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.
1/29/2016

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 rentals in the 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 February 1, 2016.

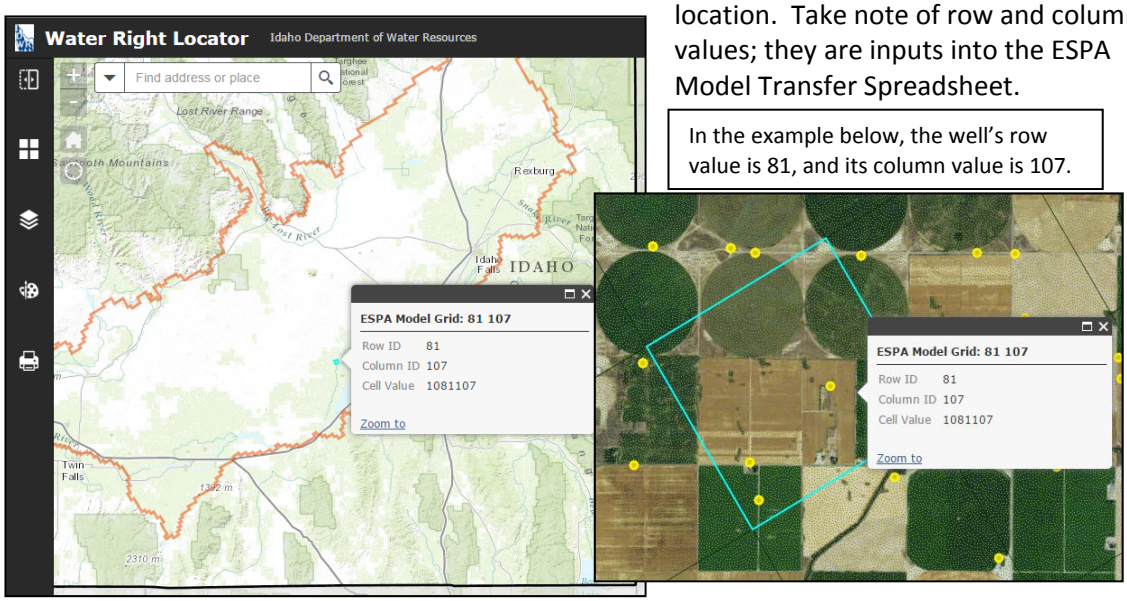
What is the purpose of the ESPA modeling analysis? Idaho Code 42-1763 states that Water Supply Bank rentals must not reduce the quantity of water available to other water users. Surface water in the Snake River upstream from Milner and in many tributary springs is considered fully appropriated during 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 Water Supply Bank ground water rental requests that (1) seek to divert water from a rental point of diversion located within the model boundaries of the Eastern Snake Plain Aquifer, or (2) seek to rent ground water rights that are leased from a location within the model boundaries of the Eastern Snake Plain Aquifer.

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* > *Modeling Resources*. Download and unzip the ESPA Model Transfer Spreadsheet. Save it into a root directory on your computer. As of **January 31, 2016**, use of the model version ETRAN 3.2 is required.

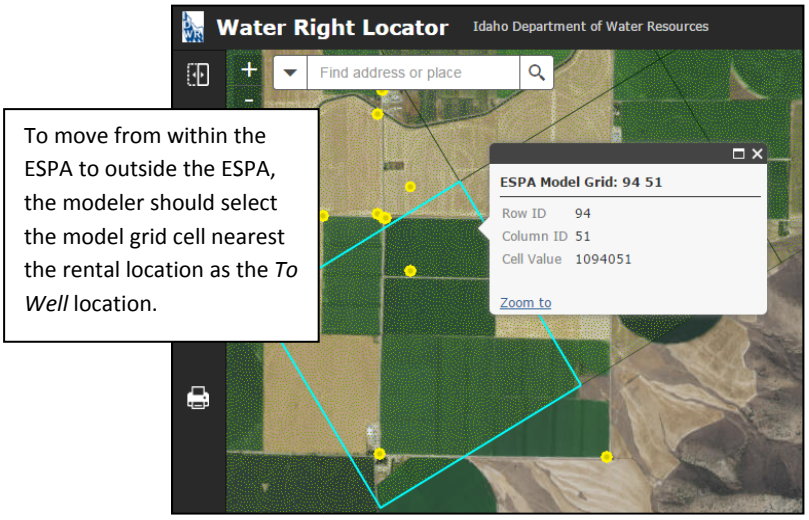
2. **Select your grid cells**. The grid cells are numbered units of area in the ESPA.
   2.1. We recommend using the online Water Right Locator to view the grid cells themselves. Simply follow the link to view a map of the grid cells within the ESPA: https://idwr.maps.arcgis.com/apps/webappviewer/index.html?id [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 the example below, the well's row value is 81, and its column value is 107.

[1] The full web address is: https://idwr.maps.arcgis.com/apps/webappviewer/index.html?id=bdaa8ddbf5a84d63b722a16e26695ff5.

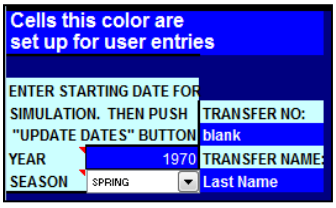
2.4. Ground water rentals from within the ESPA to locations outside the ESPA may be allowable as long as the rental point of diversion is within an aquifer tributary to the ESPA. Moving a water right from the ESPA to a completely separate, distinct aquifer cannot be approved. To move from within the 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* (Macro-enabled Excel Worksheet) spreadsheet. Under *Options* > *Security* > click *Enable 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. Because March falls during the Spring Trimester, *Spring 1970* should be data entered.



