

Idaho Department of Water Resources

Use of the ESPA Model Transfer Spreadsheet (ETRAN) for Water Supply Bank Rentals in the Eastern Snake Plain Aquifer

February 2016

rev. 01/14/2022

Note: This document is not intended for use with Water Right Transfer applications.

Important information for all modelers:

This guide is a resource for completing ground water modeling required for Water Supply Bank (WSB) rentals in the Eastern Snake River Plain Aquifer (ESPA). Requirements may differ for permanent water right transfers and for applications for new water rights.

Review this guide carefully. Ground water modeling that does not follow these guidelines may require extra review and scrutiny, resulting in delay of processing or denial of a rental request. Erroneous data entry will also result in unacceptable modeling.


Applicants with questions about ESPA ground water modeling or these guidelines can reach the Water Supply Bank staff by contacting the IDWR state office at (208) 287-4800.

These guidelines are subject to change but are considered current as of January 14, 2022.

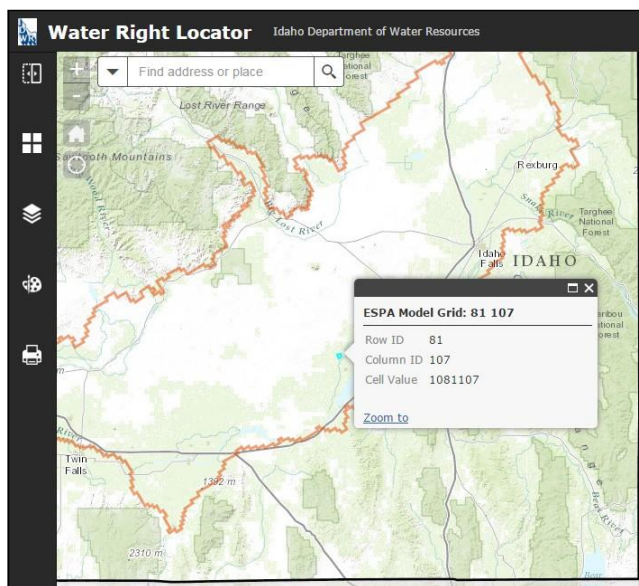
What is the purpose of the ESPA modeling analysis? Idaho Code § 42-1763 states that Water Supply Bank (WSB) rentals must not reduce the quantity of water available to other water users. Surface water in the Snake River upstream from Milner and in many tributary springs is considered fully appropriated during all or much of the year. Changes to ground water use in the ESPA can change the location of depletions in the river and in the tributary springs. An ESPA model analysis is necessary to quantify those depletions, so injury to other water rights can be identified and avoided or, if possible, mitigated.

ESPA ground water modeling is required for WSB ground water rental requests that (1) seek to divert water from a rental point of diversion located within the model boundaries of the ESPA, or (2) seek to rent ground water rights that are leased from a location within the model boundaries of the ESPA.

Modeling Procedure:

1. **Download the modeling package.** The ESPA Model Transfer Spreadsheet may be downloaded for free on the Department's website: <http://www.idwr.idaho.gov/>. Simply navigate to: *Water Rights > Water Right Transfers > Transfers > Modeling Resources*. Download and unzip the ESPA Model Transfer (ETRAN 3.4). Save it into a root directory on your computer. As of **May 01, 2022**, use of the model version ETRAN 3.4 is required.
2. **Identify your grid cells.** The grid cells are numbered units of area in the ESPA.
 - 2.1. Use the online Water Right Locator to view the grid cells themselves. Simply follow the link to view a map of the grid cells within the ESPA: [Water Right Locator \(idaho.gov\)](http://maps.idwr.idaho.gov/agol/WaterRightLocator)¹.
 - 2.2. Turn on the *ESPA Model Grid* layer and then zoom into each of the locations of the *To Well* (rental, where the well for the proposed use is located) and *From Well* (lease, where diversion of water pursuant to the lease contract will be idled) of the water right(s) being considered in the rental proposal. Zoom in until the model grid cells are added to the viewing area. 
 - 2.3. Zoom in to the *To* and *From* locations until the row and column values are identifiable for each location. Take note of row and column values; they are inputs into the

ESPA Model Transfer Spreadsheet.

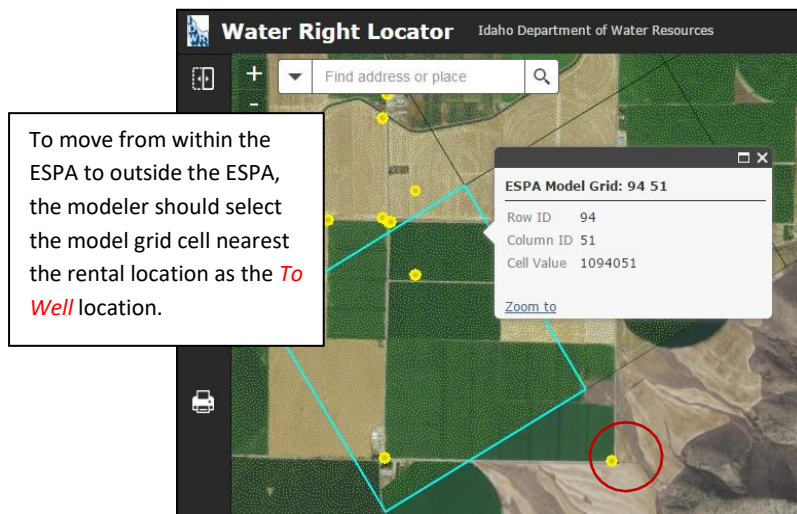


In this example, the well in Row 81 Column 107 will be idled. The well in Row 79 Column 109 will be pumped.



