ROBERT E. WILLIAMS
IDAHO STATE BAR NO. 1693
WILLIAMS, MESERVY & LOTHSPEICH, LLP
Attorneys at Law
153 East Main Street
P. O. Box 168
Jerome, Idaho 83338
Telephone: (208) 324-2303
Facsimile: (208) 324-3135
rewilliams@cableone.net
Attorney for Cities of Bliss, Buhl, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, and Wendell

CANDICE MCHUGH
IDAHO STATE BAR NO. 5908
CHRIS M. BROMLEY
IDAHO STATE BAR NO. 6530
MCHUGH BROMLEY, PLLC
Attorneys at Law
380 S. 4th St., Ste. 103
Boise, ID 83702
Telephone: (208) 287-0991
Facsimile: (208) 287-
cmchugh@mchughbromley.com
cbromley@mchughbromley.com
Attorney for Cities of Bliss, Buhl, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, and Wendell

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

In the Matter of the Coalition of Cities Mitigation Plan for Managed Recharge and Other Aquifer Enhancement Activities for the Distribution of Water to Water Right Nos. 36-2551 and 36-7694 held by Rangen Inc.	CM-MP-2014-_____ **COALITION OF CITIES CM RULE 43 MITIGATION PLAN FOR MANAGED RECHARGE AND OTHER AQUIFER ENHANCEMENT ACTIVITIES**

COME NOW the cities of Bliss, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, and Wendell ("Cities") by and through their counsel and, pursuant to Rule 43 of the Idaho Department of Water Resources' ("IDWR") *Rules for Conjunctive Management of Surface and Ground Water Resources*, IDAPA 37.03.11 ("CM Rules"), hereby submit this *CM Rule 43 Mitigation Plan for Managed Recharge and Other Aquifer Enhancement Activities* ("Cities' Mitigation Plan") in response to the Rangen, Inc.

("Rangen") delivery call.[1] As will be detailed below, and as supported by "accepted and appropriate . . . simulations and calculations," CM Rule 43.03.d, the Cities' Mitigation Plan will replace the Cities' "depletive effect of ground water withdrawal" at the Rangen model cell, "at the time and place required by" Rangen in this first year of curtailment, CM Rule 43.03.b. The Cities' will accomplish this through: 1) limiting their pumping to the volume authorized by their most senior water rights; and 2) managed recharge in 2014 at the Sandy Ponds and the immediate surrounding area, ("Sandy Ponds Recharge" or "Sandy Ponds Recharge Area") to off-set impact junior to July 1, 1983. The Sandy Ponds Recharge Area is depicted in Ex. A, Figure 15.[2]

I. MITIGATION PLAN FOR 2014

Based on IDWR's April 11, 2014 *Order Approving in Part and Rejecting in Part IGWA's Mitigation Plan; Order Lifting Stay Issued February 21, 2014; Amended Curtailment Order* ("April Curtailment Order"), which orders that groundwater rights with priority dates on or junior to July 1, 1983 shall be curtailed on May 5, 2014, the Cities present the following information in support of the Cities' Mitigation Plan. The Cities' Mitigation Plan is supported in large part by the report by Dr. Christian Petrich titled, *Analysis in Support of Coalition Cities' Mitigation Plan for Rangen Call*, which is attached hereto as Exhibit A and incorporated herein by reference.

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[1] Based on IDWR's April 11, 2014 *Order Approving in Part and Rejecting in Part IGWA's Mitigation Plan; Order Lifting Stay Issued February 21, 2014; Amended Curtailment Order*, the present curtailment date for the first year of the five-year, phased-in curtailment is July 1, 1983. The Cities' Mitigation Plan will mitigate for the Cities' depletions that are junior to July 1, 1983.

[2] The City of Shoshone is part of the Coalition of Cities but is not participating in this Mitigation Plan although Ex. A includes information from the City of Shoshone.

A. Name and Address of Applicants and Identification of Water Rights to Receive Mitigation Credit Through the Cities' Mitigation Plan

All correspondence regarding this Mitigation Plan can be sent to:

Rob Williams
Williams, Meservy & Lothspeich, LLP
153 East Main Street
P. O. Box 168
Jerome, Idaho 83338
(208) 324-2303

The name of the Cities that hold water rights junior to July 1, 1983, and are members of the Coalition of Cities, are as follows:

Owner	Water Right No.	Priority Date	Diversion Rate (cfs)
Bliss	37-8886	11/24/1998	0.45
Burley	45-7686	2/11/1991	1.75
	45-7735	9/3/1996	4.46
	45-13411	10/22/2001	7.8
Carey	37-20384	3/20/2001	0.7
	37-21243	12/25/2003	0.6
	37-21355	9/23/2004	1.29
	37-22661	8/18/2011	1.45
Declo	45-7726	2/16/1995	2.23
Dietrich	37-22751	6/1/2012	0.2
Heyburn	36-8550	5/29/1990	6.67
	36-8738	5/22/1995	3.3
Jerome	36-8237	12/22/1983	2.71
	36-8234	1/11/1984	1.23
Paul	36-8763	10/18/1999	2.75
Richfield	37-8402	9/22/1988	1.63
	37-22431	1/13/2009	1.19
Rupert	36-7862	10/11/1985	1.15
Wendell	36-8764	3/28/1997	1.27
	36-8421	9/14/1998	2.76

The foregoing water rights are the water rights that will be mitigated by the Cities' Mitigation Plan. The cities of Gooding and Hazelton do not have water rights junior to July 1, 1983, but are included as part of this Mitigation Plan, if, in the future, the mitigation obligation increases to Rangen and the priority date for curtailment changes and does impact their water rights. Furthermore, there may be additional water rights from these cities listed in Table 1 affected if the mitigation obligation to Rangen increases and the priority date for curtailment changes. If this occurs a supplement to the Cities' Mitigation Plan will be provided.

B. Identification of Water Rights to Receive the Benefit of the Mitigation Plan

The water rights held by the Cities that are junior to July 1, 1983 are identified in Section I.A. The senior water rights that will benefit from the Cities' Mitigation Plan are water right nos. 36-2551 and 36-7694, held by Rangen.

C. Reservation of Defenses

By filing this Mitigation Plan, the Cities, and any member city thereof, are not waiving any defenses they may have to the April Curtailment Order, including the defenses that all or a portion of their water rights are: 1) non-consumptive; 2) that the domestic use under these water rights should be treated equally to those of other domestic users and thereby be exempt from curtailment; and 3) any other defenses provided for by law.

D. Summary Description of the Mitigation Plan

The Cities' Mitigation Plan proposes to: 1) limit the volume diverted by certain cities to only that volume authorized under water rights senior to July 1, 1983; 2) deliver up to 1.0 cfs starting on or before June 1, 2014 and continuing as long as necessary in 2014 to the Sandy

Ponds Recharge Area; and 3) deliver additional water to the Sandy Ponds Recharge Area if measurements show additional water is required.[3]

E. Mitigation Requirement

Based on the April Curtailment Order, Rangen is owed 0.4 cfs for the annual period from April 1, 2014 through March 31, 2015. *April Curtailment Order* at 21. As of the filing of the Cities' Mitigation Plan it is understood that Butch Morris has agreed to forego his use of 0.3 cfs of Curren Tunnel water, making the shortfall to Rangen 0.4 cfs.

Of the 0.4 cfs still owed to Rangen, the Cities' use of water rights junior to July 1, 1983 are only responsible for a portion of the obligation.[4] Therefore, as explained in Dr. Petrich's report in support of the Cities' Mitigation Plan, the Cities' mitigation requirement is 0.008 cfs, which is the obligation due from Heyburn and Richfield because they are the only city members who presently pump water in excess of the authorized volumes under their water rights that are junior to July 1, 1983. The mitigation obligation, however, can be no greater than 0.04 cfs, which is the aggregate impact caused by all city members' depletion to Rangen under their respective water rights with priority dates equal to or junior to July 1, 1983. Ex. A, p. iv, ¶ ¶ 22-24 and pp. 6-7, 10.

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[3] The Cities are also exploring options to deliver recharge water during the non-irrigation season in 2014, if necessary.

[4] As stated in Ex. A, p. iii, ¶ 12-14, "the curtailment simulations used to determine the amount of consumptive use to be eliminated for a given benefit at the Rangen facility include only the elimination of agricultural irrigation uses. Furthermore, it is my understanding that the effects of municipal curtailment – i.e., the benefits to the Rangen facility as a result of municipal curtailment – have not been determined.... 14. If this is correct, then any curtailment of municipal rights – or mitigation in lieu of municipal curtailment – will provide a benefit to the Rangen facility over and above that which was calculated for the purposes of the Rangen orders."

F. Mitigation Activities

1) Limiting Diverted Volumes to the Volumes Authorized by More Senior Water Rights

The depletion to the Eastern Snake Plain Aquifer and hydraulically connected surface water sources, including the springs at Rangen, from groundwater pumping is accounted for in ESPAM 2.1 by the volume of consumptive use under those groundwater rights. See Enhanced Snake Plain Aquifer Model Version 2.1 Final Report January 2013. Water rights senior to July 1, 1983, are not subject to curtailment and therefore their entire volume is authorized to be diverted and consumed. So long as the Cities limit their consumptive volume to the volumes authorized under water rights senior to July 1, 1983, the Cities should be authorized to divert from all of their wells and well systems. Ex. A, Figures 2-12 and pp. 27.

Figures 2-12 of Exhibit A show that the city members have historically stayed within the volumes of their senior water rights and will only divert volumes authorized under water rights that are senior to July 1, 1983 for the annual period from April 1, 2014 through March 31, 2015.

2) Groundwater Recharge

a) Groundwater Recharge is a Sound and Effective Mitigation Activity

Groundwater recharge is in keeping with the policy set forth by the Legislature finding that projects for groundwater recharge should be fully supported and that such activities are in keeping with the state's policy to "promote and encourage the optimum development and augmentation of the water resources of this state." I.C. § 42-234. In addition, Policy 11 of the State Water Plan states, "[i]t is the policy of the State of Idaho that managed recharge be encouraged pursuant to state law." Policy 5H of the State Water Plan acknowledges that "[m]anaged recharge of the aquifers and continued efforts to efficiently use groundwater are two

strategies for maintaining spring discharges in these reaches." The Cities' Mitigation Plan is consistent with the conservation of the state's water resources, the public interest, and will not injure water rights in compliance with CM Rule 43.03.j.

IDWR has routinely approved mitigation by way of groundwater recharge, has already approved *IGWA's Mitigation Plan For Conversions, Dry-Ups And Recharge* (May 14, 2010), and has given mitigation credit for recharge activities on a routine basis since then, including credit for past recharge activities in the April Curtailment Order. *See* Ex. 3001 from the hearing for IGWA's Mitigation Plan; *see also Final Order Approving Mitigation Credits Regarding SWC Delivery Call,* In the Matter of the Idaho Ground Water Appropriators, Inc.'s Mitigation Plan for Conversions, Dry-ups, and Recharge, Doc. No. CM-MP-2009-006 (July 19, 2010), aff'd on appeal in *Memorandum Decision and Order on Petition for Judicial Review,* CV-2010-3822 (Fifth Jud. Dist., Twin Falls County, April 22, 2011).

b) Water From NSCC Shares[5] Will Provide the Water for the Groundwater Recharge

The Cities propose as part of this mitigation activity to conduct managed groundwater recharge for the annual period from April 1, 2014 through March 31, 2015, using the North Side Canal Company's ("NSCC") delivery and conveyance system with delivery to the Sandy Ponds Recharge Area. The Cities of Jerome, Wendell, Hazelton, and Bliss collectively own 1,924.94 shares in NSCC. These Cities have agreed to allow the Coalition of Cities the appropriate number of shares to provide up to 1.0 cfs for groundwater recharge purposes, and additional amounts as necessary. An agreement with Jerome, Wendell, Hazelton, and Bliss is in the process of being prepared and has been preliminarily approved by city personnel subject to a

[5] If NSCC shares are found to not be allowed for the proposed mitigation, then the Cities will pursue other water supply options, including but not limited to waste water or other Upper Snake storage water.

meeting of their respective city councils. The Agreement will be provided on or before any hearing date.

c) Delivery of the Recharge Water Through NSCC

A preliminary agreement has been reached with the Manager of NSCC to allow use of NSCC's delivery system to deliver the amount of water under the Cities' shares to the Sandy Ponds Recharge Area. A formal agreement is being prepared and will be provide on or before any hearing date. Once the water is conveyed to the Sandy Ponds Recharge Area, managed recharge will be done with the oversight of Butch Morris who is an experienced farmer and irrigator, is familiar with the delivery system and has conducted recharge at the site in the past. Mr. Morris has agreed to manage the recharge and a formal agreement with Mr. Morris to manage this recharge is being prepared and will be provided at the time of hearing. The delivery of storage water through the NSCC system to the Sandy Ponds Recharge Area will not enlarge any element of any water rights. CM Rule 43.03.i.

A measuring device acceptable to the Department will be installed at the discharge point from the lower Sandy Pond in order to measure the amount of seepage and recharge to the aquifer. The Cities will adjust delivery of water to the Sandy Ponds Recharge Area based on what the measurements are actually showing is being recharged. CM Rule 43.03.k.

The NSCC shares represent ownership of water rights for storage from the Upper Snake Reservoir system and natural flow. The Upper Snake Reservoir system has been found to be a sufficiently reliable water supply. *Order Approving Mitigation Plan*, at 9, In the Matter of the Idaho Ground Water Appropriators, Inc.'s Mitigation Plan in Response to the Surface Water Coalition's Water Delivery Call, Doc. No. CM-MP-2009-007 (June 3, 2010), aff'd on appeal in *Memorandum Decision and Order on Petition for Judicial Review,* CV-2010-3075 (Fifth Jud.

Dist., Twin Falls County, April 22, 2011); CM Rule 43.03.h. Furthermore, four member cities collectively own additional NSCC shares beyond those proposed to be provided for the proposed recharge, and to the extent that measurements indicate more are needed, they can be provided for the Cities' Mitigation Plan. *See* CM Rule 43.03.c.

d) Amount of Benefit Expected to Rangen from Recharge

The benefit expected to result to Rangen from delivering 1 cfs to the Sandy Ponds Recharge Area is 0.04 cfs.[6] Ex. A, p. v, ¶ 25-30, pp. 41-42. This is based upon output from ESPAM 2.1. *See* Summary of Model Runs from AMEC attached to Ex. A. This output comes from an acceptable value for the aquifer and a reliable computer simulation to make these calculations. *See* CM Rule 43.03.e. f. The Cities propose to deliver up to 1.0 cfs to the Sandy Ponds Recharge Area which will offset their portion of the amount of mitigation still owed to Rangen for the May 5, 2014 to March 31, 2015 time period. The Sandy Ponds Recharge Area is located in the area of common ground water supply and will result in water that compensates Rangen. CM Rule 43.03.d. As the mitigation requirement increases, the Cities' delivery of water to the Sand Ponds Recharge Area may increase to meet the ongoing mitigation obligation.[7]

Delivery of surface water through the NSCC canal system will result in recharge to the aquifer in two ways: 1) from seepage or conveyance lost through the canal itself; and 2) seepage from the recharge site at the Sandy Ponds and surrounding area.

The Cities propose to provide up to 1.0 cfs of water to the Sandy Ponds Recharge Area starting on or before June 1, 2014, continuing through the irrigation season, and possibly into the

[6] The actual amount of water that must be delivered to the Sandy Ponds Recharge Area is actually 0.94 cfs to get a 0.04 cfs benefit. However the Cities proposal is to deliver a full 1.0 cfs.

[7] The Cities may file other mitigation plans that will make continued recharge unnecessary or will reduce the amount they will need to deliver for recharge to the Sandy Ponds Recharge Area.

non-irrigation season for late season managed recharge to the extent NSCC and the requisite shares authorize such activity. The Cities may also provide additional NSCC shares to the Sandy Ponds Recharge Area measurements indicate additional water is required to meet the recharge amount.

The Cities request IDWR approval to conduct managed recharge at the Sandy Ponds Recharge Area and to be given mitigation credit in the amount of at least 0.04 cfs.

e) Timing

This Recharge Plan proposes to perform groundwater recharge on or before June 1, 2014, continuing through the irrigation season, and possibly into the non-irrigation season for late season managed recharge to the extent NSCC and the requisite shares authorize such activity. Otherwise, the Cities may increase the amount of water delivered to the Sandy Ponds Recharge Area to compensate for a shorter recharge period. Ex. A, pp. 42-43.

G. Monitoring and Reporting

Measurements and reporting will occur to document the activity and effectiveness. The Cities will provide whatever data is available to it or its members and as is practical in order to assist in the monitoring efforts of any specific activities proposed. CM Rule 43.03.k. Based on the results of these measurements, the Cities may increase the amount of water delivered for recharge to the Sandy Ponds Area. *Id.*

H. Other Information

Any proposed mitigation activities under this Mitigation Plan will not injure other water rights and fully complies with the state's policy to conserve and enhance its water resources. Further, the proposed mitigation activities have and will continue to promote the optimum development of water resources in the public interest as set forth in Const. Art. XV § 7, and

should be fully supported and encouraged. The benefits from any mitigation activities are expected to have positive and lasting effects on reaches to the Snake River, spring discharges, and to the ESPA.

II. REQUEST FOR RELIEF

The Cities hereby request that IDWR process this plan as soon as possible and request that:

1. IDWR advertise this Mitigation Plan as required under the CM Rules;

2. IDWR hold any hearing as may be required;

3. The Director enter an order approving this Mitigation Plan upon such terms and conditions as may be reasonable and necessary to comply with CM Rule 43 and forestalling curtailment of any of the Cities' water rights under the April Curtailment Order; and

4. For such other and further relief as the Director may determine is reasonable and necessary to enable the Cities to mitigate for the Cities' material injury to Rangen.

RESPECTFULLY SUBMITTED.

DATED this 25th day of April, 2014.

