhee	70		48600	5.57	TON	270800	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Payette	70		15100	4.98	TON	75200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Power	90		12800	2.96	TON	37900	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Teton	90		16500	1.33	TON	22000	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Twin Falls	80		72800	5.08	TON	370100	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Valley	70		2900	2.83	TON	8200	TON		
Hay Alfalfa (Dry)	Total For Crop	2003	ID	Washington	70		36700	3.41	TON	125100	TON		

169 Records Displayed

Idaho Crop Group													
Commodity	Practice	Year	State	County	District	Planted	Harvested	Yield	Yield Unit	Production	Production Unit	Sucrose	Sucrose Unit
Corn For Silage	Total For Crop	1990	ID	Ada	70		7000	23.3	TON	163000	TON		
Corn For Silage	Total For Crop	1990	ID	Bingham	90		800	17.5	TON	14000	TON		
Corn For Silage	Total For Crop	1990	ID	Bonneville	90		700	20	TON	14000	TON		
Corn For Silage	Total For Crop	1990	ID	Canyon	70		13500	25	TON	338000	TON		
Corn For Silage	Total For Crop	1990	ID	Cassia	80		2200	23.2	TON	51000	TON		
Corn For Silage	Total For Crop	1990	ID	Elmore	70		1100	21.8	TON	24000	TON		
Corn For Silage	Total For Crop	1990	ID	Franklin	90		1300	19.2	TON	25000	TON		
Corn For Silage	Total For Crop	1990	ID	Gem	70		2800	21.4	TON	60000	TON		
Corn For Silage	Total For Crop	1990	ID	Gooding	80		7300	25.3	TON	185000	TON		
Corn For Silage	Total For Crop	1990	ID	Jefferson	90		3200	20	TON	64000	TON		
Corn For Silage	Total For Crop	1990	ID	Jerome	80		8500	24.1	TON	205000	TON		
Corn For Silage	Total For Crop	1990	ID	Lincoln	80		1800	17.2	TON	31000	TON		
Corn For Silage	Total For Crop	1990	ID	Madison	90		400	17.5	TON	7000	TON		
Corn For Silage	Total For Crop	1990	ID	Minidoka	80		1700	22.4	TON	38000	TON		
Corn For Silage	Total For Crop	1990	ID	Owyhee	70		5300	21.7	TON	115000	TON		
Corn For Silage	Total For Crop	1990	ID	Payette	70		2900	25.2	TON	73000	TON		
Corn For Silage	Total For Crop	1990	ID	Twin Falls	80		4600	22.2	TON	102000	TON		
Corn For Silage	Total For Crop	1990	ID	Washington	70		1900	21.1	TON	40000	TON		
Corn For Silage	Total For Crop	1991	ID	Ada	70		5500	25.3	TON	139000	TON		
Corn For Silage	Total For Crop	1991	ID	Bingham	90		800	18.8	TON	15000	TON		
Corn For Silage	Total For Crop	1991	ID	Bonneville	90		800	20	TON	16000	TON		
Corn For Silage	Total For Crop	1991	ID	Canyon	70		8600	24.5	TON	211000	TON		
Corn For Silage	Total For Crop	1991	ID	Cassia	80		3100	23.2	TON	72000	TON		
Corn For Silage	Total For Crop	1991	ID	Elmore	70		1800	27.8	TON	50000	TON		
Corn For Silage	Total For Crop	1991	ID	Franklin	90		1000	20	TON	20000	TON		
Corn For Silage	Total For Crop	1991	ID	Gem	70		3000	24.3	TON	73000	TON		

Corn For Silage	Total For Crop	1991	ID	C ag	80		7200	24	TOI	173000	TON		
Corn For Silage	Total For Crop	1991	ID	Jefferson	90		4200	19.3	TON	81000	TON		
Corn For Silage	Total For Crop	1991	ID	Jerome	80		6300	24.8	TON	156000	TON		
Corn For Silage	Total For Crop	1991	ID	Lincoln	80		2900	16.2	TON	47000	TON		