¹ The website is: <https://maps.idwr.idaho.gov/agol/WaterRightLocator>.

- 2.4. Ground water rentals from within the ESPA to locations outside the ESPA may be allowable as long as the rental point of diversion is within an aquifer tributary to the ESPA. Moving a water right from the ESPA to a separate, distinct aquifer cannot be approved. To move a diversion from within the ESPA to a tributary aquifer, the modeler should select the model grid cell nearest the rental location as the *To Well* location. At some locations, the grid cells extend beyond the model boundary. If the *To Well* location is farther than a distance of two grid cells from the ESPA boundary, the modeler will need to employ additional modeling tools or methods in conjunction with the ESPA modeling tool to calculate the timing and quantity of the impacts to the Snake River. Rental of ground water leased from a tributary aquifer at a location within the ESPA may also be approvable with sufficient modeling to demonstrate the impacts to the Snake River. However, such rentals will be vigorously evaluated to prevent injury to other water rights.



3. **Update the date range in the ESPA Model Transfer Spreadsheet.** Open the *Etransfer_V3_4.xlsm* (Macro-enabled Excel Worksheet) file within the zipped folder that you downloaded in step 1. Enable the modeling functionality by enabling the macros.
- 3.1. Review the priority dates of all of the water rights to be modeled. The *Year* and *Season* cells should be populated with the same year and trimester season that corresponds to the priority date of the oldest water right to be modeled. {Spring: March-June, Summer: July-October, Winter: November-February}
- 3.1.1. For this example, we will consider three leased water rights with different priorities: No.1: March 9, 1970, No. 2: January 18, 1974, and No. 3: July 31, 1987. Water right No. 1 is the most senior. Since March falls during the Spring Trimester, *Spring 1970* should be data entered.

The screenshot shows a portion of the 'ESPA Model Transfer Spreadsheet' with a blue header that reads 'Cells this color are set up for user entries'. The form includes the following fields and instructions:

- ENTER STARTING DATE FOR SIMULATION. THEN PUSH "UPDATE DATES" BUTTON
- TRANSFER NO: blank
- YEAR: 1970
- SEASON: SPRING (dropdown menu)
- TRANSFER NAME: Last Name

- 3.2. The *TRANSFER NO:* cell can be left blank. The *TRANSFER NAME:* cell should reflect the last name or the business name of the renter.

- 3.3. Click the *UPDATE DATES* button. The dates starting in row 21 should now begin on or before the year of the priority date for the most senior water right being rented.

TRIMESTER OF ACTIVITY	TO WELL	FROM1 WELL		FROM2 WELL		FROM3 WELL	
	Projected Use AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER
SPR 1970	0	100	100	100	100	100	100
SUM 1970	0	100	100	100	100	100	100
WIN 1970	0	100	100	100	100	100	100
SPR 1971	0	100	100	100	100	100	100
SUM 1971	0	100	100	100	100	100	100
WIN 1971	0	100	100	100	100	100	100

4. **Add point of diversion cell locations to the ESPA Model Transfer Spreadsheet.** Utilize the *'TO' CELL*, *'FROM1' CELL*, *'FROM2' CELL*, and *'FROM3' CELL* to program the lease (*From Well*) and rental (*To Well*) locations.

- 4.1. Continuing with our example from 3.1.1., three water rights utilized at the same location have been leased to the WSB. They share one point of diversion, or well. The well associated with these rights is located in the model grid cell designated Row 81 Column 107. The rental proposal requests to pump a well located within the model grid cell designated Row 79 Column 109. These values were determined as described in step 2. Enter this data into the *ENTER CELL LOCATIONS* area of the worksheet.

ENTER CELL LOCATIONS:				
	'TO' CELL	'FROM1' CELL	'FROM2' CELL	'FROM3' CELL
ROW	79	81		
COLUMN	109	107		

- 4.2. In many other cases, the leased water rights do not share a well, and the wells are not even located in the same grid cells. In such instances, the modeler would need to use the *'FROM2' CELL* and the *'FROM3' CELL* columns to enter the model grid cell locations for each of the other wells. Each model run can handle up to three *From Wells*. If there are more than three wells (in different grid cells) associated with the leased water right, the modeler will need to decide which of the following three modeling methods to utilize.
- 4.2.1. Identify the *From Well* which is the farthest from the *To Well* rental location. Model the farthest *From Well* as though the entire volume of water rented will be diverted at this location. This method may be utilized only if all of the *From Wells* are within a 2-by-2 grid of model cells.
- 4.2.2. Calculate the location of a weighted centroid which represents the volume of water which will be idled at each *From Well*. Model the weighted centroid location as the *From Well*; the entire volume of water to be rented will be modeled as if it has been diverted historically at this single *From Well* location. This method may be utilized only if all of the *From Wells* are within a 3-by-3 grid of model cells.
- 4.2.3. Divide the *From Well* points-of-diversion into groups of up to three, and then perform two or more separate model runs. The results of each model run (the data in the perforated box at the bottom of the *CalculatedEffects* tab) should be copied and pasted into the ESPA Mitigation Analysis Spreadsheet (see section 8). In the ESPA Mitigation Analysis Spreadsheet, the two sets of model results should be added together to fully determine the impact to each reach.

5. **Enter the quantity of water to be rented into the modeling area of the ESPA Model Transfer Spreadsheet.** The modeler should think of this area as a timeline for the operation of each of the wells involved in the rental proposal. The timeline begins at the priority date of the oldest water right; the timeline ends approximately 150 years later.

- 5.1. If not already completed, begin by zero-ing out all of the data in the main body of the spreadsheet (blue modeling area).

