

From : Tim Reiersen <tim@water-consultant.com>
To : Short, Jaime \\\(ECY\\) <JSHO461@ECY.WA.GOV>; Spangle, Herm \\\(ECY\\) <HSPA461@ECY.WA.GOV>; Tolleson, Daniel F. \\\(ECY\\) <DTOL461@ECY.WA.GOV>
Subject : RE: Response to 10/21 email re: Greiff
Cc : kfreeman@inlandearth.com; scwcb6@gmail.com; alkiepe1@gmail.com
Received On : 11/8/2022 10:13 PM
Attachments : [tech_memo_supplement_Greiff_11-08-2022.pdf](#)

Dear All,

I prepared detailed answers to the below requests for information with hopes this will resolve all of Ecology's concerns, please see attached memo. The Greiffs need the decision approval to resume their farming and livelihood.

Again, the same result is reached, but this does fill in the details for the lower three years of use out of the 5 reviewed for the ACQ statutory requirement.

Please feel free to call me before, during or after your meeting tomorrow if you have any questions.

Thank you,

Tim

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From: Short, Jaime (ECY)
Sent: Wednesday, October 26, 2022 2:09 PM
To: Tim Reiersen
Cc: kfreeman@inlandearth.com; Spangle, Herm (ECY) ; Tolleson, Daniel F. (ECY)
Subject: Response to 10/21 email re: Greiff

Dear Mr. Reiersen,

Thank you for reaching out to me regarding the processing of the Spokane County Water Conservancy Board's decisions on Mr. Greiff's applications (SPOK-22-01, 02, 03). I have reviewed the record with my team and can assure you that nothing in our decision making process includes a consideration of your client's integrity or future plans for the property. If we have done anything to give you that impression, I sincerely apologize. That being said, we do have significant concerns with the decisions forwarded to us by the Board with their recommendation to approve.

Three applications came before the Board, all of them proposing to add acres and amend the place of use. Unfortunately, each right was not evaluated on its own merits so the record for each decision is insufficient. I understand that the delivery system for these three rights has been integrated but the rights themselves are assigned individual acres. A record of decision needs to be submitted that includes the location of the acres developed under each right, what specific crops were grown on those acres for the 5 year period being evaluated for ACQ, and to what extent those acres can reasonably be expanded to under the change. The example you cited from Ecology's Guidance 20-11-065 is not relevant as these three rights are not approved for the same number of acres. In this case Mr. Greiff is not "Farmer Sam".

I appreciate your desire to avoid undue influence from agency staff and your ethical obligations to your client. Our liaison to the Conservancy Board, Herman Spangle, has reached out to Mr. Freeman and will work directly with the Spokane Board to determine next steps. The decisions as submitted cannot be approved so the Board will have to decide if they would like to withdraw and amend the record or leave them as-is. Thank you again for sharing your concerns.

Sincerely,

Jaime Short (she/her)

Section Manager, Eastern Regional Office

Water Resources Program, WA Dept. of Ecology

509.990.7636 (cell)

TECHNICAL
MEMORANDUM
SUPPLEMENT

(In Response to Ecology 10/26/2022 Comments)



DATE: November 8, 2022

TO: Jaime Short, Section Supervisor
Department of Ecology Water Resources Program, Eastern Regional

FROM: Tim Reiersen *JWR*

SUBJECT: Supplemental Information – Responses to Ecology Comments
Greiff Applications for Change Under Certificate Nos.
4057 (SPOK-22-01), 4589-A (SPOK-22-02) and G3-01333C (SPOK-22-03)

Because of the importance of these decisions for my client's farming practices and livelihood, I have made an effort here to respond to your October 26, 2022 email (**Attachment 1**) in full detail.

1. Each right was not evaluated on its own merits so the record for each decision is insufficient...the rights themselves are assigned individual acres.

The individual acres and quantities were each evaluated on their own merits and addressed separately within each of the three decisions on the three water rights. For example, the tentative determinations for each were:

"It is tentatively determined that valid rights exist as follows:

SWC 4057. 0.12 cfs, 48 ac-ft/yr for seasonal irrigation of 12 acres.

GWC 4589-A. 50 gpm, 20 af/yr for seasonal irrigation of 5 acres.

G3-01333C. 100 gpm, 68 af/yr for irrigation of 20 acres from April 1 to October 1 each year. All quantities are additive."

Please refer to the decision Report of Examination subsections "Proposed project plans and specifications" and "Tentative Determination" within the INVESTIGATION section for each of the three water rights. It is recognized that because the rights are combined, there is not only one way to apportion the total annual volume to each right. The above allocation gave full annual volume to 4057 and 4589-A, and the balance to G3-01333C.