Corn For Silage	Total For Crop	1991	ID	Madison	90		700	15.7	TON	11000	TON		
Corn For Silage	Total For Crop	1991	ID	Minidoka	80		1800	20	TON	36000	TON		
Corn For Silage	Total For Crop	1991	ID	Owyhee	70		3000	24.3	TON	73000	TON		
Corn For Silage	Total For Crop	1991	ID	Payette	70		2500	26.8	TON	67000	TON		
Corn For Silage	Total For Crop	1991	ID	Twin Falls	80		3600	21.4	TON	77000	TON		
Corn For Silage	Total For Crop	1991	ID	Washington	70		2000	22	TON	44000	TON		
Corn For Silage	Total For Crop	1992	ID	Ada	70		2500	24.4	TON	61000	TON		
Corn For Silage	Total For Crop	1992	ID	Bingham	90		500	16	TON	8000	TON		
Corn For Silage	Total For Crop	1992	ID	Canyon	70		12700	24.3	TON	308000	TON		
Corn For Silage	Total For Crop	1992	ID	Cassia	80		2800	24.3	TON	68000	TON		
Corn For Silage	Total For Crop	1992	ID	Elmore	70		1100	21.8	TON	24000	TON		
Corn For Silage	Total For Crop	1992	ID	Franklin	90		1200	17.5	TON	21000	TON		
Corn For Silage	Total For Crop	1992	ID	Gem	70		4400	24.1	TON	106000	TON		
Corn For Silage	Total For Crop	1992	ID	Gooding	80		8200	28.7	TON	235000	TON		
Corn For Silage	Total For Crop	1992	ID	Jefferson	90		2700	15.2	TON	41000	TON		
Corn For Silage	Total For Crop	1992	ID	Jerome	80		7200	25.4	TON	183000	TON		
Corn For Silage	Total For Crop	1992	ID	Lincoln	80		3900	13.3	TON	52000	TON		
Corn For Silage	Total For Crop	1992	ID	Minidoka	80		1300	20	TON	26000	TON		
Corn For Silage	Total For Crop	1992	ID	Owyhee	70		2200	31.8	TON	70000	TON		
Corn For Silage	Total For Crop	1992	ID	Payette	70		600	26.7	TON	16000	TON		
Corn For Silage	Total For Crop	1992	ID	Twin Falls	80		3900	21.8	TON	85000	TON		
Corn For Silage	Total For Crop	1992	ID	Washington	70		700	22.9	TON	16000	TON		
Corn For Silage	Total For Crop	1993	ID	Ada	70		4600	23.3	TON	107000	TON		
Corn For Silage	Total For Crop	1993	ID	Bingham	90		500	16	TON	8000	TON		
Corn For Silage	Total For Crop	1993	ID	Canyon	70		16600	26.1	TON	433000	TON		

Corn For Silage	Total For Crop	1993	ID	sia	80		4300	22.1	TO	95000	TON		
Corn For Silage	Total For Crop	1993	ID	Elmore	70		1000	25	TON	25000	TON		
Corn For Silage	Total For Crop	1993	ID	Franklin	90		1600	21.3	TON	34000	TON		
Corn For Silage	Total For Crop	1993	ID	Gem	70		4700	24.3	TON	114000	TON		
Corn For Silage	Total For Crop	1993	ID	Gooding	80		9300	25.2	TON	234000	TON		
Corn For Silage	Total For Crop	1993	ID	Jefferson	90		4000	17.8	TON	71000	TON		
Corn For Silage	Total For Crop	1993	ID	Jerome	80		9300	22	TON	205000	TON		
Corn For Silage	Total For Crop	1993	ID	Lincoln	80		4900	14.5	TON	71000	TON		
Corn For Silage	Total For Crop	1993	ID	Madison	90		300	13.3	TON	4000	TON		
Corn For Silage	Total For Crop	1993	ID	Minidoka	80		1200	15	TON	18000	TON		
Corn For Silage	Total For Crop	1993	ID	Owyhee	70		4100	23.2	TON	95000	TON		
Corn For Silage	Total For Crop	1993	ID	Payette	70		2200	22.7	TON	50000	TON		
Corn For Silage	Total For Crop	1993	ID	Twin Falls	80		5700	20	TON	114000	TON		
Corn For Silage	Total For Crop	1993	ID	Washington	70		1400	23.6	TON	33000	TON		