TRIMESTER OF ACTIVITY	TO WELL	FROM1 WELL		FROM2 WELL		FROM3 WELL	
	Projected Use AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER
SPR 1970	0	0	0	0	0	0	0
SUM 1970	0	0	0	0	0	0	0
WIN 1970	0	0	0	0	0	0	0
SPR 1971	0	0	0	0	0	0	0
SUM 1971	0	0	0	0	0	0	0
WIN 1971	0	0	0	0	0	0	0
SPR 1972	0	0	0	0	0	0	0
SUM 1972	0	0	0	0	0	0	0
WIN 1972	0	0	0	0	0	0	0
SPR 1973	0	0	0	0	0	0	0
SUM 1973	0	0	0	0	0	0	0
WIN 1973	0	0	0	0	0	0	0
SPR 1974	0	0	0	0	0	0	0
SUM 1974	0	0	0	0	0	0	0
WIN 1974	0	0	0	0	0	0	0
SPR 1975	0	0	0	0	0	0	0
SUM 1975	0	0	0	0	0	0	0

Zero-out all 150 years worth of data that may have been left in the model from a previous use.



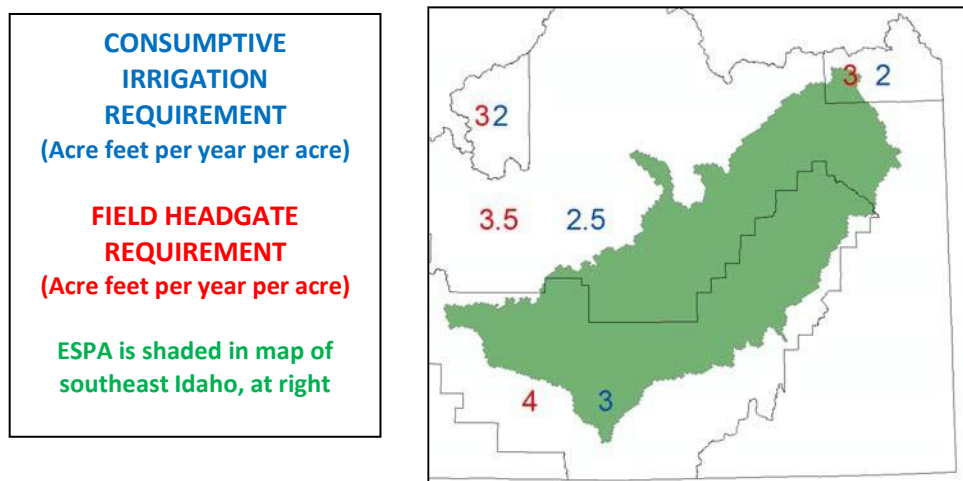
- 5.2. Analyze the water rights to be rented. If necessary, create a chart to facilitate the calculation of the trimester volume associated with each right. The chart should include space for known values and unknown values that must be calculated by the modeler. Let's continue with our example from steps 3.1 and 4.1 by creating a chart, like the one below, for the water rights in our example. To create your chart, use a separate spreadsheet or sheet of paper.

Known, from Lease Contract				
WR No.	Priority Date	Diversion Rate	Diversion Volume	Acres
Right No. 1	3/9/1970	4.0 CFS	Not stated	215
Right No. 2	1/18/1974	2.4 CFS	Not stated	120
Right No. 3*	7/31/1987	0.4 CFS	Not stated	20
Combined Limits		6.4 CFS	1420 AFY	355
* Water Right No. 3 is an enlargement of the prior licensed right; it adds no additional rate.				

- 5.2.1. To determine the diversion volumes of the three water rights, one must first identify whether any of the three rights overlap. In our example, all three of the water rights are for irrigation. The water rights are subject to a combined diversion rate of 6.4 cubic feet per second (cfs), instead of the sum of 6.8 cfs, because Right No. 3 adds acres and volume but not rate. The modeler may also identify the volume-per-acre allowed. In our example, the rights allow 4 acre-feet per acre (1420 AF / 4 = 355 acres).

Calculated by Modeler			
WR No.	Priority Date	Acres	Diversion Volume (AFY*)
Right No. 1	3/9/1970	215	4 AF/AC x 215 = 860 AFY
Right No. 2	1/18/1974	120	4 AF/AC x 120 = 480 AFY
Right No. 3*	7/31/1987	20	4 AF/AC x 20 = 80 AFY
Combined Limits		355	1420 AFY
*AFY means "acre-feet per year"			

- 5.2.2. The annual consumptive use volume must be estimated for each right. When irrigation rights are being rented, use of IDWR's standard consumptive irrigation requirement is the accepted practice for Water Supply Bank rentals. Multiply the irrigated acres for each right by the *consumptive irrigation requirement* to estimate the consumptive volume. For irrigation use, standard consumptive volumes vary throughout the state of Idaho². We recommend using the online Water Right Locator to view consumptive use volumes throughout Idaho. Simply follow the link below: [Water Right Locator \(idaho.gov\)](https://maps.idwr.idaho.gov/agol/WaterRightLocator)³.