To try to answer the question of which area of ground was irrigated by each water right, I have prepared **Figure 1** (attached), showing one possible scenario out of an infinite number of possible arrangements. The scenario shown places **SWC 4057** on the ends of the wheel lines because SWC 4057 has a lower flow rate on a per acre basis. The other two rights have a higher flow rate so this scenario accounts those acres where there is complete sprinkler overlap. With an approximate flow of 5.5 gpm per sprinkler head (as discussed in technical materials provided to the board), this scenario satisfies the water right flow rate limits.

Figure 1 shows the 37 acres that were irrigated within the SW1/4SE1/4 Sec. 4, T. 27 N., R. 42 E.W.M.—the area where all three water rights overlap completely in place of use. The cultivated area north of the water right accounting area is not irrigated, there is a high groundwater table as the ground slopes down to the creek there.

2. What specific crops were grown on those acres for the 5 year period being evaluated for ACQ?

Alfalfa hay was grown each year, however after receiving the Ecology email I double-checked the cropping once again with Mr. Greiff. I learned that the western field shown in **Figure 1** was irrigated triticale in 2018 and irrigated oats in 2019, as a rotation practice in-between alfalfa stands. The eastern field was in alfalfa during 2017-2021. Prior work assumed all was in alfalfa, however this correction only lowers the water use predictions during 2018-2019, neither of which were used to calculate the ACQ, and having no effect on the board decisions.

For comparing full production duties to deficit water duties, **Table 1** repeats the annual AgWeatherNet model predictions for full production alfalfa and spring grains cropping. Note that a similar table for a variety of crop requirements was included in the board decisions.

Crop	Crop Irrigation Requirement – April 1 through October 1 (in) with Total Irrigation Requirement after front-slash (in)				
	2017	2018	2019	2020	2021
Alfalfa	42 / 56	40 / 53	38 / 51	40 / 53	44 / 58
Spring Grains (surrogate for triticale and oats)	22 / 30	22 / 29	22 / 29	20 / 27	26 / 35

Table 1. AgWeatherNet crop requirements, full production, Green Bluff climate data station.

During 2017-2019, Mr. Greiff estimated (personal communication to me) that with deficit irrigation practices during those years he would have used about 24 inches on the alfalfa; and 12 inches on the triticale and oats. This does reflect deficit irrigation.

The estimates used by the board in its ACQ determination were not affected by the years 2017-2019, because 2020 and 2021 were the highest two years of use. The 2020-2021 estimates

within the board's decisions were accurate to full alfalfa cropping on the 37 acres, with more intensive irrigation practices.

To provide the information requested in the October 26, 2022 email, I will proceed to estimate the water used for the years 2017-2021 within the current water right places of use, and account the cropping specifically to each water right for each year.

Figure 2 (attached) illustrates the field dimensions used in the **Figure 1** (attached) scenario of water right accounting. The north-south running dashed line in **Figure 2** separates the spring grains cropping on the west from alfalfa on the right, again only for the years **2018-2019**. All fields within the current water right places of use were in alfalfa during 2017 and 2020-2021.

Table 2 below shows the water duties that form the basis of the estimates. The water duty estimates for 2020-2021 are from the high use years which were used to calculate the ACQ within the board decisions for each of the three water rights. The values were estimated from power records with independent verification from wheel line run times.

Crop	2017	2018	2019	2020	2021
Spring Grains	n/a	12 in	12 in	n/a	n/a
Alfalfa	24 in	24 in	24 in	29.2 in	44.1 in

Table 2. Water duties for annual use estimates.

By using the field dimensions in **Figure 1** (years 2017, 2020, 2021) and **Figure 2** (years 2018, 2019), the specific land areas are accounted to each water right for each year. The cropping is also accounted for in the below information, as requested. This is one of many possible scenarios for accounting the water rights, however when the cropping is uniformly alfalfa, the answer is the same any way the lines are drawn. These results are summarized in **Table 3a** (SWC 4057), **3b** (GWC 4589-A), and **3c** (G3-01333C) below. For all three water rights, the years 2020-2021 were the highest two years for purposes of ACQ.