Williams, Meservy & Lothspeich, LLP

ROBERT E. WILLIAMS

McHugh Bromley, PLLC

for

CANDICE M. MCHUGH

CHRIS M. BROMLEY

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 25th day of April, 2014, I served a true and correct copy of the foregoing document on the person(s) whose names and addresses appear below by the method indicated:

Director Gary Spackman IDAHO DEPARTMENT OF WATER RESOURCES PO Box 83720 Boise, ID 83720mailto:deborah.gibson@idwr.idaho.gov	☑ Via US Mail, Postage Paid ☐ Via Facsimile - ☐ Hand-Delivered - Court Folder ☐ Other _____
Deputy Attorney General Attn: Garrick L. Baxter IDAHO DEPARTMENT OF WATER RESOURCES PO Box 83720 Boise, ID 83720-0098 Fax: 208-287-6700 garrick.baxter@idwr.idaho.gov kimi.white@idwr.idaho.gov	☑ Via US Mail, Postage Paid ☐ Via Facsimile - ☐ Hand-Delivered - Court Folder ☐ Other _____
J. Justin May MAY BROWNING & MAY, PLLC 1419 W Washington Boise, ID 83702 Fax: (208) 342-7278 jmay@maybrowning.com	☑ Via US Mail, Postage Paid ☐ Via Facsimile - ☐ Hand-Delivered - Court Folder ☐ Other _____
Robyn M. Brody ATTORNEY AT LAW PO Box 554 Rupert, ID 83350 Fax: (208) 434-2780 robynbrody@hotmail.com	☑ Via US Mail, Postage Paid ☐ Via Facsimile - ☐ Hand-Delivered - Court Folder ☐ Other _____
Fritz X. Haemmerle HAEMMERLE & HAEMMERLE, PLLC PO Box 1800 Hailey, ID 83333 Tel: (208) 578-0520 Fax: (208) 578-0564 fxh@haemlaw.com	☑ Via US Mail, Postage Paid ☐ Via Facsimile - ☐ Hand-Delivered - Court Folder ☐ Other _____
courtesy copy Randall C. Budge Thomas J. Budge RACINE OLSON NYE BUDGE & BAILEY CHARTERED PO Box 1391 Pocatello, ID 83204-1391 Fax: (208) 232-6109 rcb@racinelaw.net	☑ Via US Mail, Postage Paid ☐ Via Facsimile - ☐ Hand-Delivered - Court Folder ☐ Other _____

ROBERT E. WILLIAMS

Exhibit A

Analysis in Support of Coalition of Cities' Mitigation Plan for the Rangen Call

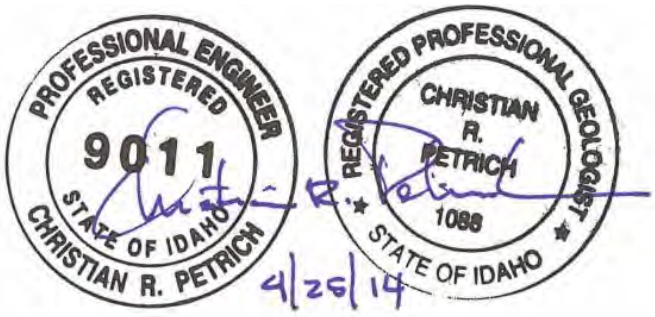
Prepared for

Coalition of Cities

Bliss, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, Shoshone, and Wendell

Prepared by

SPF Water Engineering, LLC
300 East Mallard, Suite 350
Boise, Idaho 83706
(208) 383-4140



April 25, 2014

SPF WATER ENGINEERING

Summary

This report provides analysis in support of the Coalition of Cities' mitigation plan for the Rangen water delivery call. Specifically, this report provides the following:

1. A review of Rangen mitigation requirements;
2. A description of water rights held by the Coalition cities of Bliss, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, Shoshone, and Wendell;
3. A summary of monthly water use by the Coalition cities compared to authorized water-right volumes;
4. Estimates of the volume of water pumped in recent years under water rights listed in the April 11, 2014 Rangen curtailment order; and
5. A description of the use of North Side Canal Company shares to mitigate for the Coalition cities' impacts associated with municipal water rights listed in the April 11, 2014 Rangen Order.

Finding and conclusions are summarized below.

Rangen Order and Resulting Direct-Flow Delivery Requirements

1. The January 29, 2014 Rangen Order required curtailment of consumptive uses authorized by groundwater rights bearing priority dates junior to July 13, 1962.
2. Each of the Coalition cities (Bliss, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, Shoshone, and Wendell) hold water rights with priority dates junior to July 13, 1962 and listed in the January 29, 2014 Rangen curtailment order.
3. The January 29, 2014 Rangen Order provided that junior-priority groundwater users could mitigate for junior-priority depletions in lieu of curtailment. Mitigation must provide a simulated, steady-state benefit of 9.1 cfs to the Curren Tunnel or Rangen facility. The order also provided that direct-flow deliveries to the Rangen facility could be phased in as follows: 3.4 cfs the first year, 5.2 cfs the second year, 6.0 cfs the third year, 6.6 cfs the fourth year, and 9.1 cfs the fifth year.
4. The subsequent April 11, 2014 Rangen Order requires curtailment (or mitigation) to provide a 3.4-cfs benefit to the Rangen Facility. The order requires curtailment of water rights bearing priority dates of October 13, 1978 or later to provide this benefit.
5. Alternatively, the April 11, 2014 Rangen Order provides that if Howard (Butch) and Rhonda Morris (referred to hereinafter by the singular name "Morris") forego

diversion of 3.0 cfs from the Curren Tunnel, water rights bearing priority dates of July 1, 1983 or later must be curtailed to provide a 0.4 cfs benefit to the Rangen Facility between April 1, 2014 and March 30, 2015.

Curtailment of Municipal Rights

6. The January 29 and April 11, 2014 Rangen curtailment orders applied to all consumptive ground water rights, including agricultural, commercial, industrial, and municipal uses. Junior-priority water rights authorizing *de minimus* domestic uses (as set forth in Idaho Code § 42-111) are excluded from curtailment requirements.
7. The April 11, 2014 Rangen curtailment order identifies 532 rights with priority dates on or junior to July 1, 1983. In aggregate, these rights authorize a maximum instantaneous diversion rate of 448.71 cfs.
8. The April 11, 2014 Rangen curtailment order identifies 20 water rights authorizing municipal use with priority dates on or junior to July 1, 1983. These rights are held by the cities of Bliss, Burley, Carey, Declo, Dietrich, Heyburn, Jerome, Paul, Richfield, Rupert, and Wendell. In aggregate, these rights authorize a maximum instantaneous diversion rate of 45.49 cfs (or 10.2% of the aggregate 448.71 cfs authorized under the 532 rights identified in the Rangen Order with priority dates on or junior to July 1, 1983).
9. A substantial portion of the municipal water rights identified in the April 11, 2014 Rangen Order have conditions limiting uses (e.g., prohibiting large-scale irrigation of parks, golf courses, etc.). However, use of municipal water for domestic purposes is not included in the Idaho Code § 42-111 exclusion for domestic rights exempt from curtailment.
10. In some cases, municipal water diverted for in-home domestic purposes is not consumptively used, because treated wastewater is returned to the hydrologic system and is available for downstream users. However, treated wastewater from some of the 14 Coalition cities is disposed of via land-application or evaporation-pond methods. Some or all of the wastewater disposed of in this way is no longer available for downstream users, and therefore can be considered consumptively used. The definitions listed in the January 29 and April 11, 2014 Rangen curtailment orders do not preclude curtailment of such municipal consumptive uses, even though the water is used for in-home domestic purposes.
11. Of the 532 rights with priority dates on or after July 1, 1983 listed in the April 11, 2014 Rangen Order, 310 rights list irrigation as at least one of the authorized uses. Water rights listing irrigation as at least one of the uses authorize, in aggregate, a total maximum instantaneous diversion rate of 358.26 cfs, which is approximately 80% of the 448.71 aggregate instantaneous diversion rate authorized by the 532 rights listed in the April 11, 2014 Rangen curtailment order with priority dates on or

after July 1, 1983. The remaining rights authorize a total diversion rate of 90.45 cfs, of which approximately half our municipal rights for Coalition cities.

Representation of Municipal Pumping in the ESPAM2 Model

12. IDWR has used the Eastern Snake Plain Aquifer Model, Version 2 (ESPAM2) to determine curtailment requirements for the Rangen delivery call. Municipal groundwater withdrawals are represented in this model.

13. However, my understanding is that the curtailment simulations used to determine the amount of consumptive use to be eliminated for a given benefit at the Rangen facility include only the elimination of agricultural irrigation uses. In other words, curtailment of the municipal water rights was not simulated in preparation for the January 29, 2014 and April 11, 2014 Rangen orders. Thus, any benefits to the Rangen facility as a result of municipal curtailment or mitigation have not been determined.

14. If this is correct, then any curtailment of municipal rights – or mitigation in lieu of municipal curtailment – will provide a benefit to the Rangen facility over and above that which was calculated for the purposes of the Rangen orders.

Impact of Junior-Priority Municipal Pumping

15. Maximum authorized instantaneous diversion rate is a poor indicator of actual municipal water use. Maximum instantaneous diversion rates under municipal rights may include capacity for fire protection, flushing, and other non-consumptive uses, which result in minimal impact to senior-priority water users.

16. Annual or monthly diversion volumes are a better indicator of impacts resulting from junior-priority municipal pumping on senior-priority water-right holders (e.g., Rangen).

17. Most of the municipal rights identified in the Rangen orders do not have explicit volume limits. Unless otherwise stated, annual volume limits are the maximum instantaneous diversion rate pumped 24 hours per day, 365 days per year.

18. The average monthly volume withdrawn under all municipal rights by each Coalition city is less than the authorized volume authorized under water rights senior to July 1, 1983 for each of the Coalition cities except Heyburn and Richfield. The monthly comparison of volume pumped with volumes authorized under municipal water rights is consistent with monthly time steps used for simulating groundwater flow, municipal diversions, and impacts to the Rangen facility.

19. The average annual groundwater volume withdrawn by the cities of Heyburn and Richfield under water rights with priority dates on or after July 1, 1983 is 1,871

acre-feet per year (AFA). This is equivalent to an average annual diversion rate of approximately 2.58 cfs.

20. A portion of pumping authorized under the Coalition cities' municipal water rights with priority dates on or after July 1, 1983 occurs from shallow or, perched aquifers not in direct hydraulic connection with the ESPA (all or a portion of the cities of Burley, Declo, Heyburn, Paul, and Rupert are located in an area of such perched aquifers). Impacts of pumping from shallow wells in this area are realized in the Snake River, not at the Rangen facility. A more detailed analysis of municipal pumping from such perched aquifers is underway.

Mitigation Requirements

21. Several of the Coalition cities are members of IGWA. Mitigation measures being proposed by IGWA to address impacts to the Curren Tunnel will, if accepted, cover impacts associated with municipal pumping by the Coalition cities. However, the Coalition cities are providing a separate (and possibly redundant) mitigation plan to avoid any risk of municipal curtailment in the coming year.

22. The precise mitigation obligation by the Coalition of Cities has not been determined (IDWR has not simulated the benefits to the Curren Tunnel by curtailment of municipal rights). In lieu of a precise mitigation obligation by the Coalition of Cities, the cities' mitigation obligation is being estimated based on the aggregate 9.49-cfs maximum instantaneous diversion rate authorized by municipal rights under which volume is extracted (i.e., water right 36-8550 held by the City of Heyburn and water rights 37-8042 and 37-22431 held by the City of Richfield). The remaining average monthly water use for all other Coalition cities is authorized by water rights with priority dates senior to July 1, 1983 (9.49 cfs is 2.1% of the aggregate maximum instantaneous diversion rate authorized by water rights with priority dates on or after July 1, 1983 listed in the April 11, 2014 Rangen Order).

23. The maximum amount of water required for mitigation under the April 11, 2014 Rangen Order for the period between May 5, 2014 and March 31, 2015 is 0.4 cfs (assuming that Morris forgoes the diversion of 3.0 cfs from the Curren Tunnel). Of the 0.4 cfs total obligation, the Coalition of Cities' obligation is 0.008 cfs (i.e., 2.1 % of 0.4 cfs as calculated in Paragraph 22 above).

24. If the cities are not entitled to use full volume under senior-priority water rights, the maximum obligation by the Coalition cities could be approximately 0.04 cfs, based on the ratio of aggregate authorized maximum diversion rate authorized by all post-July 1, 1983 municipal water rights (45.49 cfs) compared to the 448.71 aggregate maximum diversion rate authorized by all of the post- July 1, 1983 water rights listed in Appendix A of the April 11, 2014 Rangen Order.

Mitigation Plan

25. The Coalition of Cities propose enhancing recharge from the Sandy Ponds as mitigation for municipal use by the Coalition cities.
26. Model simulations indicate that an average annual rate of approximately 0.94 cfs diverted into the Sandy Ponds will produce a recharge benefit of 0.04 cfs to the Curren Tunnel. By proportion, it would take an approximate delivery of 0.2 cfs to the Sandy Ponds to provide a recharge benefit of 0.008 cfs at the Curren Tunnel.
27. Coalition cities control (and are willing to dedicate) an adequate number of North Side Canal Company shares to provide this flow (and conveyance losses associated with this flow) to the Sandy Ponds.
28. If North Side Canal Company shares or storage water cannot be used for recharge purposes, Coalition cities will wheel treated wastewater from the City of Jerome to the Sandy Ponds for recharge purposes.
29. If the Coalition of Cities were required to mitigate for a portion of volume pumped under *all* municipal water rights with priority dates on or after July 1, 1983, the mitigation obligation would be approximately 0.04 cfs (see Paragraph 6 in Section 5.1). Providing this level of mitigation would require a delivery of approximately 0.94 cfs to the Sandy Ponds. Again, Coalition cities control (and are willing to dedicate) an adequate number of shares to provide this flow (and conveyance losses associated with this flow) to the Sandy Ponds.
30. The North Side Canal Company is capable of wheeling this amount of water to the Sandy Ponds. The Coalition cities recognize that additional shares may be necessary to make up for winter delivery constraints.
31. Coalition cities are willing to incur the expense of installing measurement devices on Sandy Ponds outflows enabling combined measurements of inflows and outflows.
32. Coalition cities recognize that additional mitigation measures may be necessary in the coming years.

Additional Measures

33. The Coalition cities recognize that additional mitigation may be required in coming years. Potential additional mitigation measures include the following:
    a. Use of unused, senior-priority municipal groundwater rights as mitigation for communities with insufficient senior-priority groundwater rights.
    b. Use of surface-water shares for mitigation purposes through either direct recharge or conversions of groundwater irrigation to surface water irrigation.

c. Use of treated municipal wastewater discharge for recharge and/irrigation offsets.

d. Use of underlying surface-water shares in land-application areas for mitigation purposes.

e. While not for mitigation, more aggressive water-conservation programs can reduce municipal water demand.

34. The above-listed additional mitigation measures require more detailed analysis of water rights and water use. These analyses are currently underway.

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1. INTRODUCTION

Rangen, Inc. ("Rangen") filed Petition for Delivery Call on December 13, 2011, alleging that it was not receiving all of the water to which it is entitled under water rights 36-02551 and 36-07694. Rangen, which started business in 1925, owns and operates a fish research and propagation facility in the Thousand Springs area near Hagerman, Idaho. Groundwater discharges via numerous springs along the talus slope just below the canyon rim in the vicinity of the Rangen facility. Water also discharges into the "Martin-Curren" or "Curren" Tunnel, an excavated conduit that extends approximately 300 feet into the canyon wall at a location immediately east of the Rangen facility.

The January 29, 2014 Idaho Department of Water Resources' (IDWR) Final Order regarding Rangen's Petition for Delivery Call[1] required curtailment of consumptive uses authorized under water rights having priority dates junior to July 13, 1962. The Final Order listed water rights owned by the cities of Bliss, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, Shoshone, and Wendell.

A subsequent April 11, 2014 Order[2] approving part and rejecting part of the Idaho Ground Water Appropriators' (IGWA) Mitigation Plan requires curtailment or mitigation for consumptive uses of water rights with priority dates junior or equal to October 13, 1978. Attachment A of the April 11, 2014 Order listed water rights held by all of the above-listed cities except for cities of Gooding and Shoshone.

The April 11, 2014 Order provided for a contingent alternative curtailment priority of July 1, 1983. Water rights held by all of the above-listed 14 cities except for Gooding, Hazelton, and Shoshone have water rights with post-July 1, 1983 water rights.

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1 http://www.idwr.idaho.gov/news/curtailment/2014/01Jan/20140129_Final%20Order%20re%20Rangen%27s%20Petition%20for%20Delivery%20Call;%20Curtailing%20GW%20rights%20junior%20to%207-13-1962.pdf.

2 Order Approving in Part and Rejecting in Part IGWA's Mitigation Plan; Order Lifting Stay Issued February 21, 2014; Amended Curtailment Order in the matter of the Mitigation Plan filed by the Idaho Ground Water Appropriators for the Distribution of Water to Water Right No. 36-02551 and 36-07694 in the name of Rangen, Inc. and in the matter of Distribution of Water to Water Right Nos. 36-02551 and 36-07694 (Rangen, Inc.), signed by Idaho Department of Water Resources Director Gary Spackman on April 11, 2014.

The 14 cities holding water rights impacted by the Final Rangen Order have formed a coalition (hereinafter referred to as the "Coalition" or "Coalition of Cities") to jointly review water use under the above-listed rights and propose, where needed, a mitigation plan to offset depleted effects of municipal pumping under these rights.

This report provides the following:

1. A review of mitigation requirements described in the January 29, 2014 and April 11, 2014 Rangen orders;
2. A preliminary listing of water rights held by the Coalition cities;
3. A preliminary summary of groundwater diversions by the Coalition cities;
4. A comparison of 2009-2013 average diversion volumes authorized under Coalition cities' rights;
5. Identification of Coalition cities' water rights listed in the April 11, 2014 Rangen Order under which consumptive or partially-consumptive diversions occur;
6. An approximation of mitigation requirements at the Rangen facility (i.e., Curren Tunnel) incurred as a result of Coalition cities' consumptive or partially-consumptive groundwater diversions under water rights listed in the April 11, 2014 Rangen Order; and
7. Identification and analysis of two mitigation measures to mitigate for the depleted effects of consumptive uses under junior-priority Coalition groundwater rights, if needed.