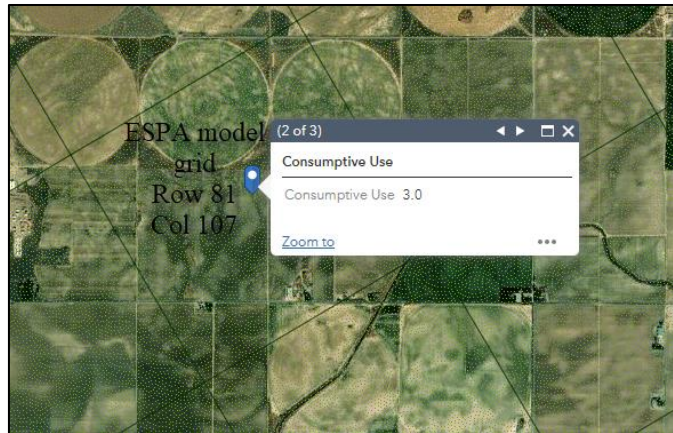


- 5.2.3. For purposes of use other than irrigation, the modeler should prepare and attach an evaluation of the historic beneficial use under the right. Normally the highest-year consumptive use within the last five years will be the basis for the annual volume of consumptive use available.
- 5.3. In our example, all of the 355 acres associated with Water Right Nos. 1-3 are rented from the Water Supply Bank for two years. The resulting consumptive use volumes are as follows:

Rental Acres Calculated by Modeler			
WR No.	Rental Acres	Consumptive Use Volume	Consumptive Use per Trimester
Right No. 1	215	3 AF/AC * 215 AC = 645 AFY	645 AFY/3 = 215 AF
Right No. 2	120	3 AF/AC * 120 AC = 360 AFY	360 AFY/3 = 120 AF
Right No. 3	20	3 AF/AC * 20 AC = 60 AFY	60 AFY/3 = 20 AF
Combined Limits	355 AC	1065 AFY	355 AF

² See IDWR Administrator's Memorandum Application Processing No. 52.

³ The website is: <https://maps.idwr.idaho.gov/agol/WaterRightLocator>.



- 5.4. Begin data entry of the Consumptive Use per Trimester into the *FROM1 WELL* columns of the spreadsheet. Start with the oldest priority date. As the junior rights are input, the volumes should become additive. Remember that the *From Well* should be idled for the duration of the proposed rental (*With Transfer* column). In the *Without Transfer* column, enter data as if the rental did not occur and pumping had continued at the lease location. In this example, the rental will occur from March 1, 2025 to February 28, 2027. At the *To Well*, pumping will occur for the duration of the rental.

TRIMESTER OF ACTIVITY	TO WELL	FROM1 WELL		FROM2 WELL		FROM3 WELL	
	Projected Use AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER	With Transfer AF/TRIMESTER	Without Transfer AF/TRIMESTER
SPR 1970	0.00	215.00	215.00	0.00	0.00	0.00	0.00
SUM 1970	0.00	215.00	215.00	0.00	0.00	0.00	0.00
WIN 1970	0.00	215.00	215.00	0.00	0.00	0.00	0.00
SPR 1972	0.00	215.00	215.00	0.00	0.00	0.00	0.00
SUM 1972	0.00	215.00	215.00	0.00	0.00	0.00	0.00
WIN 1972	0.00	215.00	215.00	0.00	0.00	0.00	0.00
SPR 1973	0.00	215.00	215.00	0.00	0.00	0.00	0.00
SUM 1973	0.00	215.00	215.00	0.00	0.00	0.00	0.00
WIN 1973	0.00	335.00	335.00	0.00	0.00	0.00	0.00
SPR 1974	0.00	335.00	335.00	0.00	0.00	0.00	0.00
SUM 1974	0.00	335.00	335.00	0.00	0.00	0.00	0.00
SUM 1986	0.00	335.00	335.00	0.00	0.00	0.00	0.00
WIN 1986	0.00	335.00	335.00	0.00	0.00	0.00	0.00
SPR 1987	0.00	335.00	335.00	0.00	0.00	0.00	0.00
SUM 1987	0.00	355.00	355.00	0.00	0.00	0.00	0.00
WIN 1987	0.00	355.00	355.00	0.00	0.00	0.00	0.00
SPR 1988	0.00	355.00	355.00	0.00	0.00	0.00	0.00
SPR 2024	0.00	355.00	355.00	0.00	0.00	0.00	0.00
SUM 2024	0.00	355.00	355.00	0.00	0.00	0.00	0.00
WIN 2024	0.00	355.00	355.00	0.00	0.00	0.00	0.00
SPR 2025	355.00	0.00	355.00	0.00	0.00	0.00	0.00
SUM 2025	355.00	0.00	355.00	0.00	0.00	0.00	0.00
WIN 2025	355.00	0.00	355.00	0.00	0.00	0.00	0.00
SPR 2026	355.00	0.00	355.00	0.00	0.00	0.00	0.00
SUM 2026	355.00	0.00	355.00	0.00	0.00	0.00	0.00
WIN 2026	355.00	0.00	355.00	0.00	0.00	0.00	0.00
SPR 2027	0.00	355.00	355.00	0.00	0.00	0.00	0.00
SUM 2027	0.00	355.00	355.00	0.00	0.00	0.00	0.00
WIN 2027	0.00	355.00	355.00	0.00	0.00	0.00	0.00

- 5.5. Check your work. It is critical that correct volumes are captured in the correct trimester date cells in the correct chronological order. Erroneous modeling data may lead to denial of the rental request and the leased water rights may be available for rental by others.

Modeler FAQ

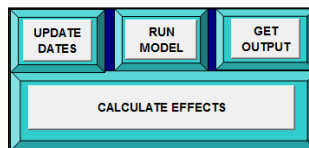
Can I input zeroes for the entire duration of the lease into the From Well columns, not just the proposed rental period?

The modeler is not likely to know the rental history or rental future. Therefore, the modeler should assume use has occurred or will occur at the *From Well* location each year of the lease. However, if the modeler knows for sure that the right was not used or rented in the period immediately prior to the proposed rental, that period could be left at 0 in the *With Transfer* column of the *From Well*.

Must the amount that I model always be limited to the amount I am proposing to rent, or can I enter the entire leased amount in the From Well columns?

