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MAY 15 2009

DEPT. OF WATER RESOURCES
SOUTHERN REGION

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No.: 37-8814

1. Owner: Four Brothers Dairy Inc. Phone No.: (208) 886-7716
Current Address: 425 N. 250 W. Shoshone, Idaho 83352
2. Accompanied by: _____ Exam Date: _____
Address: _____ Phone No.: _____
Relationship to Permit Holder: _____
3. Source: Ground Water tributary to _____

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 36-10446
2. Other water rights with the same point of diversion: 36-10446

C. DIVERSION AND DELIVERY SYSTEM

- 1. Point(s) of Diversion:**

[illegible]

2. **Place(s) of Use:** Indicate Method of Determination: Field Verified

[illegible]

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ ditch size/ pipe i.d. as applicable.

See Attached Grid sheet

- ☐ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (*required*).
- ☒ Aerial photo attached (*required for irrigation of 10+ acres*).
- ☒ Photo of diversion and system attached.

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
EAST WELL	FRANKLIN	7.5	8LB6	SUBMERSIBLE	?
WEST WELL	?	5	L40P4J5	SUBMERSIBLE	?

(Information provided by Eaton Drilling)

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration

2. Measurements: Calibrated 55 gallon drum, timed volume measurements taken in field.
- _____
- _____
- _____

E. NARRATIVE / REMARKS / COMMENTS

West well – Under tire, submersible, photographed & GPS location taken, Sanitary cap – piped to meter. No IDWR tag.

East well – submersible drilled Feb 1983 8" hole, in tire, All power for wells in Barn 1 circuit panel where well could be isolated.

Flow meter, Muster Meter 2659046, Range 0-100 GPM 2" meter. Totalizer 100 Gal. Read at 069321 Q=approx. 23 GPM (
(timed second hand)

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

F. **FLOW CALCULATIONS**

☐ Additional Computation Sheets Attached

Measured Method: _____

G. **VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____

$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____

$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses:

H. **RECOMMENDATIONS**

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
<u>Stockwater</u>	<u>1/1</u>	<u>12/31</u>	<u>.1</u>	<u>47.0</u>
<u>Commercial</u>	<u>1/1</u>	<u>12/31</u>	<u>.1</u>	<u>19.3</u>
_____	_____	_____	_____	_____
TOTALS:			<u>.1</u>	<u>66.3</u>

2. Recommended Amendments

- ☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. **AUTHENTICATION**

Field Examiner's Name: Charles E. Brockway

Date: 5/12/09

Reviewer: _____

Date: _____



BENEFICIAL USE FIELD EXAM NARRATIVE
FOUR BROTHERS DAIRY INC.
PERMIT 37-8814
BROCKWAY ENGINEERING, PLLC.
ALR – May 5, 2009

Permit 37-8814 has a 7/10/1983 priority date; Ground water source (confirmed); Stock water & Commercial Use (confirmed); permit list 0.10 cfs; two ground water POD located in NESE Sec. 08, T.05S., R.17E. (confirmed); Place of Use in NESE of Section 5 (confirmed); permits list stockwater use for 1200 dairy cattle and commercial use for dairy.

FIELD VISIT 12-23-2008

Charles E. Brockway & Amy Runser of Brockway Engineering PPC, as well as Mr. Andrew Fitzgerald where present at the December 23, 2008 field visit. The two POD's are wells located in the NESE Section 8 of T.05S., R.17E. Both PODs where GPS located & photographed, see attached map & photos. The East well, (-114.455367, 43.00185), is an 8" dia. hole drilled in 1983 and is equipped with a submersible pump and an in-line flow meter. Both the East well and the West well are located outside Barn #1 under old tires. The West well, (-114.455667, 43.001583), also has a submersible pump and utilizes the same in-line flow meter as the East well, see attached map and photo. No IDWR tag found on the East or West well. Power for both wells is located inside Barn #1. The in-line flow meter for both the East & West well is a 2" dia. Master Meter 2659046, range 0-100 GPM with a totalizer in 100 gallon increment. The Meter reading on 12/23/08 was 069,321.00.

Piping inside the barn is to tightly configured to use an acoustic flow meter such as the Fuji flow meter available to Brockway Engineering. As a result a volume test was performed. On February 11, 2009 Erick Powell, & Amy Runser of Brockway Engineering, & Mr. Andrew Fitzgerald where on site to perform the volume test. A 55 gallon drum was calibrated on site with a calibrated 6 gallon bucket. Timed measurements where performed multiple times. A test was performed with each well isolated and with both wells pumping.