Corn For Silage	Total For Crop	1994	ID	Ada	70		3100	24.6	TON	76300	TON		
Corn For Silage	Total For Crop	1994	ID	Canyon	70		14000	24.7	TON	345700	TON		
Corn For Silage	Total For Crop	1994	ID	Cassia	80		4300	21	TON	90200	TON		
Corn For Silage	Total For Crop	1994	ID	Elmore	70		300	27.7	TON	8300	TON		
Corn For Silage	Total For Crop	1994	ID	Franklin	90		1600	20.3	TON	32400	TON		
Corn For Silage	Total For Crop	1994	ID	Gem	70		3800	26	TON	98800	TON		
Corn For Silage	Total For Crop	1994	ID	Gooding	80		8000	24.3	TON	194000	TON		
Corn For Silage	Total For Crop	1994	ID	Jefferson	90		2900	19.4	TON	56200	TON		
Corn For Silage	Total For Crop	1994	ID	Jerome	80		7300	24.5	TON	179100	TON		
Corn For Silage	Total For Crop	1994	ID	Lincoln	80		2300	20.6	TON	47400	TON		
Corn For Silage	Total For Crop	1994	ID	Minidoka	80		1200	24	TON	28800	TON		
Corn For Silage	Total For Crop	1994	ID	Owyhee	70		3400	26.3	TON	89400	TON		
Corn For Silage	Total For Crop	1994	ID	Payette	70		2000	24.1	TON	48200	TON		
Corn For Silage	Total For Crop	1994	ID	Twin Falls	80		5800	21	TON	121800	TON		
Corn For Silage	Total For Crop	1994	ID	Washington	70		700	23.9	TON	16700	TON		

Corn For Silage	Total For Crop	1995	ID	ada	70		3000	25.7	TO	77000	TON		
Corn For Silage	Total For Crop	1995	ID	Bingham	90		400	22.8	TON	9100	TON		
Corn For Silage	Total For Crop	1995	ID	Canyon	70		10800	26.8	TON	289000	TON		
Corn For Silage	Total For Crop	1995	ID	Cassia	80		4500	22.8	TON	102600	TON		
Corn For Silage	Total For Crop	1995	ID	Elmore	70		400	25	TON	10000	TON		
Corn For Silage	Total For Crop	1995	ID	Franklin	90		1600	20.6	TON	33000	TON		
Corn For Silage	Total For Crop	1995	ID	Gem	70		5600	22.8	TON	127800	TON		
Corn For Silage	Total For Crop	1995	ID	Gooding	80		7300	23.8	TON	174000	TON		
Corn For Silage	Total For Crop	1995	ID	Jefferson	90		1400	20.1	TON	28200	TON		
Corn For Silage	Total For Crop	1995	ID	Jerome	80		5700	24	TON	136800	TON		
Corn For Silage	Total For Crop	1995	ID	Lincoln	80		2900	15.8	TON	45800	TON		
Corn For Silage	Total For Crop	1995	ID	Minidoka	80		1500	19.5	TON	29300	TON		
Corn For Silage	Total For Crop	1995	ID	Owyhee	70		2900	23.8	TON	69100	TON		
Corn For Silage	Total For Crop	1995	ID	Payette	70		1800	27.4	TON	49300	TON		
Corn For Silage	Total For Crop	1995	ID	Twin Falls	80		6600	23	TON	151700	TON		
Corn For Silage	Total For Crop	1995	ID	Washington	70		600	23	TON	13800	TON		
Corn For Silage	Total For Crop	1996	ID	Ada	70		4400	23.4	TON	103000	TON		
Corn For Silage	Total For Crop	1996	ID	Canyon	70		10000	26.2	TON	262000	TON		
Corn For Silage	Total For Crop	1996	ID	Cassia	80		3600	21.4	TON	77000	TON		
Corn For Silage	Total For Crop	1996	ID	Elmore	70		1100	18.7	TON	20600	TON		
Corn For Silage	Total For Crop	1996	ID	Franklin	90		1900	18.9	TON	36000	TON		
Corn For Silage	Total For Crop	1996	ID	Gem	70		4000	25	TON	100000	TON		
Corn For Silage	Total For Crop	1996	ID	Gooding	80		10300	27.8	TON	286000	TON		
Corn For Silage	Total For Crop	1996	ID	Jerome	80		10000	25.6	TON	256000	TON		