In short, yes. If a modeler only needs to rent a portion of a lease, he must assume that any leftover portion of the leased right could be rented by someone else. In some cases, the applicant may need to prevent injury by renting more water than the amount that will actually be diverted. When this occurs, the *From Well* may show greater diversion volumes or a greater number of diversion years than the *To Well*. (See section 9.6).

6. **Run the model.** Use the buttons embedded in the Data Entry worksheet to execute model calculations.
- 6.1. Click the *Run Model* button. A black command prompt will appear on the screen. When the model is finished running, the prompt will disappear. This may take a few moments.
 - 6.2. Click the *Get Output* button and wait a few seconds for the spreadsheet to work.
 - 6.3. Click the *Calculate Effects* button and wait a few seconds for the spreadsheet to calculate. The workbook will automatically change to the *GRAPHS ABOVE MILNER* tab. This area allows the modeler to view the effects of the rental proposal.



7. **View the results.** Inspect the *GRAPHS BELOW MILNER* and *GRAPHS ABOVE MILNER* tabs to look for depletion to various reaches of the Snake River. These graphs display the impact of the proposed rental on each of 11 reaches of the Snake River:
1. Ashton to Rexburg
 2. Heise to Shelley
 3. Shelley to near Blackfoot
 4. Near Blackfoot to Neeley
 5. Neeley to Minidoka
 6. Devil's Washbowl to Buhl
 7. Buhl to Thousand Springs
 8. Thousand Springs
 9. Thousand Springs to Malad
 10. Malad
 11. Malad to Bancroft

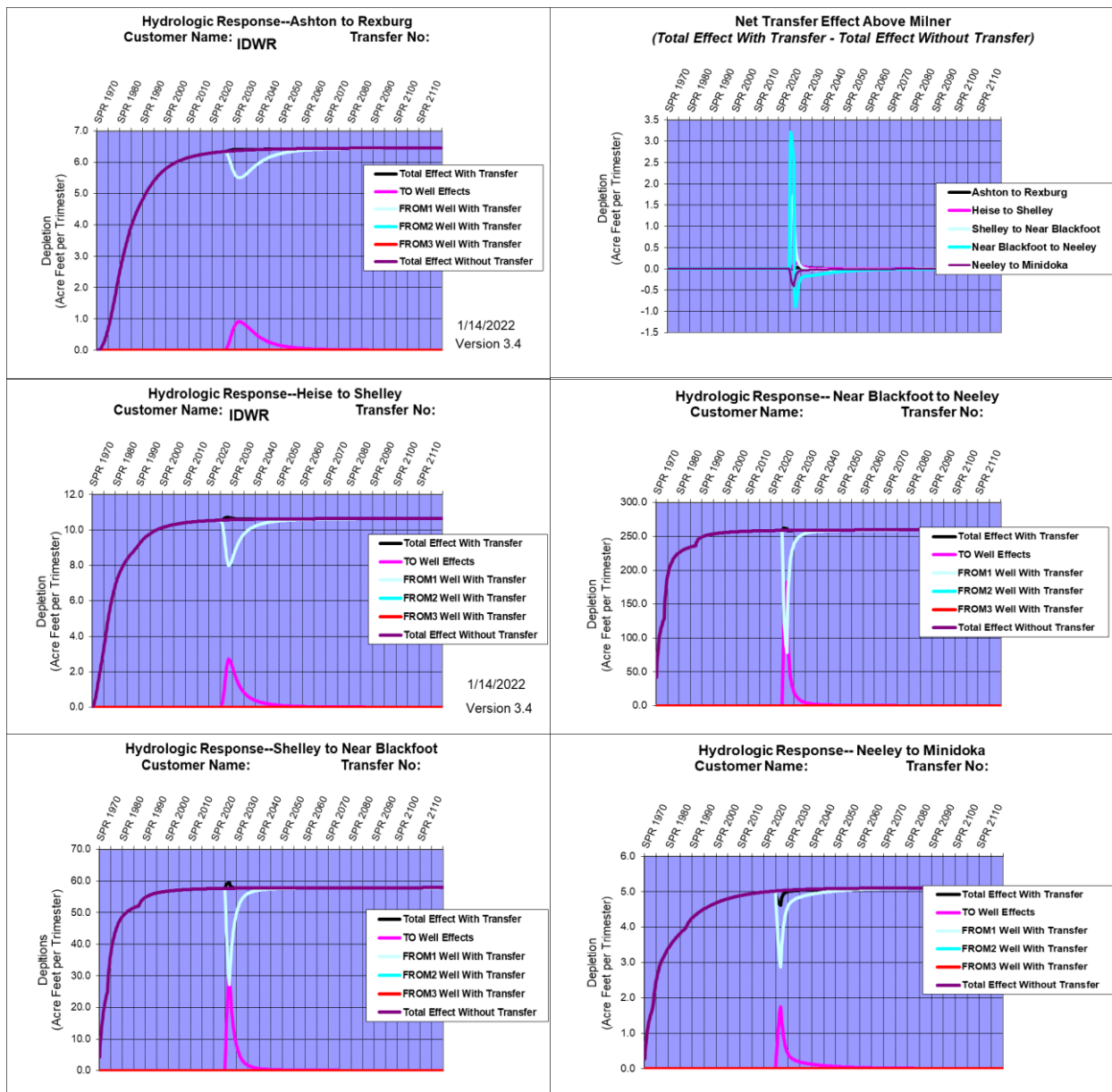
This is the first opportunity to evaluate whether a change in depletion amounts will necessitate

some adjustments or mitigation to make the proposed rental approvable.