Annual volume requirement was calculated using 35 GPD/ lactating cow for 1,200 head.

Annual volume for commercial use calculated with

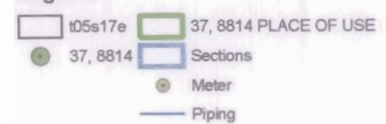
Isolated East Well produced	0.071 cfs(31.9 gpm) 51.4 afa
Isolated West Well produced	0.066 cfs/(29.6 gpm) 47.8 afa
Both Wells Together produced	0.133 cfs(50.7gpm) 96 afa



1 inch equals 250 feet

**FOUR BROTHERS
PERMITS 37-8814, FIELD EXAM
NAIP 2006 AERIAL**

Legend





IDAHO DEPARTMENT OF WATER RESOURCES
Water Permit Report

5/4/2009

WATER RIGHT NO. 37-8814

Owner Type	Name and Address
Current Owner	FOUR BROTHERS DAIRY INC 425 N 250 W SHOSHONE, ID 83352 (208)886-7716

Priority Date: 07/10/1983

Status: Active

GROUND WATER

Beneficial Use	From	To	Diversion Rate	Volume
STOCKWATER	1/01	12/31	0.1 CFS	
COMMERCIAL	1/01	12/31	0.1 CFS	
Total Diversion			0.1 CFS	

Location of Point(s) of Diversion:

GROUND WATER	NESE	Sec. 08	Township 05S	Range 17E	LINCOLN County
GROUND WATER	NESE	Sec. 08	Township 05S	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
05S	17E	8		NESE										

Place of Use Legal Description: COMMERCIAL same as STOCKWATER

Conditions of Approval:

1.	46B	The right holder shall comply with Idaho well construction standards when constructing a well pursuant to this right.
2.		Two points of diversion are located within the NESE, S08, T05N, R17E. Stockwater use is for 1200 dairy cattle. Commercial use is for dairy.
3.	046	Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code.

Dates:

Proof Due Date: 10/01/1993

Proof Made Date: 10/12/1993

Approved Date: 09/21/1990

Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Application Received Date: 06/29/1983

Protest Deadline Date:

Number of Protests: 0

Field Exam Date::

Date Sent to State Off:

Date Received at State Off:

Other Information:

State or Federal:

Owner Name Connector:

Water District Number: 130

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

Close

Brockway Engineering, PLLC.
Field Visit 12/23/2008
Four Brothers, Permit # 37-8814 01/11/2009



West Well @ Barn 1



East Well @ Barn 1



Flow Meter



Tank outside barn



Piping & Inside Barn 1

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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.

JAN 13 1989

1. WELL OWNER

Name Andrew Fitzgerald
Address Shoshone
Owner's Permit No. 37-88-S-077

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.

2. NATURE OF WORK

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

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

3. PROPOSED USE

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

9. LITHOLOGIC LOG

072480

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
8	0	1	TOP SOIL		
8	1	6	Gray Loam		
8	6	10	Black Loam		
8	10	12	Gray Loam		
6	12	34	Gray Loam		
6	34	46	Black Loam		
4 1/2	46	385	No Return	X	

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____
Thickness _____ inches Diameter _____ inches From _____ feet To _____ 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 ☐ Pudding 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 _____

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Department of Water Resources
Southern Region Office

10.

Work started Aug 24 finished Aug 30 88

6. LOCATION OF WELL

Sketch map location must agree with water location.

Subdivision Name _____
Lot No. _____ Block No. _____
County Lincoln
SE 1/4 NE 1/4 Sec. 8 T. 5 S. R. 17 E. 12

11. DRILLERS 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 1 Wendell Date 12-26-88

Signed by (Firm Official) [Signature]

and
(Operator) [Signature]



IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

5/4/2009

WATER RIGHT NO. 37-10446

Owner Type	Name and Address
Current Owner	AGNES L FITZGERALD
Current Owner	ANDREW FITZGERALD
	427 N 250 W
	SHOSHONE, ID 83352
	(208)886-7716

Priority Date: 12/31/1910

Basis: Decreed

Status: Active

Source	Tributary
GROUND WATER	

Beneficial Use	From	To	Diversion Rate	Volume
STOCKWATER	01/01	12/31	0.12 CFS	6.7 AFA
Total Diversion			0.12 CFS	

Location of Point(s) of Diversion:

GROUND WATER	SENESE	Sec. 08	Township 05S	Range 17E	LINCOLN County
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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	8		NESE										

Conditions of Approval:

1.	N13	THE QUANTITY OF WATER UNDER THIS RIGHT SHALL NOT EXCEED 13,000 GALLONS PER DAY.
2.	N11	THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.
3.	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.