Coalition of Cities Population Data	
City	**Population**
Bliss	325
Burley*	10,400
Carey*	500
Declo*	400
Dietrich	350
Gooding	3,600
Hazelton*	770
Heyburn*	3,100
Jerome*	11,000
Paul*	1,170
Richfield	500
Rupert*	5,400
Shoshone	1,500
Wendell*	2,800
Total	41,815

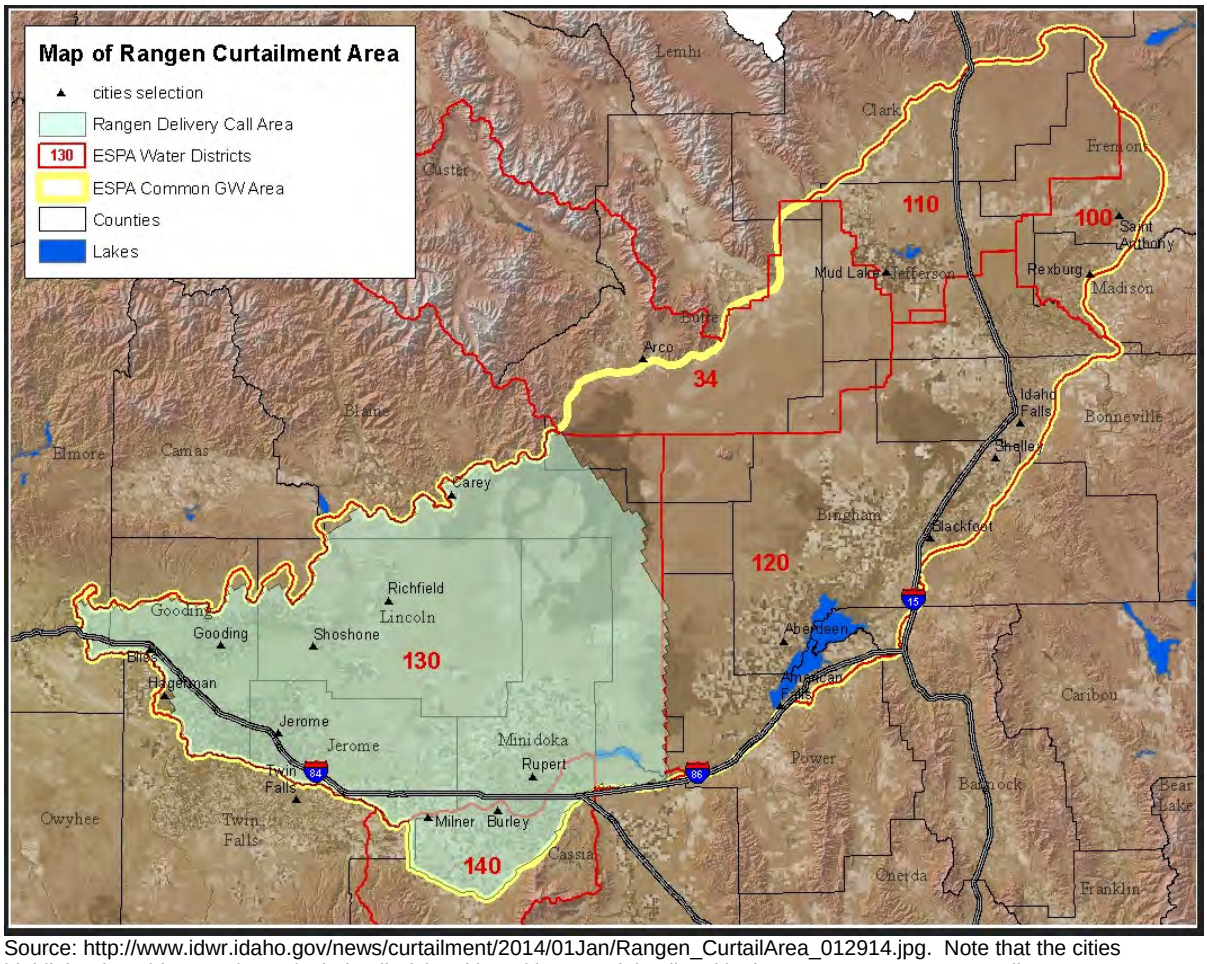
* Indicates that population data were supplied by city personnel. Population data for other cities were taken from the *2014 Directory of Idaho Government Officials, Association of Idaho Cities* .

Table 1. Coalition of Cities population.

2. REVIEW OF MITIGATION REQUIREMENTS

A summary of relevant mitigation requirements for the Coalition of Cities includes the following:

1. The January 29, 2014 Rangen Order required that "on or before March 14, 2014, users of ground water holding consumptive water rights bearing priority dates junior to July 13, 1962 … shall curtail/refrain from diversion and use of ground water" unless the curtailment order is modified or rescinded as to specific rights (Page 42). This order applied to water rights authorizing groundwater diversions in the area shown in Figure 1.
2. A subsequent April 11, 2014 Rangen Order rescinded the January 29, 2014 order and requires that "on or before May 5, 2014, users of groundwater holding consumptive water rights bearing priority dates junior or equal to October 13, 1978 … shall curtail/refrain from diversion and use of ground water pursuant to these rights" unless the order is modified or rescinded as to individual rights (Page 20).
3. Curtailment under both of these Rangen orders applies to "all ***consumptive*** ground water rights" with priority dates junior or equal to July 13, 1962, "including agricultural, commercial, industrial, and ***municipal*** uses" (Page 42; emphasis added).
4. Excluded from these Rangen orders were groundwater rights used for *de minimis* domestic purposes where such domestic use is within the limits of the definition set forth in Idaho Code § 42-111 and ground water rights used for *de minimis* stock watering where such stock watering use is within the limits of the definition set forth in Idaho Code § 42-1401A(11), pursuant to IDAPA 37.03.11.020.11". In other words, these Rangen orders require curtailment of junior-priority municipal rights, but do not require curtailment of junior-priority domestic uses (including irrigation of up to ½ acre of land and a use of up to 13,000 gallons per day) for homes either within or outside of municipal boundaries whose groundwater use is authorized by private domestic rights or fit the above-referenced definition of exempt uses.
5. Most of the Coalition cities land-apply treated municipal wastewater. A large portion of land-applied wastewater is lost from the hydrologic system as evapotranspiration (ET). Consumptive municipal rights are vulnerable to curtailment under the January 29, 2014 and April 11, 2014 Rangen orders. The orders do not exempt municipal diversions for in-home, potable water use that is subsequently treated and land-applied from curtailment requirements.



Source: http://www.idwr.idaho.gov/news/curtailment/2014/01Jan/Rangen_CurtailArea_012914.jpg. Note that the cities highlighted on this map do not include all of the cities with water rights listed in the January 29, 2014 or April 11, 2014 Rangen curtailment orders.

Figure 1. Map of the Rangen curtailment area.

6. Idaho's conjunctive management rules allow mitigation of depletive effects of junior-priority groundwater use in lieu of curtailment in a water-delivery call.[3]

7. The January 29, 2014 Rangen Order outlined mitigation requirements for the Rangen water delivery call: "The mitigation plan must provide simulated steady state benefits of 9.1 cfs to the Curren Tunnel or direct flow of 9.1 cfs to Rangen. If mitigation is provided by direct flow to Rangen, the mitigation may

[3] IDAPA 37.03.11.43.

be phased in over not more than a five-year period pursuant to CM Rule 40 as follows: 3.4 cfs the first year, 5.2 cfs the second year, 6.0 cfs the third year 6.6 cfs the fourth year and 9.1 cfs the fifth year." (Page 42). The "first year" described in the January 29, 2014 Rangen Order was listed as April 1, 2014 to March 31, 2015. The "first year" described in the April 11, 2014 Rangen Order was listed as May 5, 2014 to March 31, 2015.

8. The April 11, 2014 Rangen Order provided for a contingent alternative obligation if Howard (Butch) and Rhonda Morris (referred to hereinafter by the singular name "Morris") forego current diversions of 3.0 cfs from the Curren Tunnel authorized under water rights 36-123D, 36-1 314, 36-135D, 36-135E, 36-10141A, and 36-10141B. Thus, if Morris forgoes the diversion of 3.0 cfs beginning on May 5, 2014, the aggregate mitigation obligation under the April 11, 2014 Rangen Order for the period between May 5, 2014 and March 31, 2015 is 0.4 cfs.[4]
9. Attachment A of the April 11, 2014 Rangen Order lists 532 rights in the curtailment area with priority dates on or after July 1, 1983. These rights authorize an aggregate maximum instantaneous diversion rate of 448.71 cfs.
10. Of the 532 rights with priority dates on or after July 1, 1983 listed in the April 11, 2014 Rangen Order, 310 water rights list irrigation as at least one of the authorized uses. Water rights listing an irrigation use authorize, in aggregate, a maximum instantaneous diversion rate of 358.26 cfs. This amount represents approximately 80% of the aggregate maximum instantaneous diversion rate authorized under the 532 rights listed in Attachment A of the April 11, 2014 Rangen Order.
11. Attachment A of the April 11, 2014 Rangen Order lists 20 water rights authorizing municipal use with priority dates on or junior to July 1, 1983. These rights are held by the cities of Bliss, Burley, Carey, Declo, Dietrich, Heyburn, Jerome, Paul, Richfield, Rupert, and Wendell.
12. In aggregate, these rights authorize a total maximum instantaneous diversion rate of 45.49 cfs. This represents 10.2% of the 448.71-cfs total maximum diversion rate authorized by all of the 532 rights listed in Attachment A of the April 11, 2014 Rangen Order.
13. The April 11, 2014 Rangen Order requires curtailment of consumptive uses authorized by water rights with priority dates on or junior to July 1, 1983

[4] Conclusion of Law #19, April 11, 2014 Rangen Order

(assuming that Morris forgoes the diversion of 3.0 cfs from the Curren Tunnel). In lieu of curtailment, the order requires a mitigation resulting in an increase of 0.4 cfs at the Curren Tunnel. As a percentage of the aggregate authorized maximum instantaneous diversion rate represented by all of the water rights identified in the April 11, 2014 Rangen Order, the Coalition of Cities' mitigation obligation would be 0.0408 cfs (10.2% of 448.71 cfs). The actual mitigation obligation by the Coalition cities is arguably less than this amount because (a) a portion of the water rights listed on the curtailment order are for non-consumptive uses (e.g., fire protection) and (b) much of the volume extracted under the municipal rights occurs under water rights with priority dates senior to July 1, 1983 (see below).

14. Groundwater withdrawals for cities and industrial areas are represented in the Eastern Snake Plain Aquifer Model 2 (ESPAM2) calibration runs (IDWR, 2013). However, curtailment of municipal use was not simulated in the curtailment simulations made in preparation for the January 29, 2014 Rangen Order or the April 11, 2014 Rangen Order.[5] This means that any benefits accruing from either curtailment of municipal rights or mitigation in lieu of curtailment of municipal rights will provide benefits to the Rangen facility over and above those calculated by IDWR as necessary to satisfy the Rangen delivery call.

[5] Allan Wylie, IDWR, *personal communication*, April 18, 2014.

3. MUNICIPAL WATER RIGHTS HELD BY COALITION CITIES

This section provides a preliminary compilation of water rights held by Coalition cities. Information about these municipal water rights is provided here on a preliminary basis; a more detailed review and analysis of these rights is currently underway.

Water rights for the cities of Bliss, Burley, Carey, Declo, Dietrich, Gooding, Hazelton, Heyburn, Jerome, Paul, Richfield, Rupert, Shoshone, and Wendell are presented in Table 2 through Table 17. These tables list the water-right number, priority date, maximum authorized diversion rate (cubic feet per second and gallons per minute), applicable volume limits, and selected notes.[6]

Conclusions from an initial review of these water rights include the following:

1. Most of the municipal water rights listed in these tables do not have explicit annual volume limits. The implicit annual volume limit is the maximum authorized diversion rate diverted 24 hours per day, 365 days per year.
2. City of Bliss municipal water right 37-8886 (Table 2), which is identified on Attachment A of the April 11, 2014 Rangen Order, does not authorize irrigation of large projects such as parks and golf courses.
3. The City of Carey (Table 3) has four water rights (37-20384, 37-21243, 37-21355, and 37-22661) listed in Attachment A of the April 11, 2014 Rangen Order. Of these, water rights 37-20384, 37-21243, and 37-21355 do not authorize irrigation of large projects such as parks and golf courses. Water right 37-22661 authorizes municipal use for fire protection only, and therefore should be removed from the Rangen Order Attachment A list.
4. The City of Burley (Table 4 and Table 5) has one license (45-7735) and two permits (45-7686 and 45-13411) vulnerable to curtailment under the April 11, 2014 Rangen Order. Of these, Permit 45-13411 does not authorize irrigation of large projects such as parks and golf courses.
5. The April 11, 2014 Rangen curtailment order lists the City of Declo's largest municipal right (45-7726 – see Table 6), which authorizes 2.23 cfs (or 64%) of an aggregate authorized maximum instantaneous diversion rate of 3.49 cfs.
6. The City of Dietrich's Permit 37-22751 (Table 7) is listed in the April 11, 2014 Rangen curtailment order. Diversions under this permit are not authorized for

[6] The above-referenced ongoing review may result in changes to the text or tables presented in this report.

the irrigation of large projects such as parks and golf courses. A mitigation plan is required under this permit, but does not appear to have been submitted yet.

7. The City of Gooding has one permit (37-22850 – see Table 9) with a priority date junior to July 1, 1983. However, this right, which authorizes a maximum instantaneous diversion rate of 7.21 cfs, up to no more than 1,846 acre-feet per year (AFA), is fully mitigated by recharge authorized under Little Wood River water rights with priority dates ranging from June 30, 1882 to April 1, 1877, and is therefore not listed on the April 11, 2014 Rangen curtailment order.
8. The City of Hazelton (Table 10) has no water rights listed on their April 11, 2014 Rangen curtailment order.
9. The City of Heyburn has two water rights (36-8550 and 36-8738) listed in the April 11, 2014 Rangen Order. Combined, these rights authorize 100% of the City of Heyburn's municipal diversions.
10. The City of Paul has one water right (36-8763) with a priority date junior to July 1, 1983 (Table 12) listed on the April 11, 2014 Rangen Order.
11. The City of Jerome has one water right (36-8237) and one permit (36-8234) listed on the April 11, 2014 Rangen Order (Table 13). Permit 36-8234 authorizes irrigation (up to 0.28 cfs), commercial use (up to 0.28 cfs), domestic use (0.50 cfs), and recreational use (up to 0.17 cfs).
12. The City of Richfield has one license (37-8042) and one permit (37-22431) listed in the April 14, 2014 Rangen Order (Table 14). Combined, these rights authorize a maximum instantaneous diversion rate of 2.82 cfs, which represents 87.3% of Richfield's aggregate maximum instantaneous diversion rate.
13. The City of Richfield's Permit 37-22431 (which authorizes a maximum instantaneous diversion rate of 1.19 cfs) does not authorize irrigation of large projects such as parks and golf courses. A mitigation plan is required for this permit, but does not yet appear to have been submitted.
14. The City of Rupert (Table 15) has one water right (36-7862) listed in the April 11, 2014 Rangen Order.
15. The City of Shoshone (Table 16) has no water rights listed in the April 11, 2014 Rangen Order.
16. The City of Wendell has two water rights (36-8421 and 36-8764) listed in the April 11, 2014 Rangen Order. Neither of these rights authorizes irrigation of large projects such as parks and golf courses.

17. A portion of withdrawals under the above-described water rights listed in Attachment A of the April 11, 2014 Rangen Order does not occur from the regional Eastern Snake Plain Aquifer (ESPA), but from perched zones overlying the ESPA (Figure 13 and Figure 14). Withdrawals made from perched zones overlying the ESPA under water rights with priority dates junior to July 1, 1983 do not impact discharge to the Curren Tunnel, and therefore should not be vulnerable to curtailment under the Rangen Order.

18. In summary, Coalition of Cities' unrestricted water rights with priority dates junior to July 1, 1983 – i.e., water rights that are not limited solely to fire protection or domestic uses (i.e., not authorizing irrigation of parks, golf courses, etc.) – represent an aggregate maximum instantaneous diversion rate of 27.38 cfs.[7] This is 6.1% of the aggregate maximum instantaneous diversion rate of water rights listed on Attachment A of the April 11, 2014 Rangen Order, and 7.6% of the aggregate maximum instantaneous diversion rate represented by water rights listed on Attachment A of the April 11, 2014 Rangen Order listing irrigation as an authorized use.

19. The April 11, 2014 Rangen Order lists the May 5, 2014 through March 31, 2015 mitigation obligation at the Curren Tunnel as 0.4 cfs. The Coalition of Cities' portion of this obligation, if seen as a percentage (i.e., 7.6%) of total agricultural curtailment, would be 0.03 cfs (approximately 13.5 gallons per minute).

[7] This includes diversions from perched aquifers having indirect hydraulic connection with the regional ESPA.

City of Bliss Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
37-4305	Dec	GW	8/1/1960	0.12	54	n/a	Mun	Union Pacific RR also listed as current owner with City.
37-4306	Dec	GW	2/1/1960	0.15	67	n/a	Mun	
37-8886	Lic	GW	11/24/1998	0.45	202	n/a	Mun	Irrigation of large projects such as parks and golf courses prohibited.

Table 2. City of Bliss water right portfolio.

City of Carey Water Right Portfolio										
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes		
				Rate (cfs)	Rate (gpm)	Vol (AFA)				
37-7766	Dec	GW	2/21/1979	0.71	318	n/a	Mun	Transfer 71537 allowed replacement well to be drilled	37-7766, 37-20384 & 37-21355 limited to 2.70 cfs when combined.	Requires annual measurement & reporting
37-20384	Lic	GW	3/20/2001	0.70	314	n/a	Mun	Irrigation of large projects such as parks and golf courses prohibited.		
37-21243	Lic	GW	12/25/2003	0.60	269	56.4	Mun			Trust Water language
37-21355	Lic	GW	9/23/2004	1.29	578	n/a	Mun		37-7766, 37-20384 & 37-21355 limited to 2.70 cfs when combined. Mitigation plan required.	
37-22661	Lic	GW	8/18/2011	1.45	650	n/a	Mun	Municipal use for fire protection only		

Table 3. City of Carey water right portfolio.

City of Burley Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
1-7082	Dec	Snake River	2/24/1983	1.60	717		WQ	Limited to 2 ac-ft/day.
1-7099	Lic	Snake River	6/20/1989	1.19	534		Irrig	Use requires 288 ac-ft storage water rented from upper Snake R. water bank.
36-2648A	Dec	GW	4/6/1966	1.96	879		Ind	Potato Processing Plant limited to 7.70 cfs/3630.8 af when combined with 36-4179, 36-4180, 36-2729, 36-2648A, 36-8154.
36-2648B	Dec	GW	4/6/1966	0.70	314		Ind	Ethanol Plant
36-2729	Dec	GW	3/3/1964	0.56	251		Ind	Potato Processing Plant limited to 7.70 cfs/3630.8 af when combined with 36-4179, 36-4180, 36-2729, 36-2648A, 36-8154.
36-4080	Dec	GW	8/7/1961	0.91	408		Mun	
36-4180	Dec	GW	8/1/1962	0.02	9		Irrig	Llimited to 7.70 cfs/3630.8 af when combined with 36-4179, 36-4180, 36-2729, 36-2648A, 36-8154.
36-4181	Dec	GW	9/8/1962	0.02	9		Irrig	
36-4182	Dec	GW	10/1/1962	0.02	9		Ind	Carpenter Shop
36-8154	Dec	GW	2/24/1983	1.20	538		Ind	Potato Processing Plant limited to 7.70 cfs/3630.8 af when combined with 36-4179, 36-4180, 36-2729, 36-2648A, 36-8154.
45-2179	Dec	GW	9/22/1930	1.51	677		Irrig	
			5/9/1966	0.30	135		Ind	
45-4085	Dec	GW	12/31/1959	0.89	399		Mun	Irrigates golf course with 45-7092.
45-4087	Dec	GW	6/1/1940	0.12	54		Mun	Irrigates Pleasant View Cemetery with 45-7114.