- 7.1. For each reach, if the *Total Effect With Transfer* line is above the *Total Effect Without Transfer* line, depletions will increase in the reach. Oppositely, if the *Total Effect Without Transfer* line is above the *Total Effect With Transfer* line, depletions will decrease in the reach.

Modeler Tip

Remember that reading the depletion graphs is not entirely intuitive. When interpreting these graphs, the user should note that a large positive value indicates a greater depletion of the reach due to the rental. A negative value indicates a beneficial effect on flow of a reach (greater spring discharges).



8. **Analyze the results using the ESPA Mitigation Analysis Spreadsheet.** Download and open the ESPA Mitigation Analysis Spreadsheet (informally called the Mitigation Analysis Tool, or MAT).

8.1. In the ESPA Model Transfer Spreadsheet, navigate to the bottom of the *Calculated Effects* tab. Key in the first time step (beginning trimester of rental term) in the “Enter First Time Step Transfer” cell and press *enter*.

Enter First Time Step of Transfer: SPR 2025									
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8.2. Copy the data in the perforated box.

AtR	HtS	StNB	NBtN	NtM	DWtB	BtTS	TS	TStM	M	MtB	Total
6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.78
6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.78
6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.78
6.46	10.71	59.46	262.08	5.11	5.05	4.09	1.86	1.74	1.99	0.26	358.82

8.3. Paste the data (paste special, values) into the perforated box at the top of the ESPA Mitigation Analysis Spreadsheet.

Impact by Reach (AF/Annum)											
	Ashton to Rexburg	Heise to Shelley	Shelley to Nr Bickft	Nr Bickft To Neeley	Neeley to Minidoka	Dev. Wbl. To Buhl	Buhl to Kspr	Kspr	Kspr to Malad	Malad	Malad to Bancroft
Pre-SS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26
Post-SS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26
Pre-TS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26
Post-TS	6.46	10.71	59.46	262.08	5.11	5.05	4.09	1.86	1.74	1.99	0.26

8.4. At the top of the ESPA Mitigation Analysis Spreadsheet, make sure the *Mitigation Analysis Period* is set to *Trimester*.

Mitigation Analysis Period
Trimester

8.5. **New Water Right** box: The highlighted box on the left-hand side of the ESPA Mitigation Analysis Spreadsheet (orange) is designated for the modeler’s reference. For the purposes of this activity, the data input here (water right number, diversion rate, volume, irrigated acres, priority date, diversion location, transferred volume, node) does not affect the modeling analysis.

New Water Right (GModelo):							
WR No.	Div. Rate (CFS)	Con. Vol. (AFA)	No. of Irr. Acres	Priority Date	POD Location	Dedicated Vol. AFA/ AFT	Model Node
Transfer 1: Proposed Steady State Impacts following Transfer							
6.4	1065.0	355.0	3/9/1970	4S31E-29	1065	355.0	SP082075
6.4	1065	355	3/9/1970	4S31E-29	1065	355.0	SP068066
Transfer 1: Worst Case Transient State Impacts following Transfer							
6.4	1065	355	3/9/1970	4S31E-29	1065	355.0	SP082075
6.4	1065	355	3/9/1970	4S31E-29	1065	355.0	SP068066

8.6. **Impact by Reach** box: The plain box on the right-hand side of the ESPA Mitigation Analysis Spreadsheet (pasted into the sheet) entitled *Impact by Reach (AF/Trimester)*

displays the pre- and post- steady state and transient state depletion values for each of 11 reaches of the Snake River. (For the 11 reaches of the Snake River, see section 7.) A *Steady State* change represents a long-term or permanent depletion or accretion to Snake River flows. A *Transient State* change represents a short-term change in depletion or accretion to Snake River flows. The transient state may show a spike in depletions because the new pumping associated with the change is combined with the lingering impacts of the previous pumping at the old location.

	Impact by Reach (AF/Trimester)											
	Ashton to Rexburg	Heise to Shelley	Shelley to Nr Bckft	Nr Bckft To Neeley	Neeley to Minidoka	Dev. Wbl. To Buhl	Buhl to Kspr	Kspr	Kspr to Malad	Malad	Malad to Bancroft	
Pre-SS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.8
Post-SS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.8
Pre-TS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.8
Post-TS	6.46	10.71	59.46	262.08	5.11	5.05	4.09	1.86	1.74	1.99	0.26	358.8

8.7. *Steady State/Transient State Analysis* boxes: Beneath the *Impact by Reach* box, the depletion values are broken out by Steady State Analysis and Transient State Analysis. Because WSB rentals are short-term, focus on the *Transient State Analysis* box. The *Transient State Analysis* has two ‘mitigation checks,’ or tests to determine whether mitigation is necessary.

Steady State Analysis	Mitigation Check 1 - >10% of Historical:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Mitigation Check 2: > 2 AF/T:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mitigation Check 3 - >10% of Total:	1.8%	3.0%	16.3%	73.2%	1.4%	1.4%	1.2%	0.5%	0.5%	0.6%	0.1%	0.1%
	Mitigation Required?:	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Mitigation Vol. Req'd (ac-ft):	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transient State Analysis	Mitigation Check 1 - >10% of Historical:	0.0%	0.6%	2.7%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Mitigation Check 2: > 2.01 AF/T:	0.0	0.1	1.6	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mitigation Required?:	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Mitigation Vol. Req'd (ac-ft):	0.0	0.1	1.6	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

8.7.1. Depletions to the Snake River require adjustment or mitigation when both of the two conditions below occur for any reach:

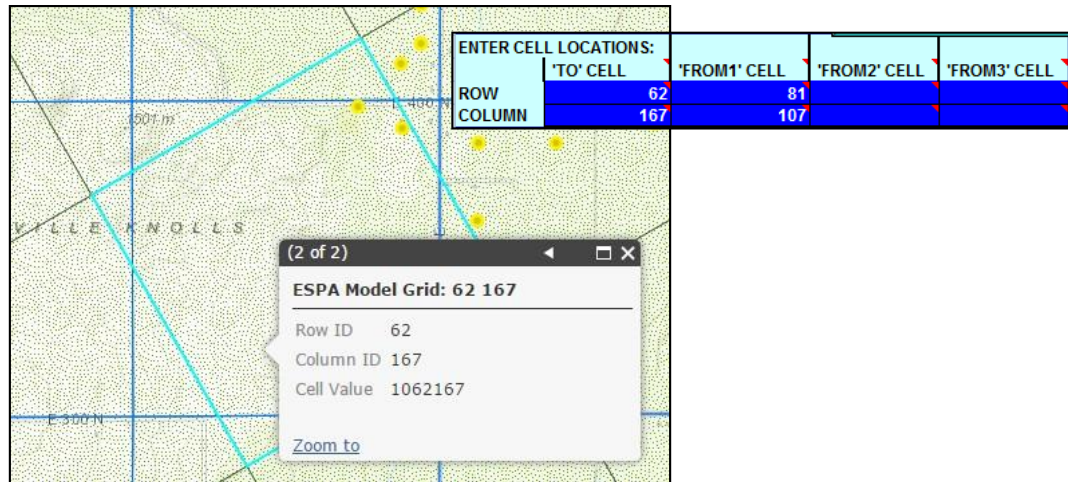
- **Net increased depletion caused by the rental is greater than 10% of the historical depletion volume.**
- **Depletion increases are greater than 2 acre-feet/trimester.**

8.7.2. For those reaches where both conditions occur, including depletions during the transient state, the increase in depletion volume must be fully mitigated. It is not acceptable for the applicant to mitigate only enough to fall below one of the two criteria in the transient state.

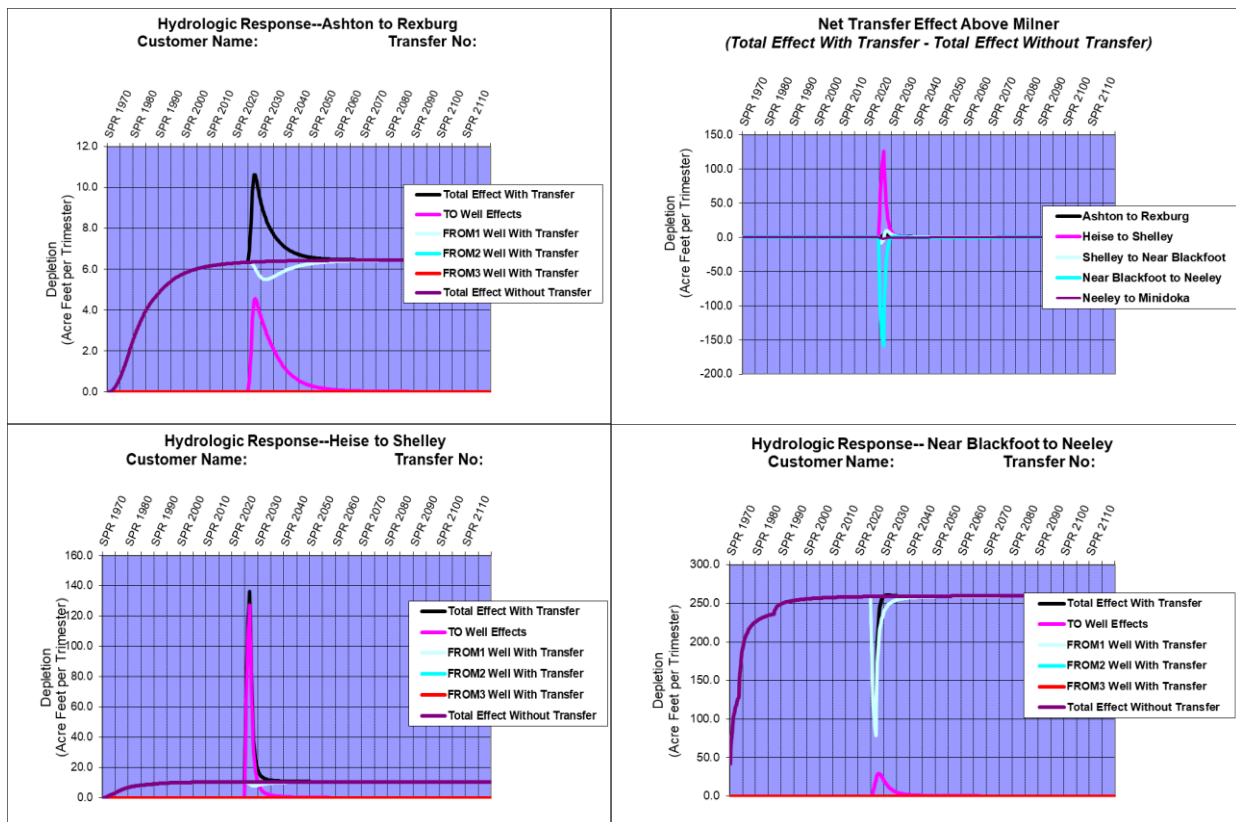
8.8. Therefore, the rental in our example is permissible without mitigation because it passes both depletion evaluations in every reach. The ESPA Mitigation Analysis Spreadsheet table shown in step 8.7. demonstrates this conclusion with a “NO” entry in the “Mitigation Required?” row for each reach.