Corn For Silage	Total For Crop	1996	ID	Lincoln	80		3100	20.6	TON	64000	TON		
Corn For Silage	Total For Crop	1996	ID	Minidoka	80		1400	23.6	TON	33000	TON		
Corn For Silage	Total For Crop	1996	ID	Owyhee	70		3500	25.1	TON	88000	TON		
Corn For Silage	Total For Crop	1996	ID	Payette	70		1900	25.3	TON	48000	TON		
Corn For Silage	Total For Crop	1996	ID	Twin Falls	80		9000	20.7	TON	186000	TON		

Corn For Silage	Total For Crop	1996	ID	Was on	70		700	23.1	TO	16200	TON		
Corn For Silage	Total For Crop	1997	ID	Ada	70		5900	25.8	TON	152000	TON		
Corn For Silage	Total For Crop	1997	ID	Canyon	70		7500	25.3	TON	190000	TON		
Corn For Silage	Total For Crop	1997	ID	Cassia	80		4300	24.7	TON	106000	TON		
Corn For Silage	Total For Crop	1997	ID	Elmore	70		1200	22.9	TON	27500	TON		
Corn For Silage	Total For Crop	1997	ID	Franklin	90		2100	24.3	TON	51000	TON		
Corn For Silage	Total For Crop	1997	ID	Gem	70		1900	24.7	TON	47000	TON		
Corn For Silage	Total For Crop	1997	ID	Gooding	80		17800	28.4	TON	506000	TON		
Corn For Silage	Total For Crop	1997	ID	Jefferson	90		2300	21.3	TON	49000	TON		
Corn For Silage	Total For Crop	1997	ID	Jerome	80		12200	27.1	TON	331000	TON		
Corn For Silage	Total For Crop	1997	ID	Lincoln	80		3200	20.3	TON	65000	TON		
Corn For Silage	Total For Crop	1997	ID	Minidoka	80		1400	23.6	TON	33000	TON		
Corn For Silage	Total For Crop	1997	ID	Owyhee	70		2900	25.9	TON	75000	TON		
Corn For Silage	Total For Crop	1997	ID	Payette	70		2200	24.1	TON	53000	TON		
Corn For Silage	Total For Crop	1997	ID	Twin Falls	80		11800	24.1	TON	284000	TON		
Corn For Silage	Total For Crop	1997	ID	Washington	70		1200	24	TON	28800	TON		
Corn For Silage	Total For Crop	1998	ID	Ada	70		7200	25.6	TON	184000	TON		
Corn For Silage	Total For Crop	1998	ID	Canyon	70		9900	26.8	TON	265000	TON		
Corn For Silage	Total For Crop	1998	ID	Cassia	80		7800	27.2	TON	212000	TON		
Corn For Silage	Total For Crop	1998	ID	Elmore	70		600	22	TON	13200	TON		
Corn For Silage	Total For Crop	1998	ID	Franklin	90		2200	22.7	TON	50000	TON		
Corn For Silage	Total For Crop	1998	ID	Gem	70		2100	23.3	TON	49000	TON		
Corn For Silage	Total For Crop	1998	ID	Gooding	80		16300	28.1	TON	458000	TON		
Corn For Silage	Total For Crop	1998	ID	Jefferson	90		2900	20.7	TON	60000	TON		
Corn For Silage	Total For Crop	1998	ID	Jerome	80		12600	26.8	TON	338000	TON		
Corn For Silage	Total For Crop	1998	ID	Lincoln	80		3600	22.8	TON	82000	TON		
Corn For Silage	Total For Crop	1998	ID	Minidoka	80		1700	23.5	TON	40000	TON		
Corn For Silage	Total For Crop	1998	ID	Owyhee	70		3700	25.7	TON	95000	TON		
Corn For Silage	Total For Crop	1998	ID	Payette	70		2700	24.4	TON	66000	TON		

Corn For Silage	Total For Crop	1998	ID	Tw ills	80		14100	23.1	TO	326000	TON		
Corn For Silage	Total For Crop	1998	ID	Washington	70		1100	25.3	TON	27800	TON		
Corn For Silage	Total For Crop	1999	ID	Ada	70		7400	24.6	TON	182000	TON		
Corn For Silage	Total For Crop	1999	ID	Bingham	90		1200	21.7	TON	26000	TON		
Corn For Silage	Total For Crop	1999	ID	Canyon	70		13100	25.3	TON	332000	TON		