Table 4. City of Burley water right portfolio (Table 1 of 2).

City of Burley Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
45-4088	Dec	GW	6/1/1939	0.04	18		Dom	Limited to 2500 gpd
45-4089	Dec	GW	5/31/1947	1.23	552		Mun	
45-4090	Dec	GW	4/1/1943	2.01	901		Mun	
45-4091	Dec	GW	4/1/1955	1.72	771		Mun	
45-4092	Dec	GW	4/1/1928	1.34	601		Mun	
45-4093	Dec	GW	12/31/1934	2.00	897		Mun	
45-4094	Dec	GW	12/31/1949	1.66	744		Mun	
45-4095	Dec	GW	4/1/1917	1.11	498		Mun	
45-4096	Dec	GW	12/31/1917	1.34	601		Mun	
45-4097	Dec	GW	4/14/1905	0.89	399		Mun	
45-4098	Dec	GW	9/30/1960	2.67	1,197		Mun	
45-4099	Dec	GW	12/31/1941	2.67	1,197		Mun	
45-7002	Dec	GW	8/24/1967	2.15	964		Irrig	Limited to 5.57 cfs/1796.5 af when combined with 45-7512.
				4.00	1,794		Com	
				0.40	179		Dom	
45-7092	Dec	GW	3/10/1972	0.44	197		Mun	Irrigates golf course with 45-4085.
45-7114	Dec	GW	12/7/1972	0.18	81		Mun	Irrigates Pleasant View Cemetery with 45-4087.
45-7269	Dec	GW	5/25/1976	3.56	1,596		Mun	
45-7436	Dec	GW	2/15/1980	0.69	309		Mun	
45-7735	Lic	GW	9/3/1996	4.46	2,000		Mun	Irrigation of large projects such as parks and golf courses prohibited. Trust Water language.
45-11133	Dec	GW	12/31/1954	0.89	399		Mun	
45-13895	Dec	GW	10/30/1926	0.89	399		Mun	
45-14083	Dec	GW	3/31/1939	1.34	601		Mun	
45-14290	Dec	GW	4/1/1944	0.44	197		Mun	
45-7686	Permit	GW	2/11/1991	1.75	785		Mun	Trust Water language
45-13411	Permit	GW	10/22/2001	7.80	3,498		Mun	Irrigation of large projects such as parks and golf courses prohibited.

Table 5. City of Burley water right portfolio (Table 2 of 2).

City of Declo Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
45-2676	Dec	GW	12/8/1961	1.11	498	n/a	Mun		Limited to 3.34 cfs when combined
45-7726	Lic	GW	2/16/1995	2.23	1,000	n/a	Mun	Trust water language	
45-11024	Dec	GW	12/31/1945	0.15	67	13.2	Irrig		3.3 acres

Table 6. City of Declo water right portfolio

City of Dietrich Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
37-20729	Dec	GW	12/31/1910	0.37	166	n/a	Mun	Transfer 78013 allowed 2nd well to be added.	
37-22751	Per	GW	6/1/2012	0.20	90	n/a	Mun	Irrigation of large projects such as parks and golf courses prohibited. Mitigation plan required. Trust water language.	Requires annual measurement & reporting

Table 7. City of Dietrich water right portfolio.

City of Gooding Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
37-262A	Dec	LWR	2/22/1883	3.16	1,417		GW Rech	37-262A, 37-709A & 37-960A share POD aka Headgate 96	Per transfer 78927, mitigates ground water proposed for municipal use under permit 37-22850. Delivery subject to water exchange provisions per BOR contract 14-06-W-73.
37-271A	Dec	LWR	6/30/1882	0.32	143			Rights 37-271A, 37-282 & 37-662 limited to 1070.6 af when combined and share PODs aka Pump 95-P1, Headgate 93, School Pump, Pump 97-P & Main St. Pump.	
37-282	Dec	LWR	4/1/1877	1.00	448				
37-662	Dec	LWR	6/15/1885	1.42	637				
37-709A	Dec	LWR	2/22/1883	0.74	332				
37-960A	Dec	LWR	4/1/1883	0.57	256				
37-4080	Dec	GW	9/28/1928	2.80	1,256		Mun	Rights 37-4080 & 37-11221 limited to 7.05 cfs when combined. *Transfer 78928 allows 3 existing wells and up to 3 new wells.	

Table 8. City of Gooding water right portfolio (Table 1 of 2).

City of Gooding Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
37-4087	Dec	GW	6/1/1948	0.04	18	2,500 gpd	Dom	Airport domestic use limited to 2500 gpd	
37-7597	Dec	GW	5/5/1977	1.07	480	312	Irrig	Irrigation of 78 acres.	
37-11221	Dec	GW	4/20/1977	5.90	2,646		Mun	Rights 37-4080 & 37-11221 limited to 7.05 cfs when combined. *Transfer 78928 allows 3 existing wells and up to 3 new wells.	
37-22850	Per	GW	8/27/2013	7.21	3,233	1,846	Mun	Mitigated with surface water per Transfer 78927. Limited to 71% of volume recharged each year, not to exceed 1846 af. Requires annual measurement and reporting.	Trust Water language
*To the extent necessary for administration between points of diversion for ground water, and between points of diversion for ground water and hydraulically connected surface sources, this right retains its original priority for well locations authorized under this right as identified in decree dated 12/11/2002. LWR = Little Wood River.									

Table 9. City of Gooding water right portfolio (Table 2 of 2).

City of Hazelton Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
36-2282	Dec	GW	4/25/1955	0.20	90	n/a	Mun	POU not described or digitized	Rights 36-2282, 36-4250 & 36-7858 limited to 1.48 cfs/3.6 af when combined per Transfer 68980
				0.11	49	3.6	Dom	Domestic use under rights 36-2282, 36-4250 & 36-7858 for 6 homes in Saunders Sub.	
36-4250	Dec	GW	6/21/1917	0.28	126	n/a	Mun	POU not described or digitized	Rights 36-2282, 36-4250 & 36-7858 limited to 1.48 cfs/3.6 af when combined per Transfer 68980
				0.11	49	3.6	Dom	Domestic use under rights 36-2282, 36-4250 & 36-7858 for 6 homes in Saunders Sub.	
36-7634A	Dec	GW	7/23/1976	0.19	85	27 AFA, 13k gpd	Dom	44 apartments & 1 office	Lakeview Apartments
				0.14	63	28	Irrig	7 Acres	
36-7858	Dec	GW	6/12/1979	1.00	448	n/a	Mun	POU not described or digitized	Rights 36-2282, 36-4250 & 36-7858 limited to 1.48 cfs/3.6 af when combined per Transfer 68980
				0.11	49	3.6	Dom	Domestic use under rights 36-2282, 36-4250 & 36-7858 for 6 homes in Saunders Sub.	

Table 10. City of Hazelton water right portfolio.

City of Heyburn Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
36-4210	Dec	GW	7/1/1953	0.03	13	4	Irrig	1 acre
36-8550	Lic	GW	5/29/1990	6.67	2,991	n/a	Mun	Trust Water language
36-8738	Lic	GW	5/22/1995	3.30	1,480	n/a	Mun	Trust Water language

Table 11. City of Heyburn water right portfolio.

City of Paul Water Right Portfolio										
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes		
				Rate (cfs)	Rate (gpm)	Vol (AFA)				
36-4083	Dec	GW	4/27/1920	0.67	300	n/a	Mun		Limited to 2.51 cfs and 1107.8 afa when combined	Limited to 5.26 cfs and 3098.7 afa when combined
36-7206	Dec	GW	8/9/1971	1.06	820	58	Mun	Trust Water lang-uage		
36-7899	Dec	GW	2/27/1980	0.78	400	n/a	Mun			
36-8763	Lic	GW	10/18/1999	2.75	1,500	n/a	Mun	Trust Water lang-uage		
36-12179	Dec	GW	1/1/1942	0.22	465	n/a	Dom		81 houses	City of Paul Housing Authority

Table 12. City of Paul water right portfolio.

City of Jerome Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
36-2518	Dec	GW	9/14/1961	1.11	498	n/a	Mun	Rights 36-2518, 36-4195, 36-4196, 36-8237 & 36-15361 limited to 12.76 cfs when combined per Transfer 69114. POU not described or digitized.
36-2526	Dec	GW	10/27/1961	5.68	2,547	492.8	Mun	Transfer 72803 allowed right to be changed from irrigation & commercial use to municipal use.
36-4195	Dec	GW	12/31/1907	0.39	175	n/a	Mun	Rights 36-2518, 36-4195, 36-4196, 36-8237 & 36-15361 limited to 12.76 cfs when combined per Transfer 69114. POU not described or digitized.
36-4196	Dec	GW	7/4/1957	5.68	2,547	n/a	Mun	
36-8234	Per	GW	1/11/1984	0.28	126	2 AF/day con-sump-tive	Irrig	Permit assigned to City in 2011 from MSS, LLC
				0.28	126		Com	
				0.50	224		Dom	
				0.17	76		Rec	
36-8237	Dec	GW	12/22/1983	2.71	1,215	n/a	Mun	Rights 36-2518, 36-4195, 36-4196, 36-8237 & 36-15361 limited to 12.76 cfs when combined per Transfer 69114. POU not described or digitized.
36-15361	Dec	GW	12/31/1930	2.87	1,287	**	Mun	Rights 36-2518, 36-4195, 36-4196, 36-8237 & 36-15361 limited to 12.76 cfs and 1325 afa when combined per Transfer 69114. POU not described or digitized.
36-16938	Dec	GW	8/20/1982	0.01	4		Irrig	Split from 36-8111. Decreed prior to split.

Table 13. City of Jerome water right portfolio.

City of Richfield Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
37-4084	Dec	GW	6/1/1914	0.15	67	n/a	Mun	Transfer 75360 allowed integration of 3-well system plus new 4th well	Requires annual measure-ment & reporting
37-4085	Dec	GW	6/1/1956	0.14	63	n/a	Mun		
37-8042	Lic	GW	9/22/1988	1.63	731	n/a	Mun		
37-8336	Per	Waste Water	4/19/1988	0.12	54	n/a	WQ Improv	Proof submitted 12/22/1988	
37-22431	Per	GW	1/13/2009	1.19	534	n/a	Mun	Irrigation of large projects such as parks and golf courses prohibited. Mitigation plan required. Proof due 11/1/2014. Trust water language.	

Table 14. City of Richfield water right portfolio.

City of Rupert Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
36-4075	Dec	GW	12/31/1955	27.00	12,108	n/a	Mun	Integrated system per approved XFR 5196. Same wells as 36-15491
36-7115	Dec	GW	3/15/1970	2.40	1,076	n/a	Mun	Rights 36-7115, 36-7656, 36-7862, 36-15488 and 36-15489 limited to 10.61 cfs when combined per Transfer 5277
36-7656	Dec	GW	9/18/1962	3.44	1,543	n/a	Mun	
36-7862	Dec	GW	10/11/1985	1.15	516	n/a	Mun	
36-7863	Dec	GW	6/30/1979	3.83	1,717	n/a	Mun	Wells shared with 36-4075 & 36-15489 per conditions
36-8198	Lic	Waste Water	6/10/1983	n/a	n/a	1,500	Irrig Stor	1/1-12/31. Trust water language.
				n/a	n/a	780	Irrig from Stor	3/15-11/15. Trust water language.
36-15488	Dec	GW	4/10/1913	0.67	300	n/a	Mun	Rights 36-7115, 36-7656, 36-7862, 36-15488 and 36-15489 limited to 10.61 cfs when combined per Transfer 5277
36-15489	Dec	GW	11/29/1917	2.95	1,323	n/a	Mun	
36-15490	Dec	GW	4/1/1952	0.06	27	6.8	Irrig	1.7 acres
				0.01	4	4.2	Aesth	
36-15491	Dec	GW	12/31/1934	6.00	2,691	n/a	Mun	Same wells as 36-4075

Table 15. City of Rupert water right portfolio.

City of Shoshone Water Right Portfolio								
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes
				Rate (cfs)	Rate (gpm)	Vol (AFA)		
37-560A	Dec	Little Wood River	11/28/1882	0.40	179	n/a	Irrig	37-560A, 37-606C & 37-691G limited to 41 acres irrigation when combined
37-560B	Dec	Little Wood River	11/28/1882	0.14	63	n/a	Irrig	4.5 acres
37-606C	Dec	Little Wood River	11/28/1882	1.00	448	n/a	Irrig	37-560A, 37-606C & 37-691G limited to 41 acres irrigation when combined
37-691G	Dec	Little Wood River	4/1/1885	1.136	509	n/a	Irrig	
37-4173	Dec	GW	10/1/1951	4.12	1,848	n/a	Mun	Transfer 71898 allowed integration of well system. Requires annual measurement & reporting
37-7432	Dec	GW	5/6/1975	2.00	897	n/a	Mun	
37-7662	Dec	GW	8/30/1977	2.01	901	n/a	Mun	

Table 16. City of Shoshone water right portfolio.

City of Wendell Water Right Portfolio									
Water Right	Status	Source	Priority Date	Authorized Diversion			Use	Notes	
				Rate (cfs)	Rate (gpm)	Vol (AFA)			
36-2509	Dec	GW	8/25/1961	1.50	673	n/a	Irrig	155 acres	
36-7440	Dec	GW	2/6/1974	0.22	99	53.1	Ind	Industrial use for washing rock & mixing concrete	
36-7722	Dec	GW	6/20/1977	2.67	1,197	n/a	Mun	Rights 36-7722, 36-11276 & 36-11277 limited to 4.67 cfs when combined.	Rights 36-7722, 36-8424, 36-8764, 36-11276 & 35-11277 limited to 8.7 cfs when combined per Transfer 75891
36-8421	Lic	GW	9/14/1998	2.76	1,238	n/a	Mun	Irrigation of large projects such as parks and golf courses prohibited. Trust water language.	
36-8764	Lic	GW	3/28/1997	1.27	570	n/a	Mun		
39-11276	Dec	GW	4/27/1951	1.33	596	n/a	Mun	Rights 36-7722, 36-11276 & 36-11277 limited to 4.67 cfs when combined.	
36-11277	Dec	GW	12/31/1929	0.67	300	n/a	Mun		

Table 17. City of Wendell water right portfolio.

Coalition of Cities Water Rights in Rangen Call with Priority Dates on or after July 1, 1983						
Owner	**Water Right No.**	**Priority Date**	**Maximum Diversion Rate (cfs)**	**Use**	**Comment**	**Maximum Diversion Rate under Unrestricted Rights* (cfs)**
Bliss	37-8886	11/24/1998	0.45	Mun	Dom uses only, no irrig of parks & golf courses	
Burley	45-7686	2/11/1991	1.75	Mun		1.75
Burley	45-7735	9/3/1996	4.46	Mun		4.46
Burley	45-13411	10/22/2001	7.8	Mun	Dom uses only, no irrig of parks & golf courses	
Carey	37-20384	3/20/2001	0.7	Mun		
Carey	37-21243	12/25/2003	0.6	Mun		
Carey	37-21355	9/23/2004	1.29	Mun		
Carey	37-22661	8/18/2011	1.45	Mun	Fire protection	
Declo	45-7726	2/16/1995	2.23	Mun		2.23
Dietrich	37-22751	6/1/2012	0.2	Mun	Dom uses only, no irrig of parks & golf courses	
Heyburn	36-8550	5/29/1990	6.67	Mun		6.67
Heyburn	36-8738	5/22/1995	3.3	Mun		3.3
Jerome	36-8237	12/22/1983	2.71	Mun		2.71
Jerome	36-8234	1/11/1984	1.23	Irrig, Com, Dom, Rec	0.5 cfs limited to domestic uses	0.73
Paul	36-8763	10/18/1999	2.75	Mun		2.75
Richfield	37-8402	9/22/1988	1.63	Mun		1.63
Richfield	37-22431	1/13/2009	1.19	Mun	Dom uses only, no irrig of parks & golf courses	
Rupert	36-7862	10/11/1985	1.15	Mun		1.15
Wendell	36-8764	3/28/1997	1.27	Mun	Dom uses only, no irrig of parks & golf courses	
Wendell	36-8421	9/14/1998	2.76	Mun		
Total			45.59			27.38

Table 18. Summary of junior-priority Coalition of Cities' water rights.

4. GROUNDWATER DIVERSIONS UNDER MUNICIPAL RIGHTS

This section provides a summary of groundwater use by Coalition cities, which is then compared to authorized municipal water-right volumes. Actual municipal withdrawals (reported as volumes) provides a better measure of aquifer impact. This is a preliminary assessment; a more detailed compilation and analysis of water production is underway.

Initial findings are outlined below.

Analysis of Diversion Volumes vs. Water Rights

1. The average monthly volume of water diverted for municipal purposes by each Coalition city (based on 2009-2013 water-use data) and maximum authorized volume under each city's municipal water rights are shown in Figure 2 through Figure 12. Figures are presented for the cities of Bliss, Burley, Carey, Declo, Dietrich, Heyburn, Jerome, Paul, Richfield, Rupert, and Wendell; comparisons of pumping and authorized water-right volumes are not shown for the cities of Gooding, Hazelton, and Shoshone because these communities do not have unmitigated water rights with priority dates junior or equal to July 1, 1983.
2. Volumes authorized under water rights with priority dates junior or equal to July 1, 1983 are highlighted in above-referenced figures with diagonal pattern fill. The average monthly production is less than the monthly volume authorized under pre-July 1, 1983 water rights for each of the Coalition cities except Heyburn and Richfield.

Heyburn and Richfield Diversions

3. The average annual production volumes in the cities of Heyburn and Richfield withdrawn under post-July 1, 1983 water rights are approximately 751 AF and 1,120 AF, respectively.
4. Most of the City of Richfield's diversions are authorized under post-July 1, 1983 water rights. However, the City appears to provide minimal irrigation use (Figure 10). Based on minimal apparent difference between winter and summer pumping, it appears that all of the City's water production is primarily for in-home domestic purposes.
5. The average irrigation use by the City of Heyburn is approximately 300 AF/year (Table 19).
6. IDWR has informally stated that in-home domestic uses would not be curtailed under the Rangen Order. Therefore, combined consumptive depletions by the City of Heyburn and City of Richfield is approximately 300 AF/year. This is equivalent to an average annual rate of 0.41 cfs.