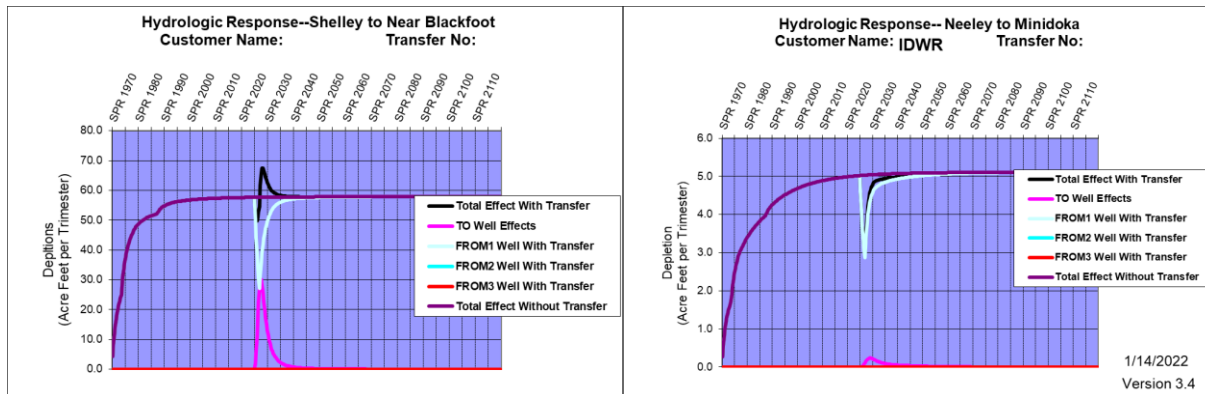
Transient State Analysis	Mitigation Check 1 - >10% of Historical:	0.0%	0.6%	2.7%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Mitigation Check 2: > 2.01 AF/T:	0.0	0.1	1.6	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mitigation Required?:	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Mitigation Vol. Req'd (ac-ft):	0.0	0.1	1.6	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

9. **When mitigation is necessary, determine how to proceed.** Now let’s work through an example with mitigation or adjustment required. For our new example, let’s change the location of the *To Well* to the cell: Row 62 Column 167.



- Click “Run Model,” followed by “Get Output,” then “Calculate Effects.”
- If you desire, view the graphical results. Inspect the GRAPHS BELOW MILNER and GRAPHS ABOVE MILNER tabs to look for depletion to various reaches of the Snake River. This is the modeler’s initial opportunity to determine whether the depletion values align with any of the mitigation check questions.





- 9.3. Copy the outlined data at the bottom of the *CalculatedEffects* tab. Paste (paste values) it into the outlined area of the ESPA Mitigation Analysis Spreadsheet.

	Impact by Reach (AF/Trimester)											
	Ashton to Rexburg	Heise to Shelley	Shelley to Nr Blackft	Nr Blackft To Neeley	Neeley to Minidoka	Dev. Wbl. To Buhl	Buhl to Kspr	Kspr	Kspr to Malad	Malad	Malad to Bancroft	
Pre-SS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.8
Post-SS	6.46	10.65	57.88	259.67	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.8
Pre-TS	6.46	10.65	57.88	259.68	5.11	5.05	4.09	1.86	1.74	1.99	0.26	354.8
Post-TS	10.62	136.36	67.40	260.57	5.11	5.05	4.09	1.86	1.74	1.99	0.26	495.1

- 9.4. At the top of the ESPA Mitigation Analysis Spreadsheet, make sure the *Mitigation Analysis Period* is set to *Trimester*.

Mitigation Analysis Period

Trimester

- 9.5. *Steady State/Transient State Analysis* boxes: Beneath the *Impact by Reach* box, the depletion values are broken out by *Steady State Analysis* and *Transient State Analysis*. Each state has multiple “mitigation checks,” or tests to determine whether mitigation is necessary. Notice that three of the boxes are now illuminated in yellow and notes YES to the mitigation requirement. Mitigation or adjustment is required because the increase in depletion in the *Ashton to Rexburg*, *Heise to Shelley*, and *Shelley to Nr Blackft* reach is more than 10% and more than 2.0 AF/trimester.

Transient State Analysis	Mitigation Check 1 - >10% of Historical:	64.3%	1180.9%	16.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Mitigation Check 2: > 2.01 AF/T:	4.2	125.7	9.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mitigation Required?:	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
	Mitigation Vol. Req'd (ac-ft):	4.2	125.7	9.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0

- 9.6. Using the information calculated, the modeler can now determine whether to (1) reduce the amount of ground water being diverted at the rental location to less than the leased amount, so that a re-model of the rental request does not fail the tests, or (2) seek to rent and model additional water rights from the WSB, even though they may not actually be diverted⁴. Water rights which are not diverted should be included in a *From Well* column, but not the *To Well* column of the modeling spreadsheet. Each of these options would allow the applicant to fulfill the mitigation volumes required

⁴ In those cases where the applicant has not initially proposed to rent the entire leased volume, he may choose to satisfy the mitigation requirement by renting and modeling more than will actually be used or needed at the rental point of diversion.

and demonstrate that the rental request meets the mitigation requirements.

10. Modeling Products to be Submitted with the Rental Application:

- 10.1. Submit any tables or spreadsheets used to analyze the water rights before data entering them into the ESPA Model Transfer Spreadsheet.
- 10.2. Provide a copy or printout of the Data Entry tab (this will require more than one page). In order to verify modeling submittals, water rights staff must be able to review the data entry for accuracy and completeness.
- 10.3. Provide a copy or printout of the ESPA Mitigation Analysis Spreadsheet, including all of the tables utilized within the sheet.