Year	Spring Grains		Alfalfa		Total	
	Area	Annual Use	Area	Annual Use	Area	Annual Use
2017	--	--	12 ac	24 ac-ft	12 ac	24 ac-ft
2018	6 ac	6 ac-ft	6 ac	12 ac-ft	12 ac	18 ac-ft
2019	6 ac	6 ac-ft	6 ac	12 ac-ft	12 ac	18 ac-ft
2020	--	--	12 ac	29.2 ac-ft	12 ac	29.2 ac-ft
2021	--	--	12 ac	44.1 ac-ft	12 ac	44.1 ac-ft
High 2 yrs avg = (29.2+44.1)/2= 36.7 af						

Table 3a. Annual water use for SWC 4057.

Year	Spring Grains		Alfalfa		Total	
	Area	Annual Use	Area	Annual Use	Area	Annual Use
2017	--	--	5 ac	10 ac-ft	5 ac	10 ac-ft
2018	0.7 ac	0.7 af	4.3 ac	8.6 ac-ft	5 ac	9.3 ac-ft
2019	0.7 ac	0.7 af	4.3 ac	8.6 ac-ft	5 ac	9.3 ac-ft
2020	--	--	5 ac	12.2 ac-ft	5 ac	12.2 ac-ft
2021	--	--	5 ac	18.4 ac-ft	5 ac	18.4 ac-ft
High 2 yrs avg = (12.2+18.4)/2= 15.3 af						

Table 3b. Annual water use for GWC 4589-A.

Year	Spring Grains		Alfalfa		Total	
	Area	Annual Use	Area	Annual Use	Area	Annual Use
2017	--	--	20 ac	40 ac-ft	20 ac	40 ac-ft
2018	11 ac	11 af	9 ac	18 ac-ft	20 ac	29 ac-ft
2019	11 ac	11 af	9 ac	18 ac-ft	20 ac	29 ac-ft
2020	--	--	20 ac	48.7 ac-ft	20 ac	48.7 ac-ft
2021	--	--	20 ac	73.5 ac-ft	20 ac	73.5 ac-ft
High 2 yrs avg = (48.7+73.5)/2= 61 af.						

Table 3c. Annual water use for G3-01333C.

From here, the board decisions take the results for 2020 and 2021 and complete the ACQ evaluation with the conclusion for each separate water right that the consumptive use for each will not be increased due to each change. You will notice slight differences in the 2 year averages, compared to the board decisions. This is due to slightly different rounding approaches. The approach used here distributed the 90 af (2020) and 136 af (2021) total use estimates in proportion to acres, rather than according to the board's tentative determinations of annual volume for each water right. The applicant has no preference over which results are used, they are within estimation error.

3. To what extent can those acres reasonably be expanded under the change?

This is discussed in the board's decision. Please see the technical memorandum and application materials where deficit irrigation and irrigation management practices are discussed. This was carried forward to the board's decision within the section "INVESTIGATION – Proposed project plans and specifications". The Greiffs will use deficit irrigation practices and

cropping/acreage choices to stay within the water right limits. They have demonstrated their ability to do so, which can be seen from the energy use during 2020-2021. It was similar to energy use when irrigating the entire farm. During 2020-2021, the irrigation was concentrated on 37 acres for increased production of alfalfa (though still less than maximum production as predicted by the AgWeatherNet model). Following the change, it's likely that less than 37 acres of alfalfa will be grown at one time, and it will be managed for lower yields. Other cropping will be chosen for lower demand and deficit/drought tolerance.

In sum, the board decisions comply with statutory requirements for ACQ and the increase in acres as requested. By approving the applications as requested, there will be no need to carry out cumbersome and arbitrary mapping of individual water rights. The water uses and effects on the resources will be protected with approval of the changes.

I ask that you please approve the board decisions with this supplement to the record.

Attachment 1 Email with Information Requests

Figure 1

Figure 2

copy to: Spokane County Water Conservancy Board

ATTACHMENT 1

From: Short, Jaime (ECY) <JSHO461@ECY.WA.GOV>
Sent: Wednesday, October 26, 2022 2:09 PM
To: Tim Reiersen <tim@water-consultant.com>
Cc: kfreeman@inlandearth.com; Spangle, Herm (ECY) <HSPA461@ECY.WA.GOV>; Tolleson, Daniel F. (ECY) <DTOL461@ECY.WA.GOV>
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Sincerely,
Jaime Short (she/her)
Section Manager, Eastern Regional Office
Water Resources Program, WA Dept. of Ecology
509.990.7636 (cell)