Mitigation Obligations

7. The combined maximum authorized instantaneous diversion rates of post-July 1, 1983 water rights held by the cities of Heyburn (36-8550) and Richfield (37-8042 and 37-22431) to which volumetric production is allocated in the above-described analysis is 9.49 cfs (this approach of using maximum authorized diversion rate is consistent with the earlier compilation of total aggregate diversion rate of all post-July 1, 1983 water rights presented earlier). The 9.49 cfs aggregate maximum diversion rate is far in excess of the actual 0.41-cfs average consumptive production by the cities of Heyburn and Richfield (see above).
8. The 9.49 cfs aggregate diversion rate of post-1983 water rights held by the cities of Heyburn and Richfield is approximately 2.1% of the aggregate maximum instantaneous diversion rate 448.71 cfs of all of the post-1983 water rights listed in the April 11, 2014 Rangen Order.
9. By approximation, the mitigation obligation of the Coalition of Cities to Rangen (based on the aggregate maximum instantaneous diversion rate for post-July 1, 1983 water rights under which municipal volumes are withdrawn) is 0.008 cfs (2.1%) of the total 2014 0.4 cfs mitigation obligation specified in the April 11, 2014 Rangen Order.
10. The total average monthly volume authorized under Coalition cities' pre-July 1, 1983 water rights but *not* used on an average basis between 2009 and 2013 is substantially greater than the consumptive use under post-July 1, 1983 water rights by the cities of Heyburn and Richfield.
11. Portraying monthly authorized volume and monthly average diversions is consistent with the monthly time steps used in ESPAM2 model simulations to represent municipal water use. However, comparisons of *annual* (instead of monthly) diversions and annual authorized water right volumes might be equally valid, because municipal water-rights holders are entitled to use full authorized water-right volumes on an annual basis.
12. Shallow aquifers underlying the cities of Burley, Declo, Heyburn, Paul, and Rupert are in direct hydraulic connection with the Snake River upstream of Milner Dam, but not in direct hydraulic connection with the regional ESPA. The Trust Area boundary[8] (Figure 13 and Figure 14) identifies the area in which water rights authorizing diversions from perched aquifers are not

[8] IDAPA 37.03.08.30.

administered as part of the ESPA aquifer. Diversions from shallow aquifers in this area have no impact on discharge to the Curren Tunnel. Similarly, curtailment of junior-priority groundwater rights authorizing diversions from these shallow aquifers will have no benefit to the Curren Tunnel. An analysis of municipal production by aquifer source for communities overlying perched, non-ESPA aquifers is currently underway.

13. As a result of municipal diversions from shallower, perched aquifers not in direct hydraulic connection with the ESPA (e.g., perched aquifers identified as not being part of the Trust Area), the actual impact of pumping by Coalition cities may be less than the estimated impact to the Curren Tunnel listed in Paragraph 9 above.

14. A substantial portion of pumping under post-July 1, 1983 water rights by the cities of Heyburn and Richfield is for non-consumptive purposes. However, treated wastewater discharge resulting from Richfield in-home domestic use is land-applied, and therefore may be considered consumptively used (treated domestic wastewater from the cities of Carey, Paul, Rupert, and Wendell are similarly land-applied or discharged to evaporation ponds).

15. The groundwater production illustrated in Figure 2 through Figure 12 is used for in-home domestic and small-scale urban irrigation. However, the in-home domestic use in most of these communities is consumptive because treated wastewater is disposed of by land-application.

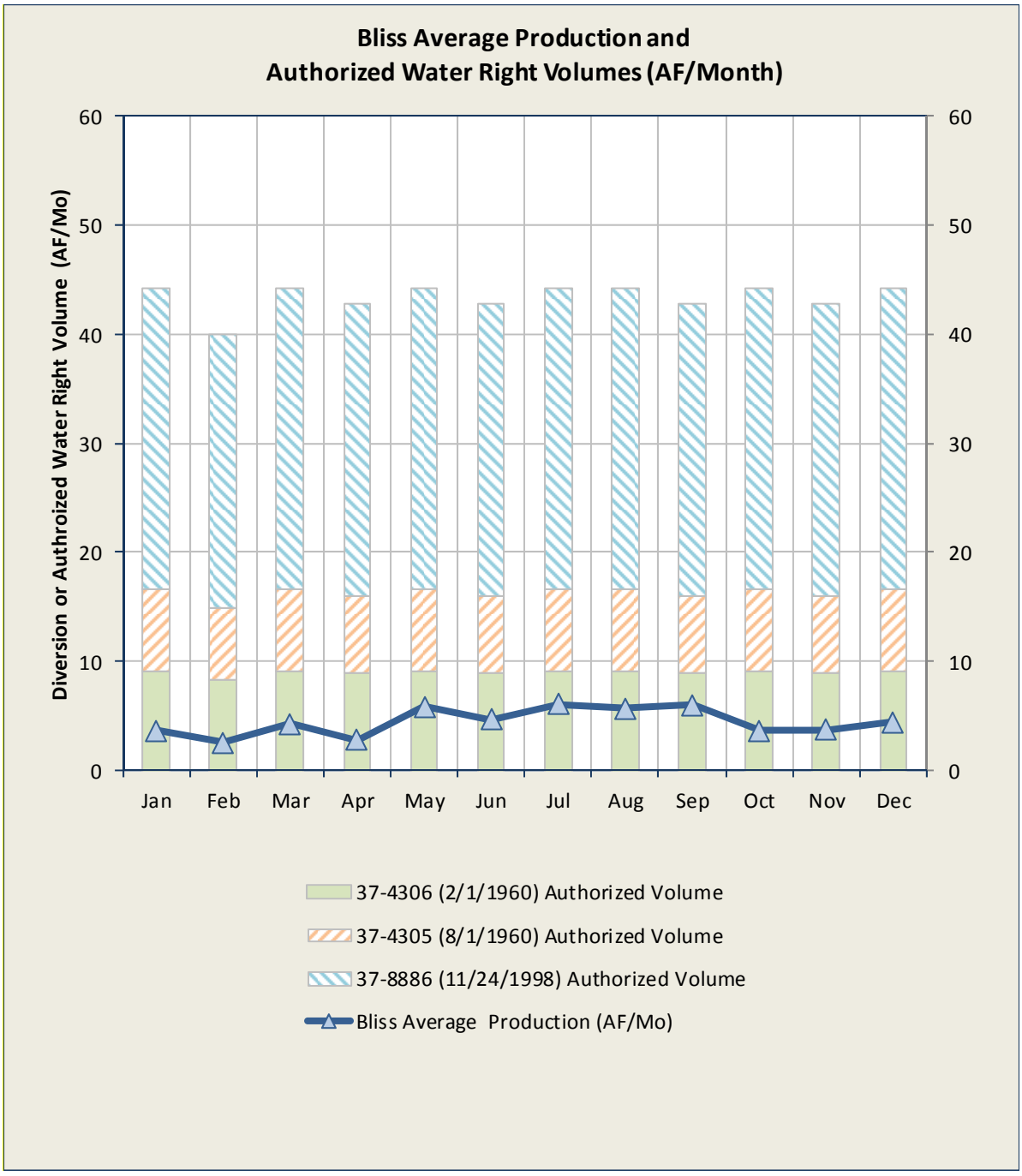


Figure 2. City of Bliss monthly average water production and maximum authorized volume under municipal water rights.

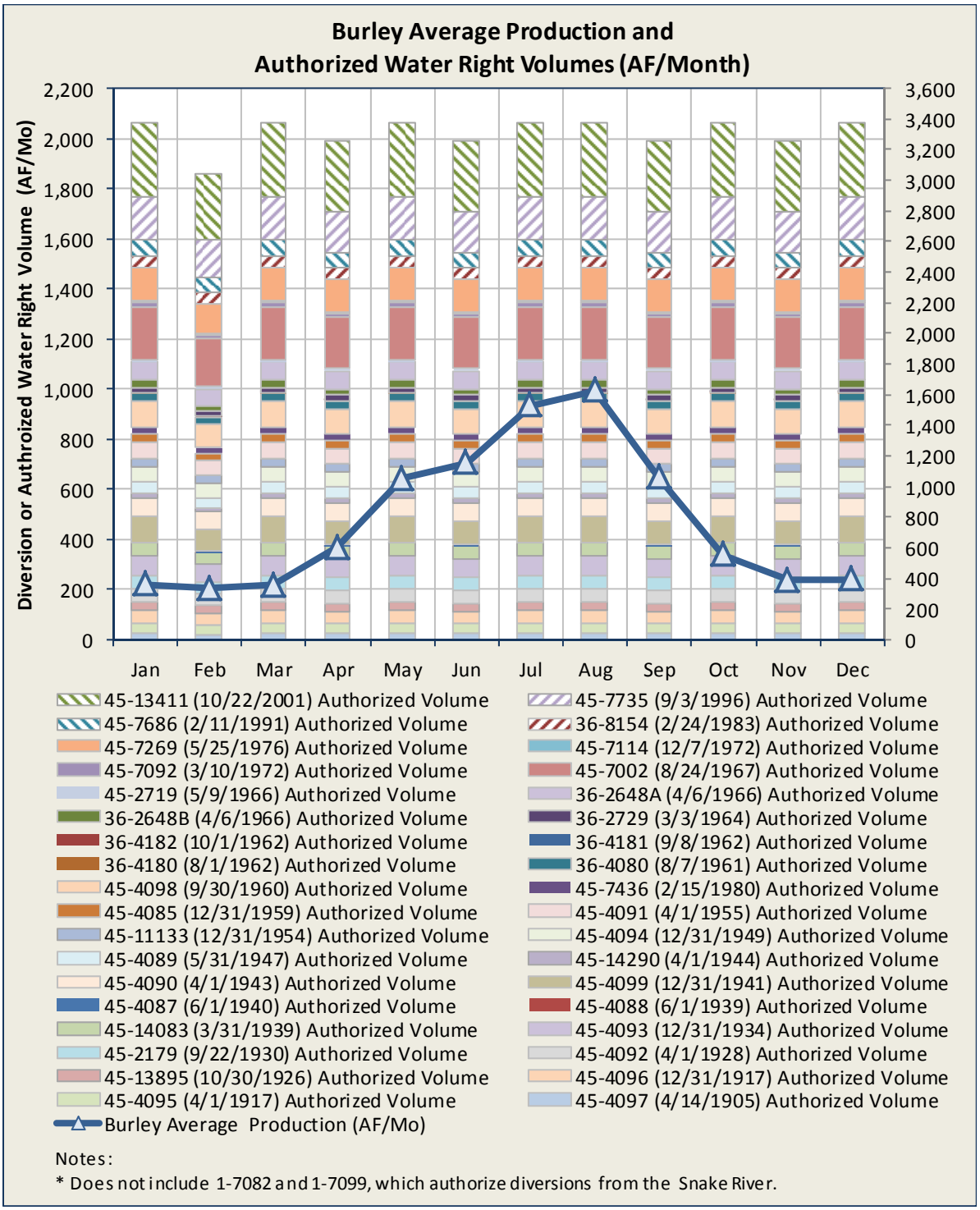


Figure 3. City of Burley monthly average water production and maximum authorized volume under municipal water rights.

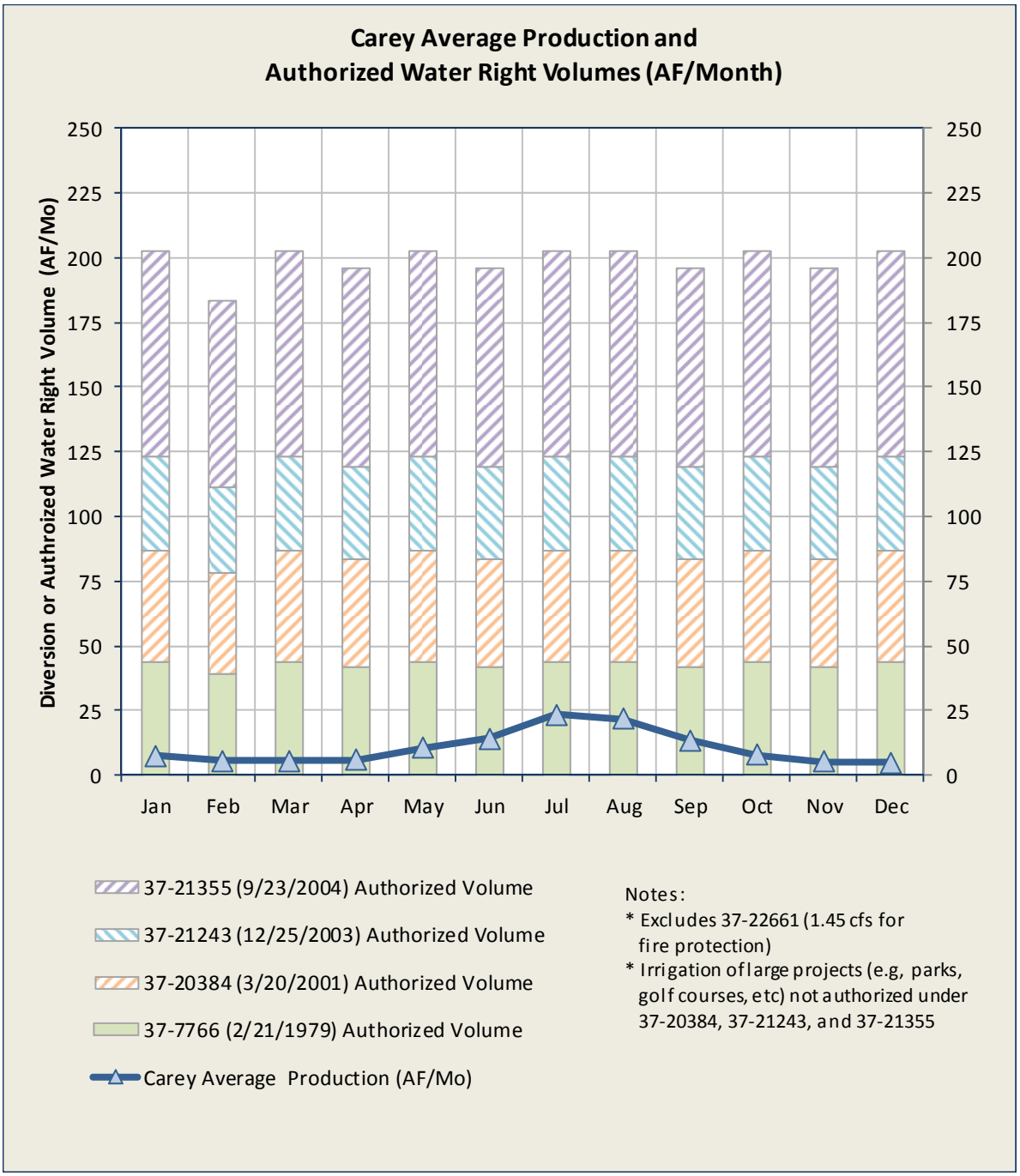


Figure 4. City of Carey monthly average water production and maximum authorized volume under municipal water rights.

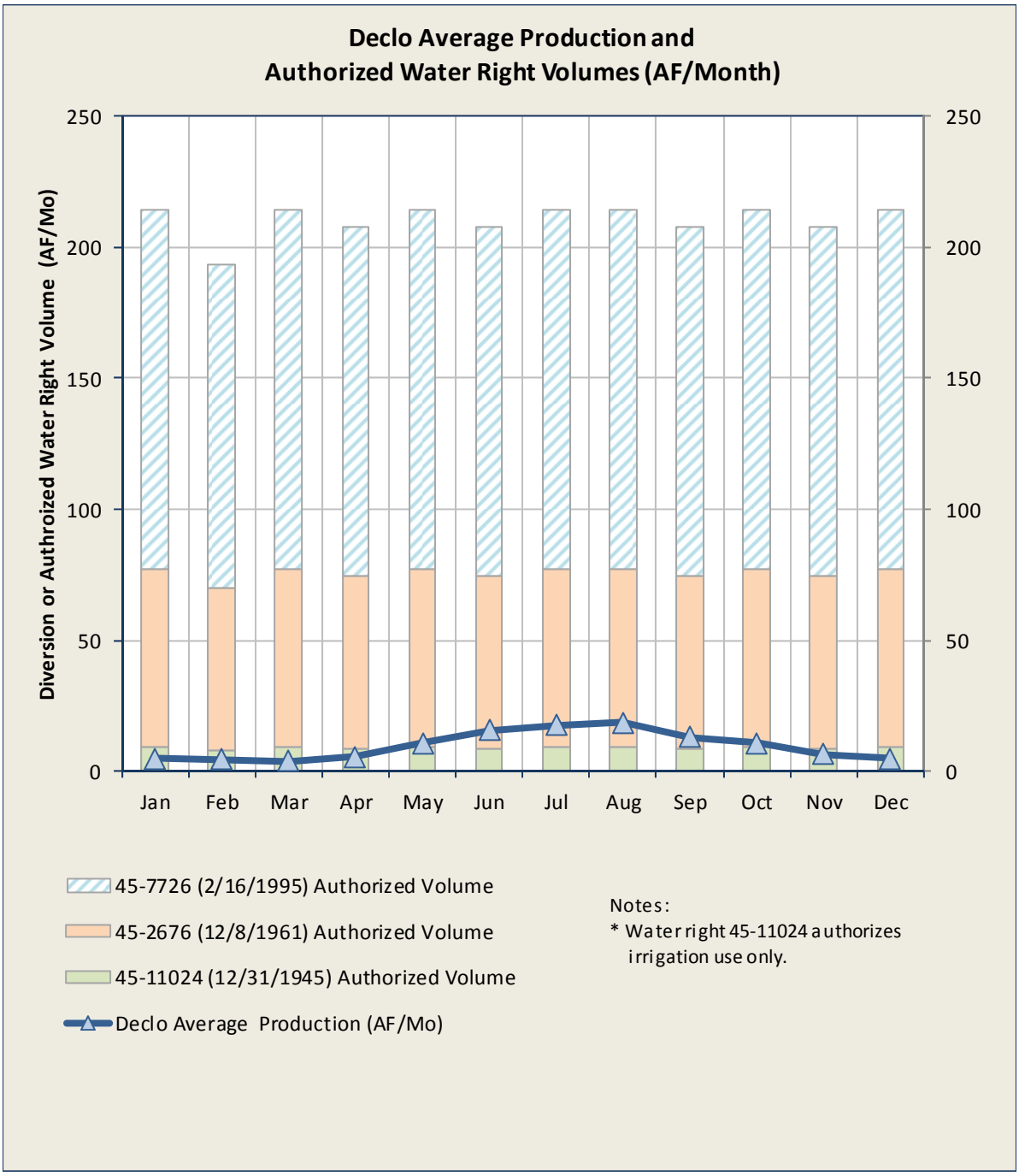


Figure 5. City of Declo monthly average water production and maximum authorized volume under municipal water rights.