Corn For Silage	Total For Crop	1999	ID	Cassia	80		8500	24.9	TON	212000	TON		
Corn For Silage	Total For Crop	1999	ID	Elmore	70		900	25.2	TON	22700	TON		
Corn For Silage	Total For Crop	1999	ID	Franklin	90		2300	23	TON	53000	TON		
Corn For Silage	Total For Crop	1999	ID	Gem	70		3600	24.7	TON	89000	TON		
Corn For Silage	Total For Crop	1999	ID	Gooding	80		16800	27.4	TON	460000	TON		
Corn For Silage	Total For Crop	1999	ID	Jefferson	90		2800	17.9	TON	50000	TON		
Corn For Silage	Total For Crop	1999	ID	Jerome	80		17000	25.4	TON	432000	TON		
Corn For Silage	Total For Crop	1999	ID	Lincoln	80		4600	19.8	TON	91000	TON		
Corn For Silage	Total For Crop	1999	ID	Minidoka	80		2400	22.1	TON	53000	TON		
Corn For Silage	Total For Crop	1999	ID	Owyhee	70		3600	23.6	TON	85000	TON		
Corn For Silage	Total For Crop	1999	ID	Payette	70		3500	23.4	TON	82000	TON		
Corn For Silage	Total For Crop	1999	ID	Twin Falls	80		15700	23.7	TON	372000	TON		
Corn For Silage	Total For Crop	1999	ID	Washington	70		1000	25	TON	25000	TON		
Corn For Silage	Total For Crop	2000	ID	Ada	70		8700	24.1	TON	210000	TON		
Corn For Silage	Total For Crop	2000	ID	Bingham	90		1800	21.7	TON	39000	TON		
Corn For Silage	Total For Crop	2000	ID	Bonneville	90		1900	21.1	TON	40000	TON		
Corn For Silage	Total For Crop	2000	ID	Canyon	70		16800	26.1	TON	438000	TON		
Corn For Silage	Total For Crop	2000	ID	Cassia	80		12400	25.6	TON	317000	TON		
Corn For Silage	Total For Crop	2000	ID	Elmore	70		1600	21.9	TON	35000	TON		
Corn For Silage	Total For Crop	2000	ID	Franklin	90		2500	23.6	TON	59000	TON		
Corn For Silage	Total For Crop	2000	ID	Gem	70		3700	24.6	TON	91000	TON		
Corn For Silage	Total For Crop	2000	ID	Gooding	80		16500	27.9	TON	460000	TON		
Corn For Silage	Total For Crop	2000	ID	Jefferson	90		3600	20.6	TON	74000	TON		
Corn For Silage	Total For Crop	2000	ID	Jerome	80		22600	26.3	TON	594000	TON		

Corn For Silage	Total For Crop	2000	ID	oln	80		5300	21.9	TO	116000	TON		
Corn For Silage	Total For Crop	2000	ID	Minidoka	80		3400	23.8	TON	81000	TON		
Corn For Silage	Total For Crop	2000	ID	Owyhee	70		7100	25.6	TON	182000	TON		
Corn For Silage	Total For Crop	2000	ID	Payette	70		4600	21.7	TON	100000	TON		
Corn For Silage	Total For Crop	2000	ID	Power	90		1500	17.9	TON	26900	TON		
Corn For Silage	Total For Crop	2000	ID	Twin Falls	80		18900	24.8	TON	468000	TON		
Corn For Silage	Total For Crop	2000	ID	Washington	70		1000	24	TON	24000	TON		
Corn For Silage	Total For Crop	2001	ID	Ada	70		7100	24.8	TON	176100	TON		
Corn For Silage	Total For Crop	2001	ID	Bingham	90		2000	22	TON	44000	TON		
Corn For Silage	Total For Crop	2001	ID	Bonneville	90		1700	23	TON	39100	TON		
Corn For Silage	Total For Crop	2001	ID	Canyon	70		14500	26.6	TON	385000	TON		
Corn For Silage	Total For Crop	2001	ID	Cassia	80		10900	23.6	TON	257300	TON		
Corn For Silage	Total For Crop	2001	ID	Elmore	70		1000	19	TON	19000	TON		
Corn For Silage	Total For Crop	2001	ID	Franklin	90		2200	20	TON	44000	TON		