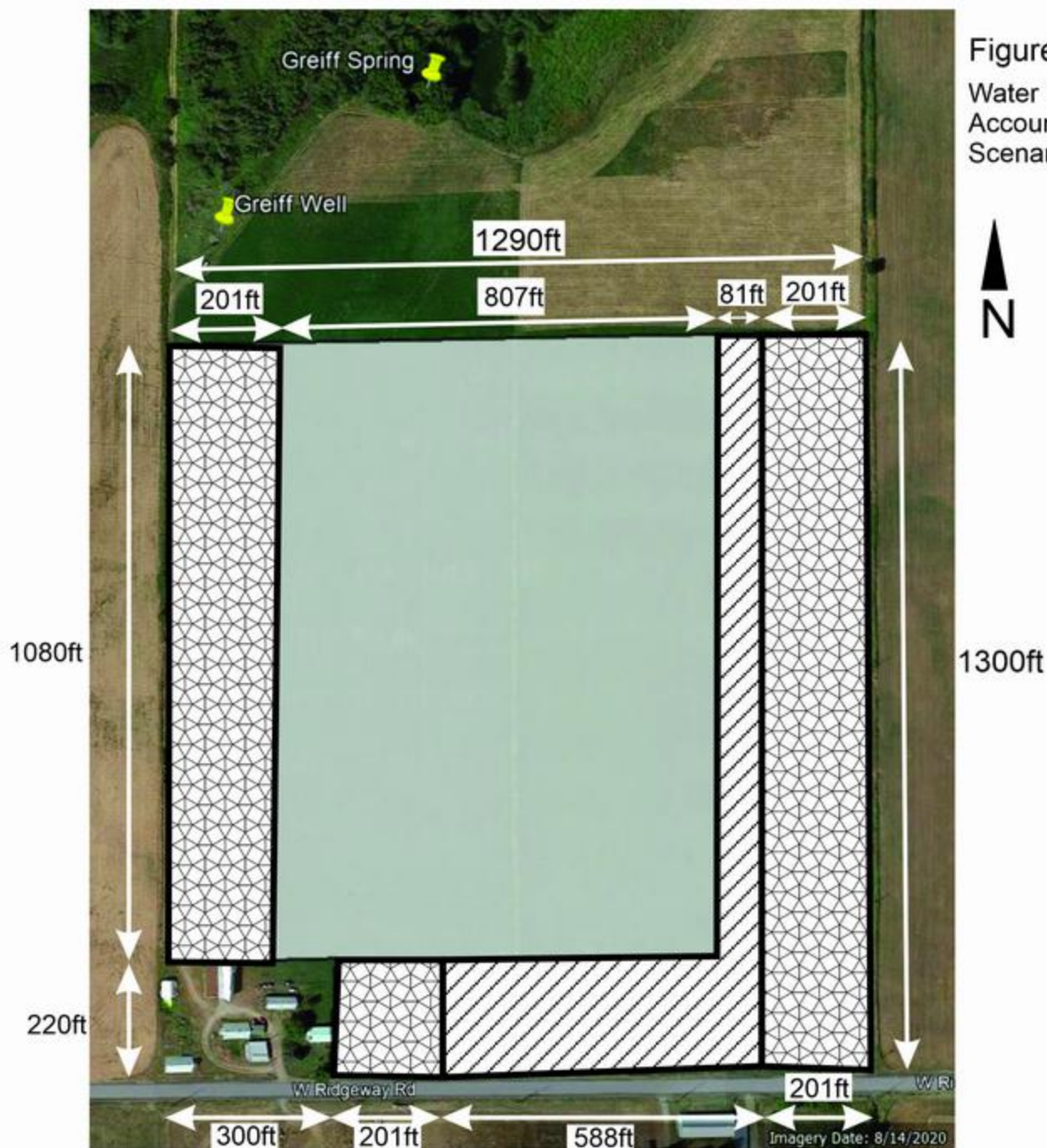
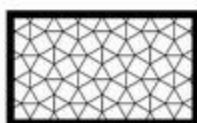


Figure 1 depicts one of infinitely many possible scenarios for accounting acres. The same accounting is made each year from 2017-2021. All accounted irrigation use is within SW1/4SE1/4 Sec. 4, T27N, R42E, where all three current water right places of use overlap completely.