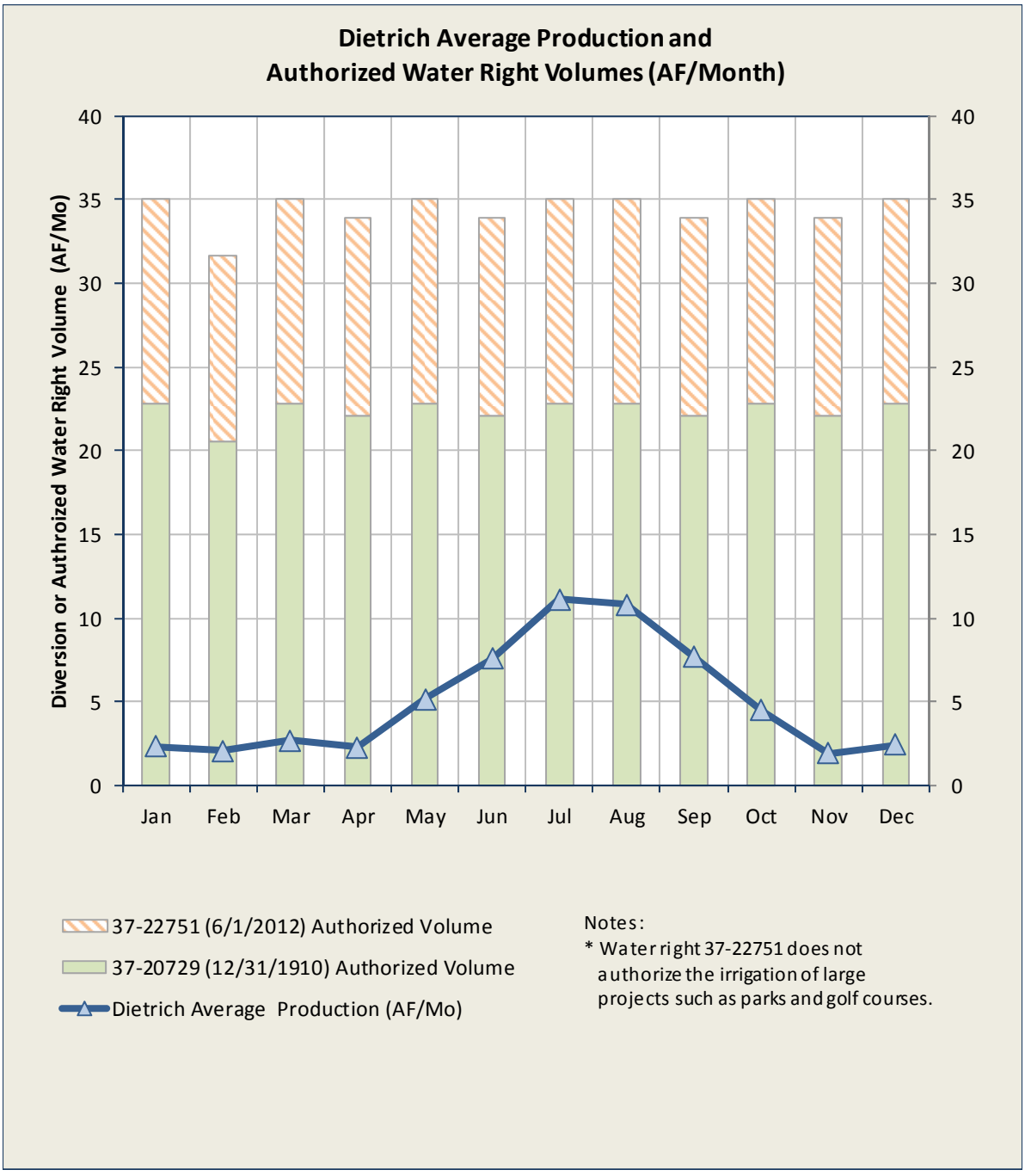


Figure 6. City of Dietrich monthly average water production and maximum authorized volume under municipal water rights.

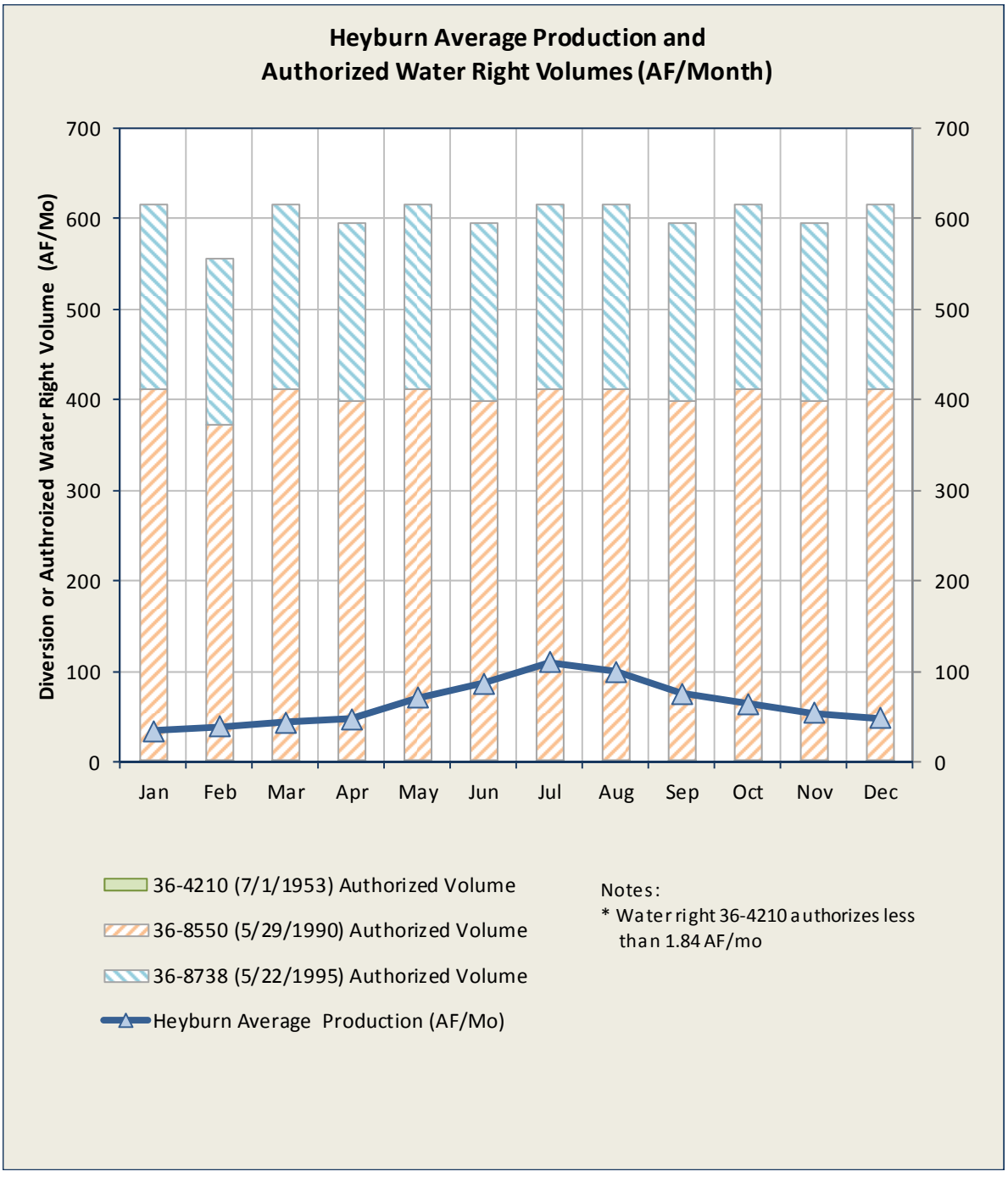


Figure 7. City of Heyburn monthly average water production and maximum authorized volume under municipal water rights.

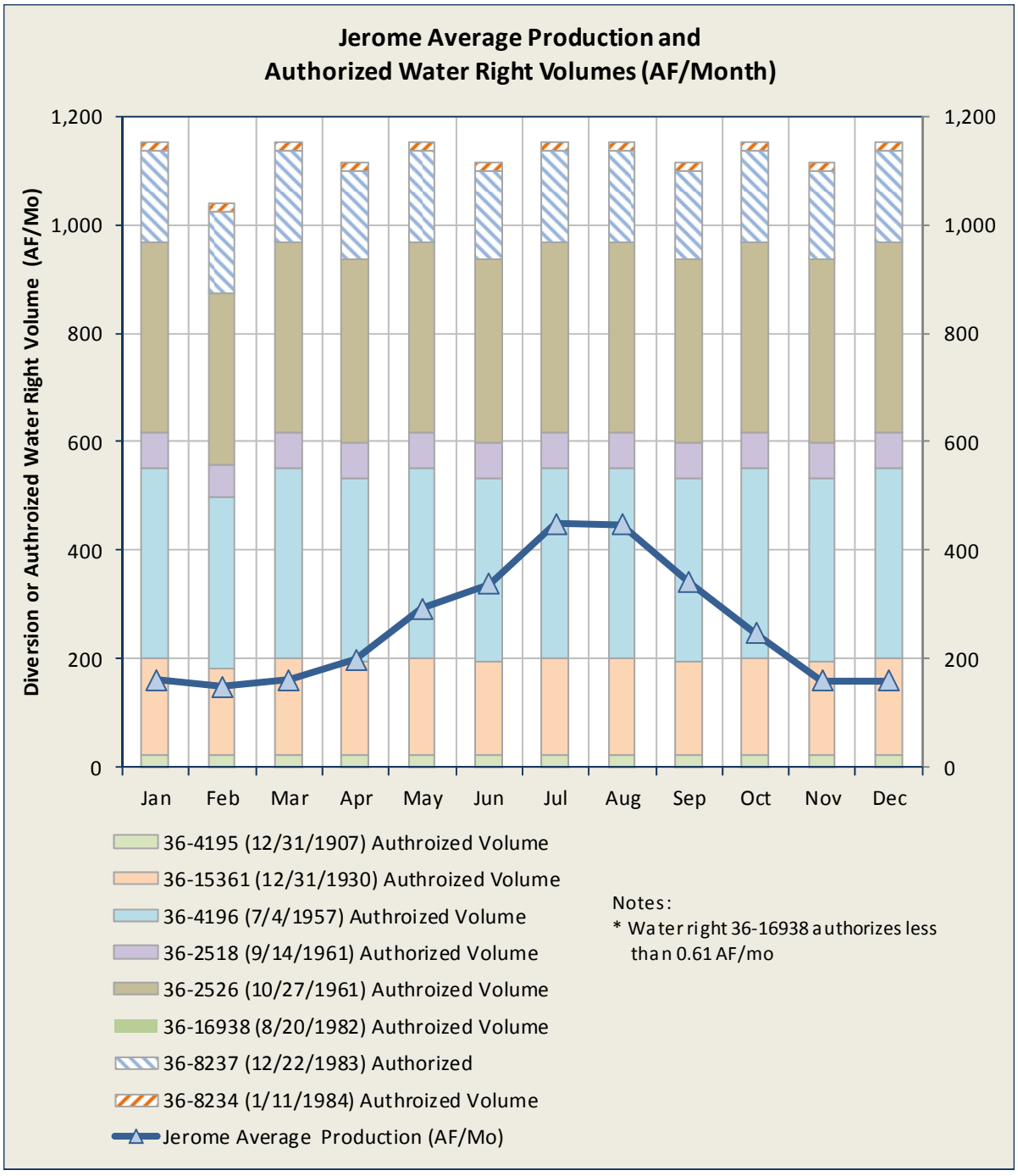


Figure 8. City of Jerome monthly average water production and maximum authorized volume under municipal water rights.

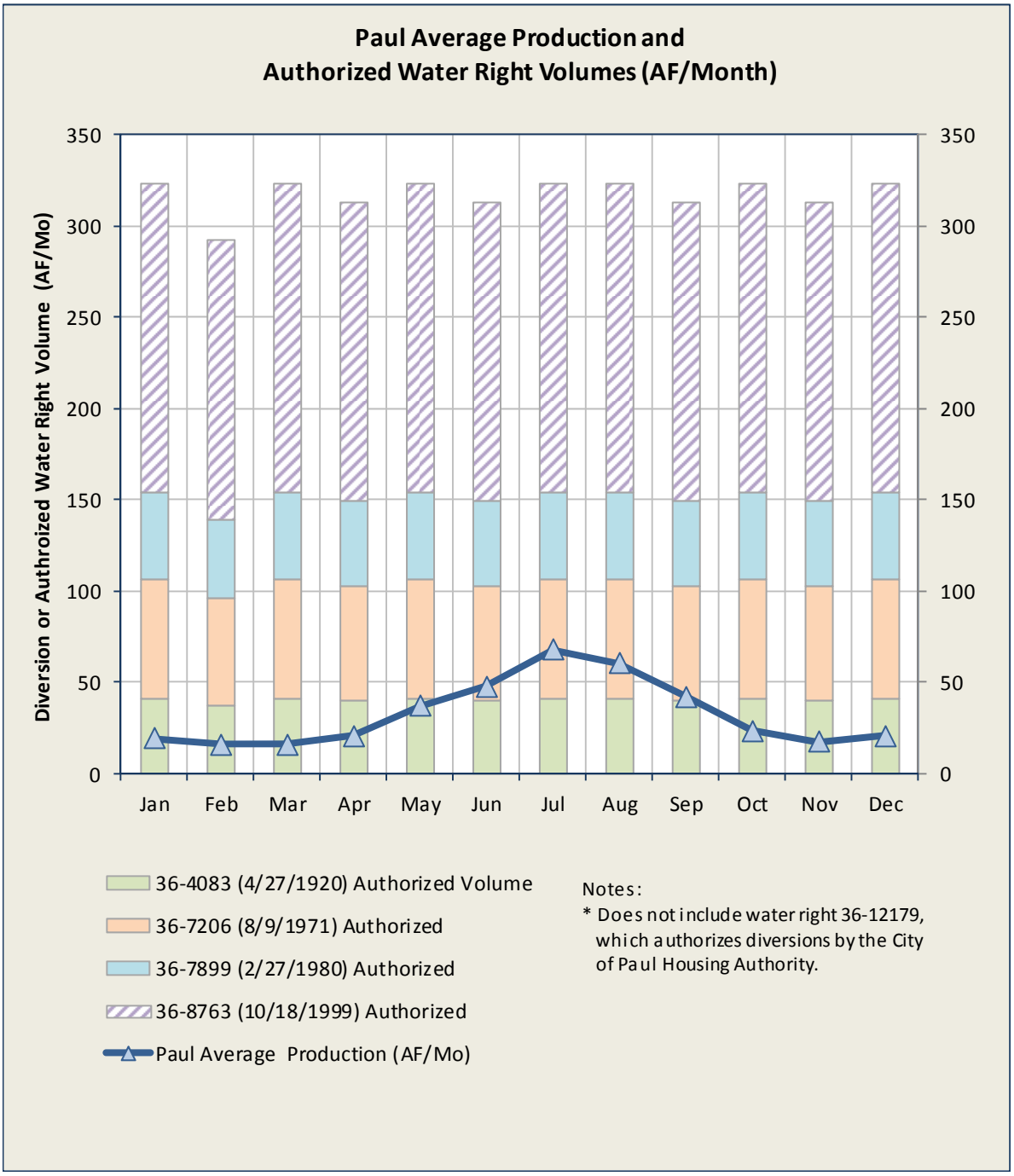


Figure 9. City of Paul monthly average water production and maximum authorized volume under municipal water rights.

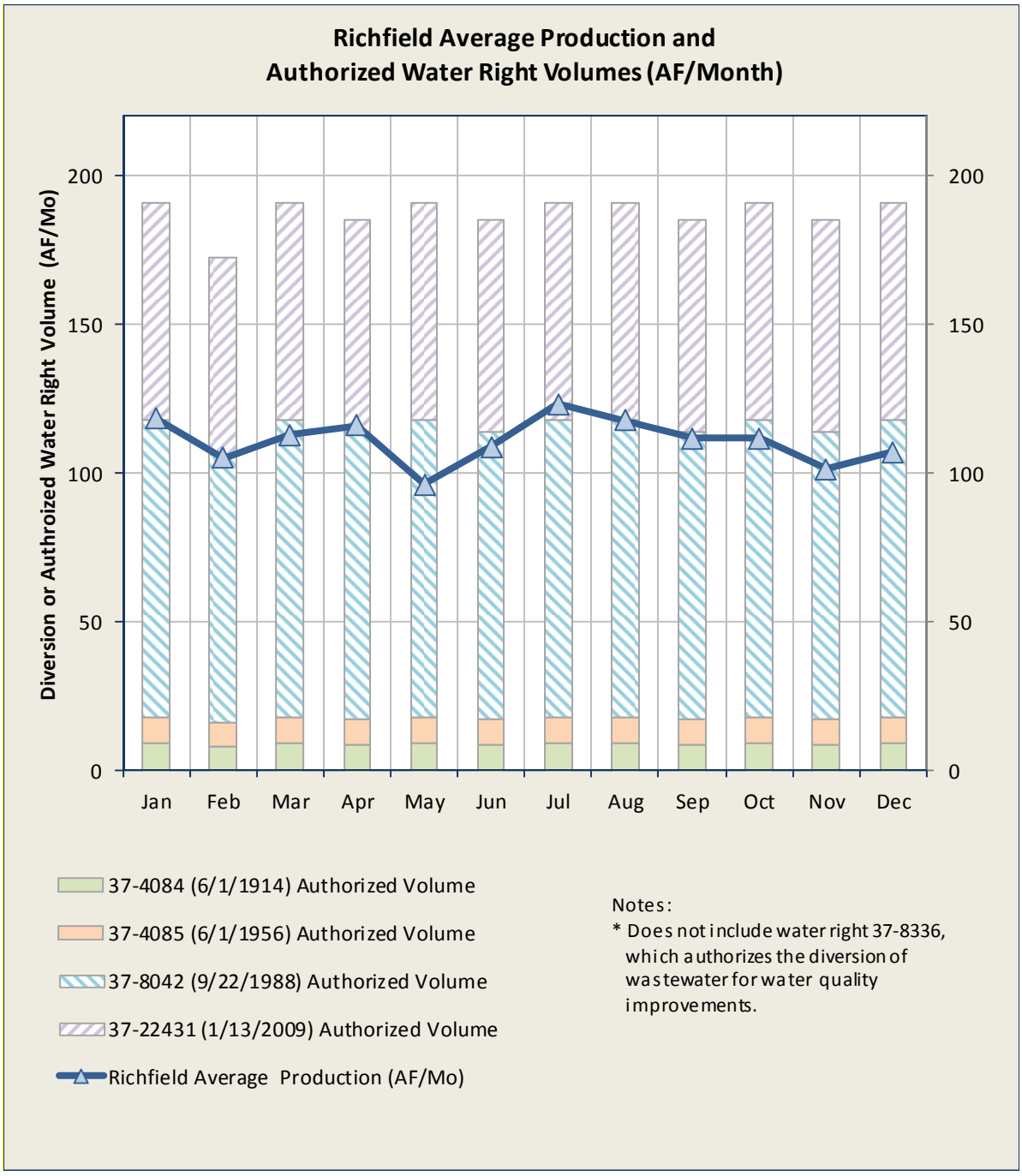


Figure 10. City of Richfield monthly average water production and maximum authorized volume under municipal water rights.