Corn For Silage	Total For Crop	2001	ID	Gem	70		2300	23	TON	52900	TON		
Corn For Silage	Total For Crop	2001	ID	Gooding	80		20300	27.5	TON	557900	TON		
Corn For Silage	Total For Crop	2001	ID	Jefferson	90		3300	17.6	TON	58000	TON		
Corn For Silage	Total For Crop	2001	ID	Jerome	80		23200	26.3	TON	609900	TON		
Corn For Silage	Total For Crop	2001	ID	Lincoln	80		3400	25.7	TON	87400	TON		
Corn For Silage	Total For Crop	2001	ID	Minidoka	80		2900	19.7	TON	57200	TON		
Corn For Silage	Total For Crop	2001	ID	Owyhee	70		6700	25	TON	167300	TON		
Corn For Silage	Total For Crop	2001	ID	Payette	70		4000	26.6	TON	106500	TON		
Corn For Silage	Total For Crop	2001	ID	Power	90		100	20	TON	2000	TON		
Corn For Silage	Total For Crop	2001	ID	Twin Falls	80		17700	24	TON	425300	TON		
Corn For Silage	Total For Crop	2001	ID	Washington	70		1100	22.9	TON	25200	TON		
Corn For Silage	Total For Crop	2002	ID	Ada	70		8000	25.5	TON	204000	TON		
Corn For Silage	Total For Crop	2002	ID	Bingham	90		3200	22.3	TON	71500	TON		
Corn For Silage	Total For Crop	2002	ID	Bonneville	90		2400	24.6	TON	59000	TON		
Corn For Silage	Total For Crop	2002	ID	Canyon	70		12500	26	TON	325000	TON		

Corn For Silage	Total For Crop	2002	ID	sia	80		12700	25.2	TO	320000	TON		
Corn For Silage	Total For Crop	2002	ID	Elmore	70		2400	21.3	TON	51200	TON		
Corn For Silage	Total For Crop	2002	ID	Franklin	90		2600	23.5	TON	61200	TON		
Corn For Silage	Total For Crop	2002	ID	Gem	70		1900	23	TON	43700	TON		
Corn For Silage	Total For Crop	2002	ID	Gooding	80		32800	28.6	TON	936800	TON		
Corn For Silage	Total For Crop	2002	ID	Jefferson	90		3400	20	TON	68000	TON		
Corn For Silage	Total For Crop	2002	ID	Jerome	80		19000	26.3	TON	500000	TON		
Corn For Silage	Total For Crop	2002	ID	Lincoln	80		3900	25.4	TON	99000	TON		
Corn For Silage	Total For Crop	2002	ID	Minidoka	80		3000	23.8	TON	71400	TON		
Corn For Silage	Total For Crop	2002	ID	Owyhee	70		6500	26.3	TON	171000	TON		
Corn For Silage	Total For Crop	2002	ID	Payette	70		3400	25.4	TON	86500	TON		
Corn For Silage	Total For Crop	2002	ID	Twin Falls	80		19800	26	TON	514800	TON		
Corn For Silage	Total For Crop	2003	ID	Ada	70		8300	27.7	TON	230000	TON		
Corn For Silage	Total For Crop	2003	ID	Bingham	90		2300	23.5	TON	54000	TON		
Corn For Silage	Total For Crop	2003	ID	Canyon	70		13000	27.6	TON	359000	TON		
Corn For Silage	Total For Crop	2003	ID	Franklin	90		2100	22.5	TON	47200	TON		
Corn For Silage	Total For Crop	2003	ID	Gem	70		2200	25.5	TON	56000	TON		
Corn For Silage	Total For Crop	2003	ID	Gooding	80		23400	27.2	TON	637000	TON		
Corn For Silage	Total For Crop	2003	ID	Jefferson	90		4200	21	TON	88000	TON		
Corn For Silage	Total For Crop	2003	ID	Jerome	80		22600	26.1	TON	590000	TON		
Corn For Silage	Total For Crop	2003	ID	Lincoln	80		3000	25	TON	75000	TON		
Corn For Silage	Total For Crop	2003	ID	Owyhee	70		5400	25.9	TON	140000	TON		
Corn For Silage	Total For Crop	2003	ID	Payette	70		3200	25.4	TON	81300	TON		
Corn For Silage	Total For Crop	2003	ID	Twin Falls	80		20800	26	TON	541000	TON		

224 Records Displayed