SWC 4057

Dimensions = $(201\text{ft} \times 1080\text{ft} + 201\text{ft} \times 220\text{ft} + 201\text{ft} \times 1300\text{ft})$
 $= 522,600 \text{ ft}^2 = 12 \text{ acres.}$



GWC 4589-A

Dimensions = $(588\text{ft} \times 220\text{ft} + 81\text{ft} \times 1080\text{ft})$
 $= 217,272 \text{ ft}^2 = 5 \text{ acres.}$



G3-01333C

Dimensions = $(807\text{ft} \times 1080\text{ft})$
 $= 871,560 \text{ ft}^2 = 20 \text{ acres.}$

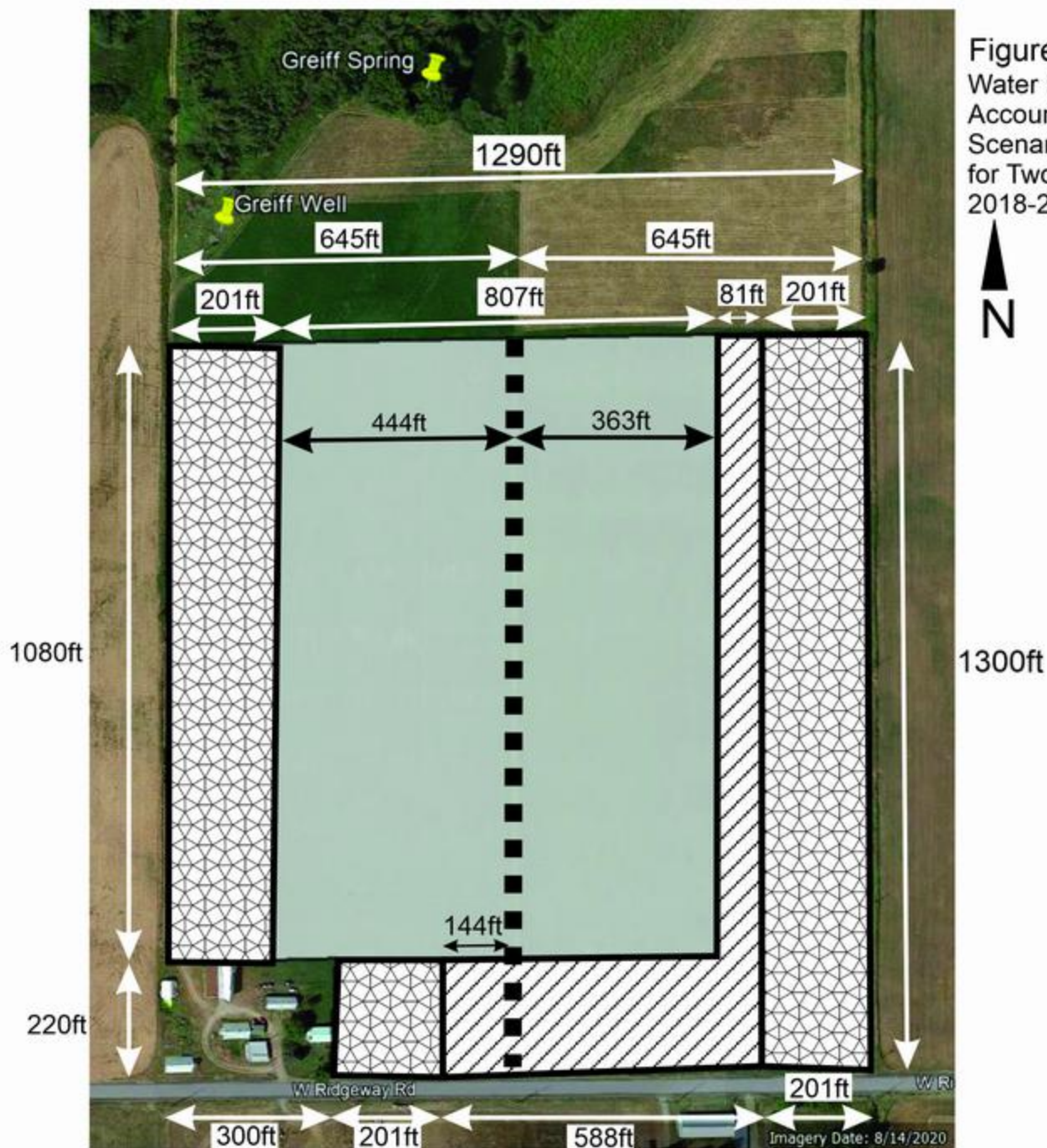
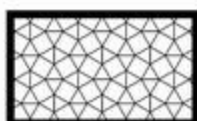


Figure 2.
Water Right
Accounting
Scenario
for Two Crops
2018-2019.

Figure 2. Illustrates year 2018-19 grain cropping west of vertical dashed line & alfalfa cropping east of vertical dashed line. All accounted irrigation use is within SW1/4SE1/4 Sec. 4, T27N, R42E, where all three current water right places of use overlap completely.



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