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:

Application Received Date:

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector: OR

Water District Number:

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

Close

Livestock Confinement Operations

Water Requirements and Consumptive Use Worksheet

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The information, data, or computational procedures herein may not be duplicated without the express written consent of Brockway Engineering.

COMPLETE BLUE HIGHLIGHTED SECTIONS ONLY

Prepared for:

Revision: 9801

Run Date:

Remarks:

Herd Information - User Input

Number of milking cows 1200 Breed: Large
Number of dry cows 0
Number of other adult dry animals 0

Calves at age: Heifers at age:
1 month 0 5 months 0
2 months 0 15 - 18 months 0
3 months 0 18 - 24 months 0
4 months 0

ANIMAL INFORMATION

Use defaults or enter values if known

Average body weight 1400 lbs Nearest weather station Shoshone
Milk fat percentage 3.5 % Number of milkings/day 3
Average days dry 48
Annual milk yield per animal 20000 lbs/year Check: Total herd size based on days dry 1200
Percent dry matter in ration 90 % HERD SIZE OK

Lagoon Information - User Input

Lagoon Number	Top width	Top length	SS (h:v)	Max depth	Average depth factor	% days with water	Top Area	Bottom Area	Average Area
1	0	0	0	0	0.5	100	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
TOTAL ACRES							0.00	0.00	0.00

Facility Information - User Input

	Holding Pen 1	Holding Pen 2	
Holding pen active	0	0	(0 = not used or nonexistent)
Number of sprinklers in pen	0	0	
Average line pressure	40	60	psi
Sprinkler nozzle size - primary	5/32	5/32	inches
Sprinkler nozzle size - secondary	3/32	0	(enter 0 for single-nozzle sprinklers)
Daily operation time of sprinklers	24	0	minutes
Percent of days per year cows are washed	0	0	%
Number of free stalls	0		
Length of each free stall	1000		feet
Width of each free stall	50		feet
Is the feeding area flushed to lagoon?	No		
Is this housing area flushed to lagoon?	No		
Flushing recycle rate	Barn 0	Feeding 0	Housing 0

CLEANING / FLUSHING VOLUMES

Use defaults or enter manufacturer volumes

Cleaning parlor floor	3000 gal	Cleaning pipeline	400 gal
Cleaning milkroom	200 gal	Cleaning equipment	200 gal
Cleaning bulk tank	200 gal		
Additional flush of holding pen (opt.)	0 gal		

Land Application Information - User Input

Type of system	Center Pivot
Predominant cropping	Alfalfa
Percent of waste water which goes to meet crop irrigation requirement	90 %

Stockwater Component

Drinking Water Calculation for Lactating Cows

4% fat-corrected milk yield	18500 lbs/year
Daily average FCM yield	58.36 lbs/day
Daily average milk yield	63.09 lbs/day
Estimated DMI	44.93 lbs/day

METHOD 1: Kertz

Estimated total water intake (TWI)	263.7 lbs/day or 31.6 gal/day
As-fed feed daily intake	49.9 as-fed lb/day
Water content of feed	4.99 lb/day in feed
Drinking water intake	258.7 lb/day or 31.0 gal/day
Drinking water requirement for lactating cows	37224 gal/day 41.7 ac-ft/year

METHOD 2: Holter and Urban

Regression equation with DMI, milk production, and dry matter %

Drinking water intake	95.7 liters/day 25.3 gal/day
	30340 gal/day 34.0 ac-ft/year

Maximum drinking water requirement 41.7 ac-ft/year

Drinking Water Calculation for Dry Cows

Estimated DMI	26.6 lbs/day
Average drinking water intake	13 gal/day

Average drinking water requirement 0 gal/day
0.0 ac-ft/year

Drinking Water Calculation for Replacement Herd (Calves and Heifers)

Age	GPD	Ac-Ft/year
1 mo	0	0.00
2 mo	0	0.00
3 mo	0	0.00
4 mo	0	0.00
5 mo	0	0.00
15-18 mo	0	0.00
18-24 mo	0	0.00
Drinking water requirement for replacement herd	0 gpd	0.00 ac-ft/year

TOTAL STOCKWATER COMPONENT 41.7 AC-FT/YEAR

Commercial Component

Milking Parlor Water Usage Calculation

Volume needed *per milking* in each parlor for:

Cleaning parlor floor	3000 gal	Cleaning pipeline	400 gal
Cleaning milkroom	200 gal	Cleaning equipment	200 gal
Cleaning bulk tank	200 gal	Cleaning cows	600 gal

Total milking parlor volume	13800 gal/day
Second milking parlor volume	0 gal/day
Recycled water	0 gal/day
	15.46 ac-ft/year

Holding Pen Water Usage Calculation

	Pen 1	Pen 2
Output of primary nozzle	4.49	5.5 gpm
Output of secondary nozzle	1.61	0 gpm
Holding pen flushing volume	0	0 gal
Additional flush volume	0	0 gal
Sprinkler volume	0	0 gal/day
Total holding pen volume	0	0 gal/day
Recycled water	0	0 gal/day

0.00 ac-ft/year

Other Flushing Water Calculation

Daily volume needed for:

Feeding area flushing	0 gal/day
Housing area flushing	0 gal/day

Total other flushing volume	0 gal/day
Recycled water	0
	0.00 ac-ft/year

TOTAL COMMERCIAL COMPONENT 15.5 AC-FT/YEAR

Consumptive Use Calculation

A. Lagoon Evaporation

Annual reference ET (Allen & Brockway , 1983)	4.52 feet	
Annual open water coeff (Kohler Nordenson Fox)	0.90	
Annual open water (lagoon) evaporation	4.07 feet	
Manual override: Input annual lagoon evap	feet	
Total lagoon water surface area at full	0 sq. ft.	
Total lagoon bottom area	0 sq. ft.	
Average surface area when water is present	0 sq. ft. =	0.00 ac
Total lagoon evaporation	0.00 ac-ft/year	

B. Animal usage: milk, metabolism, and excretion loss

	Milking	Dry
Waste excretion volume per cow	1.3	1.3 ft ³ /day/1000lb
Water content	87.5	88.4 %
Total water volume in excrement	14294	0 gal/day
Percent of excrement flushed to lagoons	15 % (based on areas which are flushed)	
Consumptive use (evap.) of water in excrement	85 %	
Consumptive use (evap.) volume	12150 gal/day	
Excrement c.u. attributable to drinking water	11920 gal/day	
Total milk production - assume 100% leaves site	75710 lbs/day or	9078 gal/day
Water content of milk	7898 gal/day	
Water content attributable to drinking water	7748 gal/day	
Water use for animal metabolism	15750 gal/day	
Metabolism water attributable to drinking water	15452 gal/day	
Consumptive use - replacement herd (100%)	0 gal/day	
Total animal consumptive use from drinking water	35120 gal/day or	39.3 ac-ft/year
Percent of drinking water intake	94.3 %	

C. Parlor/holding pen cleanup

Average sprinkler washing system evap loss	2 %	
Free stall total area	0 sq. ft. =	0.00 acres
Length of time free stall concrete is wet	1 hr/day	
Average evaporation from wet concrete	0.15 in./day	
Sprinkler system loss volume	0.00 ac-ft/year	
Free stall evaporation volume	0.00 ac-ft/year	
Total cleanup loss	0.00 ac-ft/year	

D. Land application site

Crop evapotranspiration	3.26 ac-ft/ac/year
Irrigation diversion volume	4.08 ac-ft/ac/year
System efficiency	80 %
Waste water volume to lagoons	17.8 ac-ft/year
Waste water volume available for land application	17.8 ac-ft/year
Total crop consumptive use of waste water	12.8 ac-ft/year

Summary

Drinking Water

Milking herd	41.7
Non-milking herd (dry cows)	0.0
Replacement herd (calves and heifers)	0.0

Total drinking water volume	41.7 ac-ft/year
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Commercial

Milking parlor	15.46
Holding pen and cleanup	0.0
Other flushing water	0.00

Total commercial volume	15.5 ac-ft/year
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TOTAL DIVERSION VOLUME REQUIREMENT	57.2 AC-FT/YR
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Consumptive Use

Lagoon evaporation	0.00
Animal milk, excretion, & metabolism	39.3
Parlor and holding pen cleanup	0.00
Crop consumptive use on land application	12.8

Total consumptive use	52.2 ac-ft/year
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Percent of diversion volume consumed	91.3 %
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Annual crop consumptive use - IDWR allowable	3.0 afa
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Equivalent irrigated acres	17.4 acres
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Diversion volume to acres conversion factor	3.29 ac-ft/ac
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