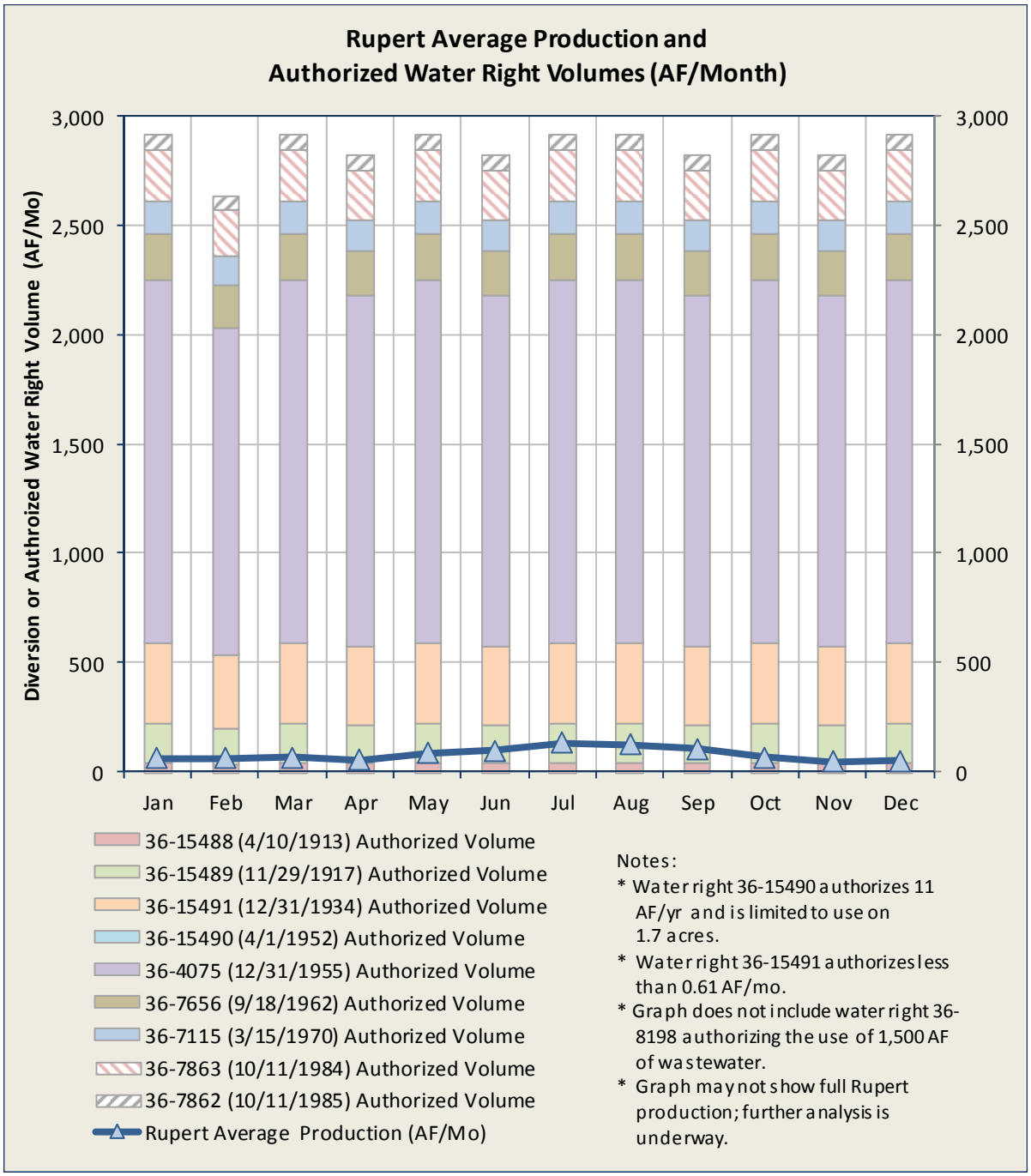


Figure 11. City of Rupert monthly average water production and maximum authorized volume under municipal water rights.

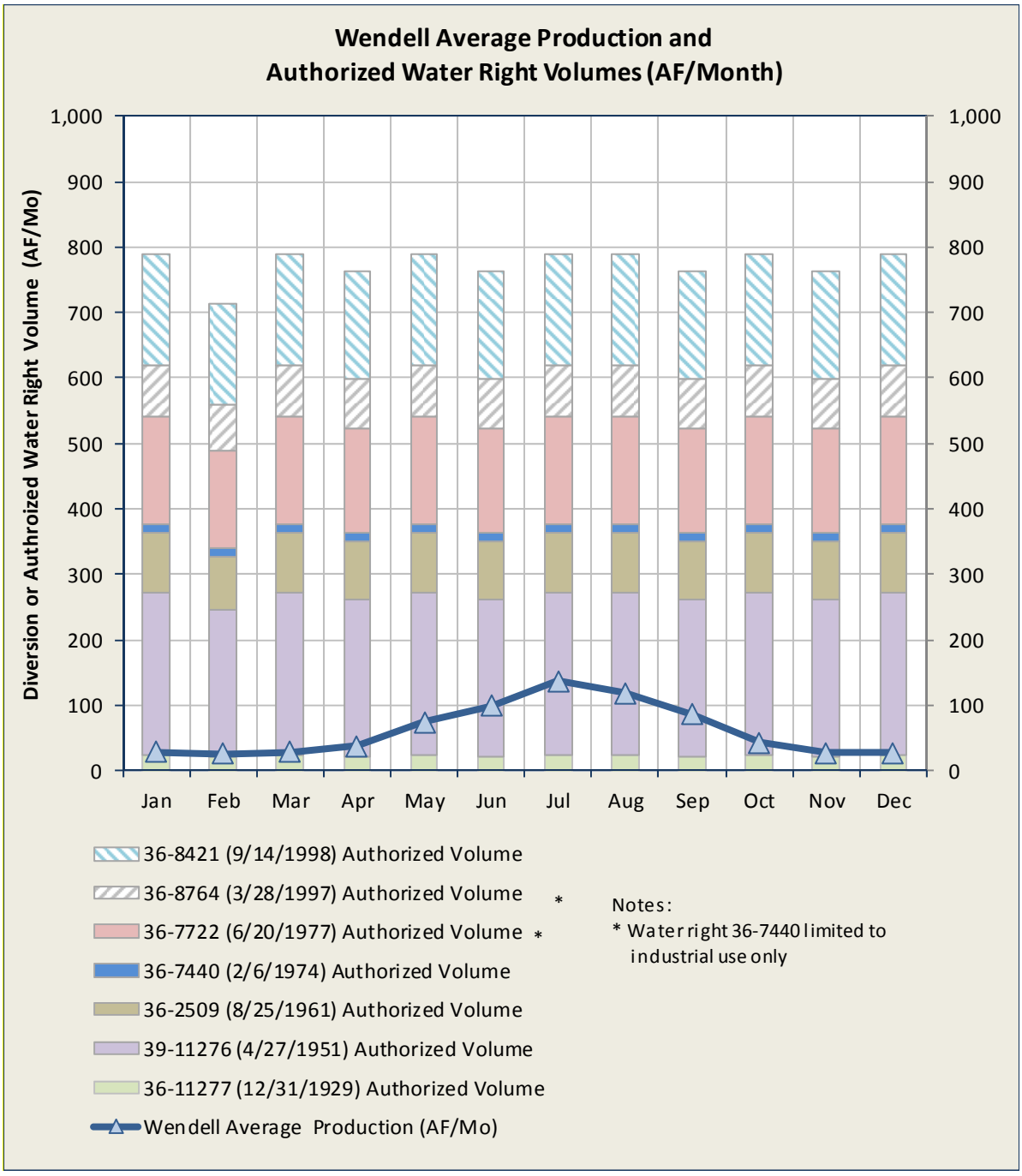


Figure 12. City of Wendell monthly average water production and maximum authorized volume under municipal water rights.

Average Monthly City of Heyburn Water Production, 2009-2013										
2009-2013	Production (gals x1000)				Production (acre feet)					
	Well #2	Well #3	Well #4	Total	Well #2	Well #3	Well #4	Total	Estimated Irrigation Use	Estimated Domestic Use
Jan	1.24	3.55	6.28	9.81	4	11	19	34	0	34
Feb	1.35	4.80	6.46	11.32	4	15	20	39	0	39
Mar	2.49	4.64	7.17	12.87	8	14	22	44	4	40
Apr	3.08	4.21	8.06	13.75	9	13	25	47	7	40
May	3.57	7.99	11.60	20.85	11	25	36	71	31	40
Jun	5.19	9.92	12.99	25.50	16	30	40	86	46	40
Jul	8.02	13.72	14.23	33.12	25	42	44	110	70	40
Aug	7.13	12.22	13.17	29.88	22	38	40	100	59	40
Sep	4.23	10.13	10.13	24.49	13	31	31	75	35	40
Oct	4.93	5.06	10.88	20.87	15	16	33	64	24	40
Nov	3.97	4.35	9.29	17.61	12	13	28	54	14	40
Dec	3.01	3.83	8.91	15.75	9	12	27	48	8	40
Total	48	84	119	236	148	259	366	773	297	476
* Assumes that domestic use is represented by average water use in December through February.										

Table 19. Average monthly water use, City of Heyburn.

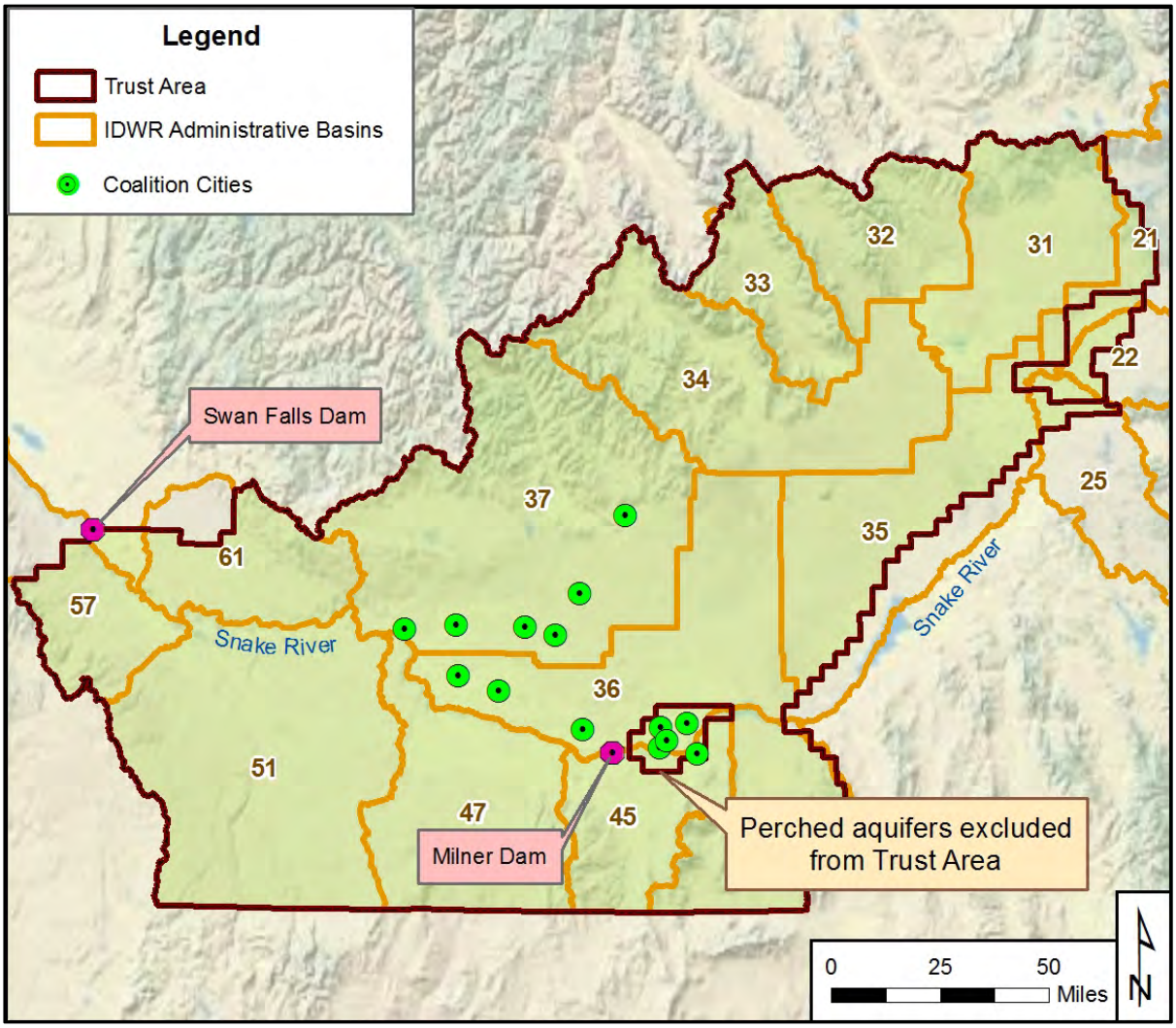


Figure 13. Trust area.

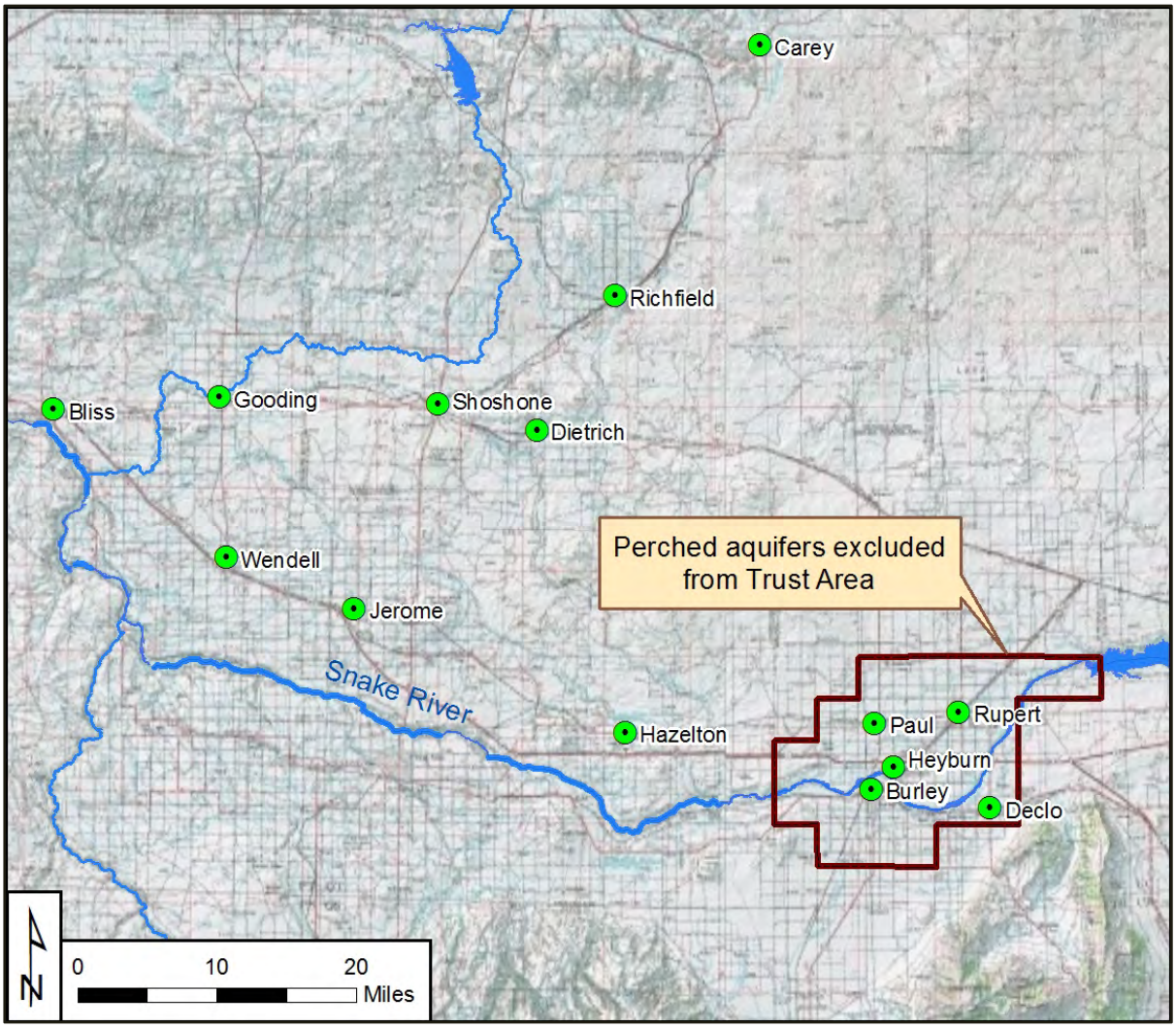


Figure 14. Area in which perched aquifers are excluded from the Trust Area.

5. MITIGATION PLAN AND SUPPORTING ANALYSIS

5.1. Mitigation Requirements

1. Several of the Coalition cities are members of IGWA. Mitigation measures being proposed by IGWA to address impacts to the Curren Tunnel will, if accepted, cover impacts associated with municipal pumping by the Coalition cities. However, the Coalition cities are providing a separate (and possibly redundant) mitigation plan to avoid any risk of municipal curtailment in the coming year.
2. The precise mitigation obligation by the Coalition of Cities has not been determined (IDWR has not simulated the benefits to the Curren Tunnel by curtailment of municipal rights).
3. In lieu of a precise mitigation obligation by the Coalition of Cities, the cities' mitigation obligation is being estimated based on (a) the maximum instantaneous diversion rate authorized by municipal rights under which volume is extracted (i.e., water rights 36-8550 held by the City of Heyburn and water rights 37-8042 and 37-22431, held by the City of Richfield) compared to (b) the aggregate maximum instantaneous diversion rate of all water rights listed in the April 11, 2014 Rangen order.
4. The aggregate maximum instantaneous diversion rate authorized under water rights 36-8550, 37-8042, and 37-22431 is 9.49 cfs. This amount is 2.1% of the aggregate maximum instantaneous diversion rate authorized under the post-July 1, 1983 water rights listed in the April 11, 2014 Rangen Order.
5. The total amount of water required for mitigation under the April 11, 2014 Rangen Order for the period between May 5, 2014 and March 31, 2015 is 0.4 cfs (assuming that Morris forgoes the diversion of 3.0 cfs from the Curren Tunnel). Of the 0.4 cfs total 2014 obligation, the Coalition of Cities' obligation is approximately 0.0084 cfs (i.e., 2.1 % of 0.4 cfs calculated based on the ratio calculated above).
6. The maximum estimated 2014 Coalition of Cities' obligation to the Rangen facility, if the cities are not entitled to use full volume under senior-priority water rights, would be approximately 0.04 cfs, based on the ratio of aggregate authorized maximum diversion rate authorized by all post-July 1, 1983 municipal water rights (45.49 cfs) compared to the 448.71 aggregate maximum diversion rate authorized by all of the post- July 1, 1983 water rights listed in Appendix A of the April 11, 2014 Rangen Order.

5.2. Sandy Pond Recharge

The Coalition of Cities propose using recharge from the Sandy Ponds to mitigate for the cities' impact of depletions by pumping under water rights with post-July 1, 1983 priority dates.

1. The Sandy Ponds are located approximately 1.5 miles south-southeast of the Curren Tunnel (Figure 15).
2. Mr. Howard (Butch) Morris has testified[9] that there is substantial seepage from the Sandy Ponds.
3. Mitigating for an impact of approximately 0.0084 cfs (see Paragraph 5, Section 5.1) would require an inflow into the Sandy Ponds of approximately 0.2 cfs. This is based proportionately on a model simulation using the transient, superposition, 150-year version of the ESPAM 2.1 model (see next paragraph).
4. Mitigating for an impact of approximately 0.04 cfs (see Paragraph 6 in Section 5.1) would require an inflow into the Sandy Ponds of approximately 0.94 cfs. This is based on a model simulation using the transient, superposition, 150-year version of the ESPAM 2.1 model (see Attachment A).
5. The Cities of Jerome, Wendell, Hazelton, and Bliss have, in aggregate, 1,924.94 shares in the North Side Canal Company. As a group they are willing to contribute the use of an appropriate number of shares to deliver 0.2 cfs to the Sandy Ponds. If the Coalition of Cities were required to mitigate for an impact associated with all post-July 1, 1983 rights, Coalition members are willing to dedicate an appropriate number of shares for mitigation between May 5, 2014 and March 31, 2015.
6. The North Side Canal Company is capable of wheeling (and willing to wheel) approximately 1 cfs (or more) of North Side Canal Company water to the Sandy Ponds.[10]
7. A measuring device has been installed to measure inflows into the Sandy Ponds.[11] My understanding is that measuring devices have not been installed

[9] Transcript in the matter of the Mitigation Plan filed by the Idaho Ground Water Appropriators for the Distribution of Water to Water Right Nos. 36-02551 and 36-07694 in the name of Rangen, Inc., Volume II, March 18, 2014, pages 407-409.

[10] Alan Hansten, Manager, North Side Canal Company, *personal communication*, April 21, 2014.
[11] *Ibid*.

to measure all outflows from the Sandy Ponds. The Coalition of Cities is willing to incur the expense of installing required measurement devices.

8. The season-of-use limits on North Side Canal Company shares may require that additional water is wheeled into the Sandy Ponds during the irrigation season to compensate for less (or no) recharge during the non-irrigation season months. The Coalition of Cities is willing to devote additional shares to provide additional water during the irrigation season, compensating for lower (or no) delivery and recharge during the non-irrigation season.
9. If North Side Canal Company Water cannot be used for recharge (because of authorized nature-of-use constraints), then the Coalition of Cities is committed to identifying and implementing other sources of water for recharge purposes (municipal wastewater, storage water, etc.).

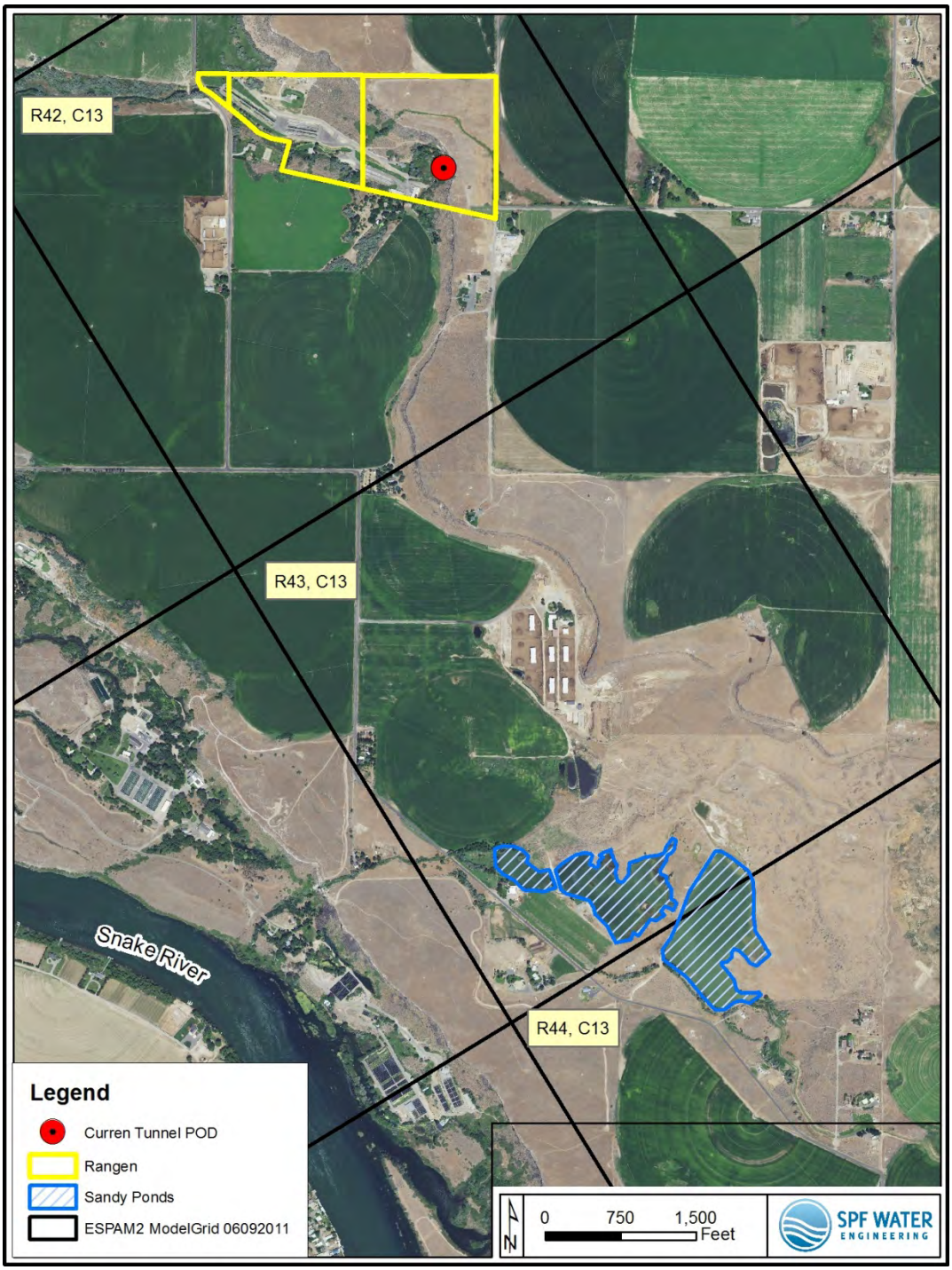


Figure 15. Sandy Pond area.

6. REFERENCES

IDWR, 2013. Enhanced Snake Plain Aquifer Model Version 2.1, prepared by the Idaho Department of Water Resources with guidance from the Eastern Snake Hydrologic Modeling Committee, January 2013. .

ATTACHMENT A: MODEL SIMULATION

MEMORANDUM

To: Christian Petrich, SPF Water Engineering

From: Emily LoDolce, P.E.

Subject: Iterative model runs to determine benefit to Curren Tunnel from Sandy Pond recharge

Date: April 24, 2014

This memorandum summarizes the process undertaken by AMEC to determine the amount of water required as recharge at the Sandy Ponds to produce 0.0408 cfs at the Curren Tunnel, using the ESPAM 2.1 groundwater model.

Methodology

The transient, superposition, 150-year version of the ESPAM 2.1 was used. The methodology presented by IDWR in their "Order Approving in Part and Rejecting in Part IGWA's Mitigation Plan; Order Lifting Stay Issued February 21, 2014; Amended Curtailment Order" was followed as closely as possible. Note however that some supplemental modeling files provided as part of the Order were not available for download on the IDWR website[1] as of April 22, 2014, making it impossible to directly compare AMEC's model files to those of IDWR.

Recharge was applied to the two model cells in which the Sandy Ponds are located. These cells were identified by overlaying the ESPAM 2.1 model grid on aerial imagery. Figure 1 shows the Sandy Ponds, Curren Tunnel outlet, and ESPAM 2.1 model grid. The amount of recharge added in the model was split evenly between the two model cells. The recharge was applied for the first year of the simulation and then turned off. A few iterations were required to find the amount of recharge that produced 0.0408 cfs at the Tunnel.

Results

The ESPAM 2.1 simulation shows that it requires 0.938 cfs (679 ac-ft) of recharge in the Sandy Ponds to produce 0.0408 cfs at the Curren Tunnel within one year. Figure 2 shows the response curve.

A second set of iterations was run to find the recharge amount that produces 0.0408 cfs eventually at the Tunnel. That is, recharge was applied every year of the simulation and 0.0408 cfs showed up over the long-term. The simulation shows that 0.914 cfs (662 ac-ft) of recharge in the Sandy Ponds annual produces 0.0408 cfs at the Curren Tunnel by the end of the 89th year. Figure 3 shows the response curve.

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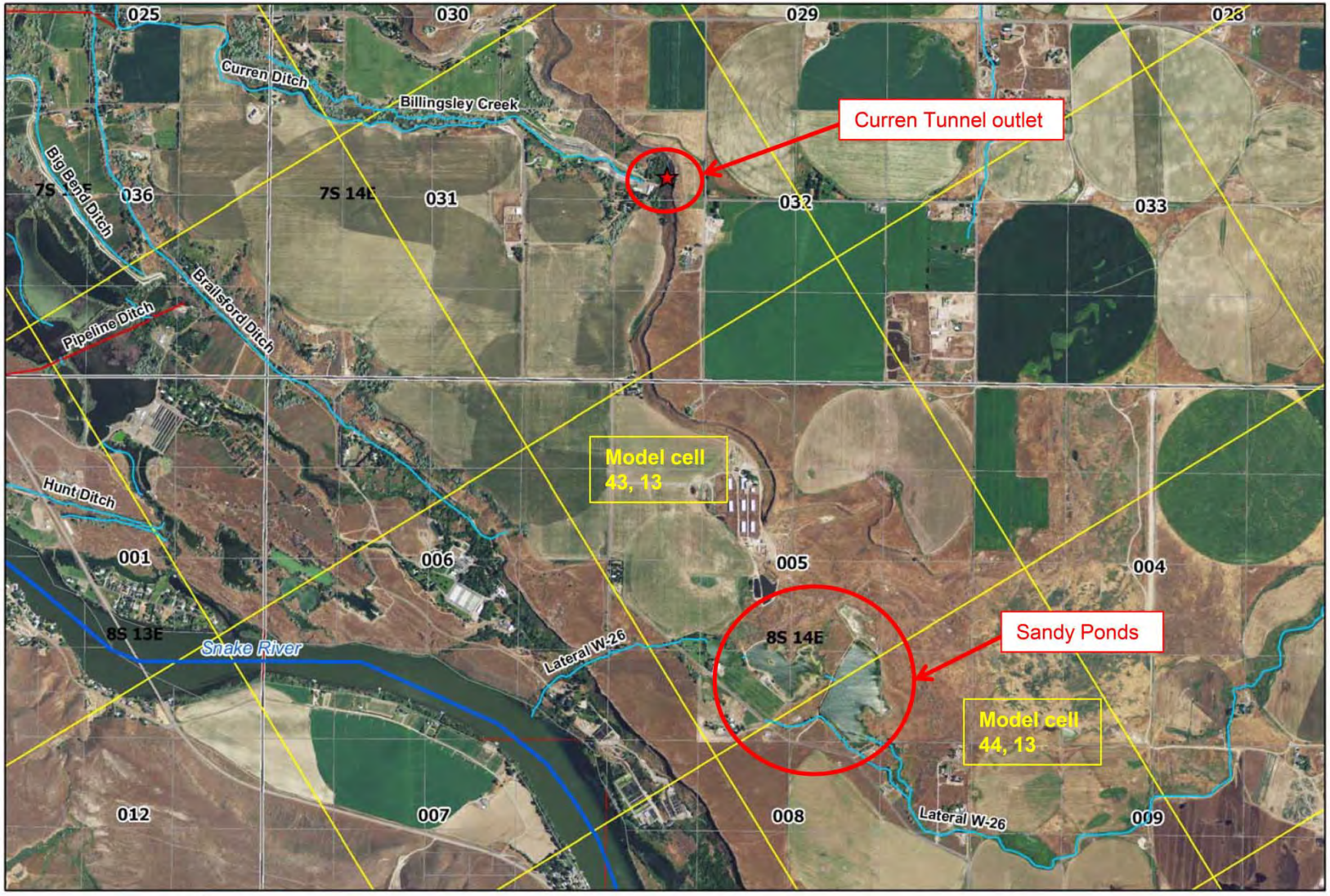
[1] http://www.idwr.idaho.gov/browse/legal/rangen/Data_Accmp_4_11_14_Order/2005_2014Runs/

AMEC Environment & Infrastructure
1002 Walnut Street, Suite 200
Boulder, Colorado 80302

Tel: 303.443.7839
Fax: 303.442.0616

Figure 1. Sandy Ponds and Curren Tunnel Location Map



Map compiled 4/2014; intended for planning purposes only
Data Sources: NAIP 2011 imagery, IDWR, NHD Shapefiles

AMEC Environment & Infrastructure
1002 Walnut Street, Suite 200
Boulder, Colorado 80302

Tel: 303.443.7839
Fax: 303.442.0616

Figure 2. Simulated Response at Curren Tunnel from Recharging 81,000 cfd (0.938 cfs) into Sandy Ponds for 1 year

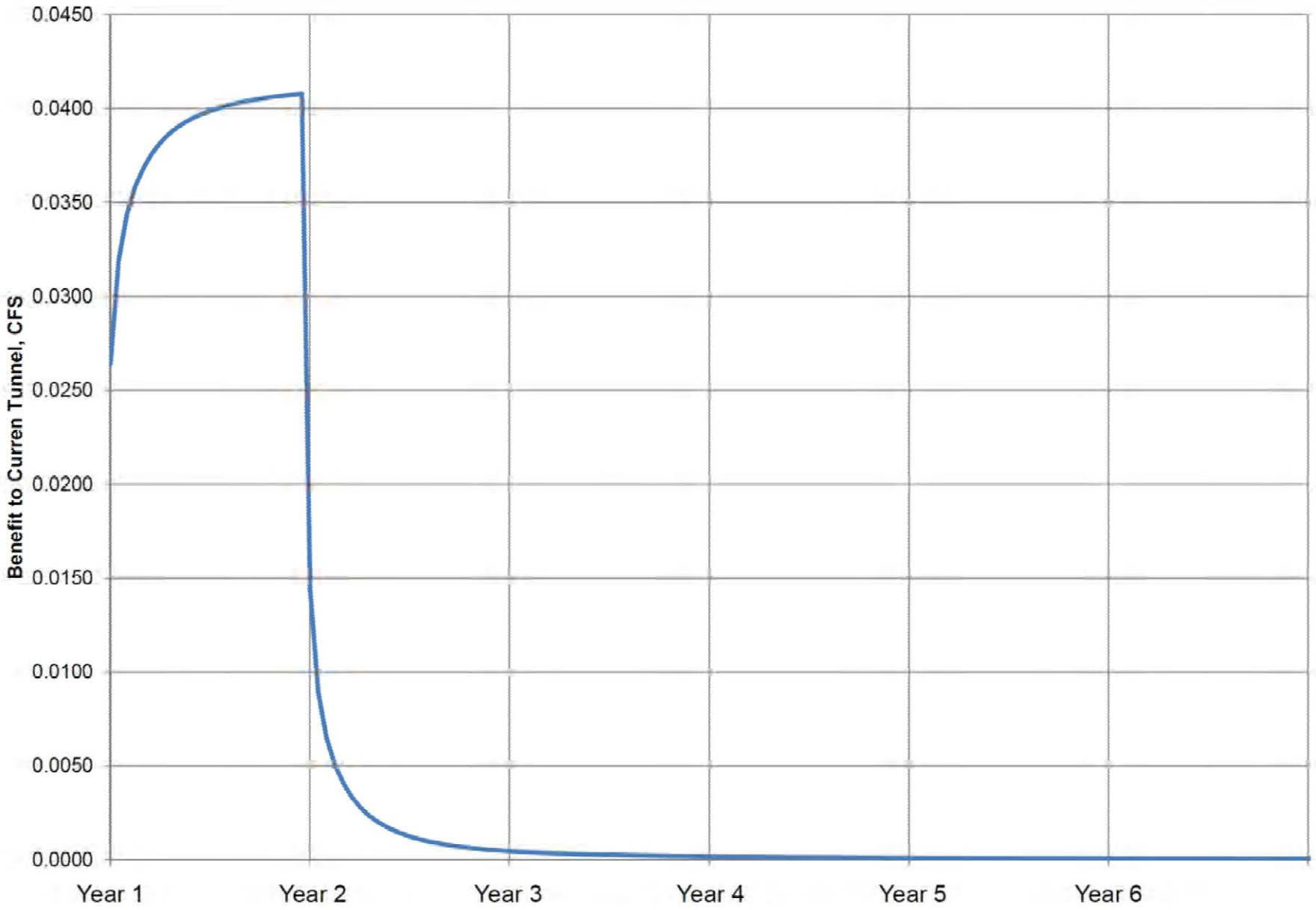


Figure 3. Simulated Response at Curren Tunnel from Recharging 79,000 cfd (0.914 cfs) Continually