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	With Transfer	Without Transfer	With Transfer	Without Transfer	With Transfer	Without Transfer
	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER
SPR 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 and rental 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' WELL* and the *'FROM3' WELL* 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 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.

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 Calculated Effects tab), should be copied and pasted into the Mitigation Analysis Spreadsheet (see section 8). In the 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. Begin by zero-ing out <u>all</u> of the data in the blue modeling area.

TRIMESTER OF ACTIVITY	TO WELL	FROM1 WELL		FROM2 WELL		FROM3 WELL	
	Projected Use	With Transfer	Without Transfer	With Transfer	Without Transfer	With Transfer	Without Transfer
	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER
SPR 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 which 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	6.0 CFS	Not stated	315
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		8.4 CFS	1820 AFY	455
* 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 8.4 cfs, instead of the sum of 8.8 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 (1820 AF / 455 acres).

Calculated by Modeler			
WR No.	Priority Date	Acres	Diversion Volume (AFY*)
Right No. 1	3/9/1970	315	4 AF/AC * 315 = 1260 AFY
Right No. 2	1/18/1974	120	4 AF/AC * 120 = 480 AFY
Right No. 3*	7/31/1987	20	4 AF/AC * 20 = 80 AFY
Combined Limits		455	1820 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

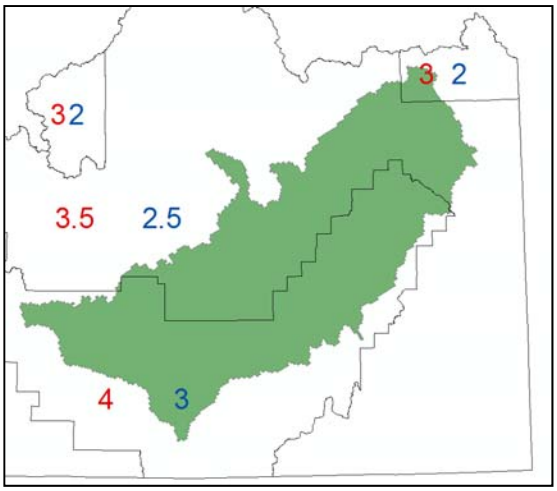
accepted practice for Water Supply Bank rentals. Multiply the irrigated acres for each right by the *consumptive irrigation requirement* to estimate the consumptive volume. For irrigation use, standard consumptive volumes vary throughout the state of Idaho (Application Processing Memorandum No. 52).

We recommend using the online Water Right Locator to view consumptive use volumes throughout Idaho. Simply follow the link below:
https://idwr.maps.arcgis.com/apps/webappviewer/index.html?id [2]

CONSUMPTIVE IRRIGATION REQUIREMENT
(Acre feet per year per acre)

FIELD HEADGATE REQUIREMENT
(Acre feet per year per acre)

ESPA is shaded in map of southeast Idaho, at right



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 455 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	315	3 AF/AC * 315 AC = 945 AFY	945 AFY/3 = 315 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	455 AC	1365 AFY	455 AF

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 Jan 1, 2015 to Dec 1, 2016. At the *To Well*, pumping will occur for the duration of the rental.

[2] The full web address is:
https://idwr.maps.arcgis.com/apps/webappviewer/index.html?id=bdaa8ddbf5a84d63b722a16e26695ff5.

TRIMESTER OF ACTIVITY	TO WELL Projected Use AF/TRIMESTER	FROM1 WELL With Transfer AF/TRIMESTER	FROM1 WELL Without Transfer AF/TRIMESTER	FROM2 WELL With Transfer AF/TRIMESTER	FROM2 WELL Without Transfer AF/TRIMESTER	FROM3 WELL With Transfer AF/TRIMESTER	FROM3 WELL Without Transfer AF/TRIMESTER
SPR 1970	0	315	315	0	0	0	0
SUM 1970	0	315	315	0	0	0	0
WIN 1970	0	315	315	0	0	0	0
WIN 1972	0	315	315	0	0	0	0
SPR 1973	0	315	315	0	0	0	0
SUM 1973	0	315	315	0	0	0	0
WIN 1973	0	435	435	0	0	0	0
SPR 1974	0	435	435	0	0	0	0
SUM 1974	0	435	435	0	0	0	0
SUM 1986	0	435	435	0	0	0	0
WIN 1986	0	435	435	0	0	0	0
SPR 1987	0	435	435	0	0	0	0
SUM 1987	0	455	455	0	0	0	0
WIN 1987	0	455	455	0	0	0	0
SPR 1988	0	455	455	0	0	0	0
SPR 2014	0	455	455	0	0	0	0
SUM 2014	0	455	455	0	0	0	0
WIN 2014	0	455	455	0	0	0	0
SPR 2015	455	0	455	0	0	0	0
SUM 2015	455	0	455	0	0	0	0
WIN 2015	455	0	455	0	0	0	0
SPR 2016	455	0	455	0	0	0	0
SUM 2016	455	0	455	0	0	0	0
WIN 2016	455	0	455	0	0	0	0
SPR 2017	0	455	455	0	0	0	0
SUM 2017	0	455	455	0	0	0	0
WIN 2017	0	455	455	0	0	0	0

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?

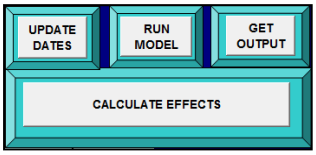
The modeler is not likely to know the rental history or rental future. Therefore, the modeler should assume use has occurred or will occur at the *From Well* location each year of the lease. However, if the modeler knows for sure that the right was not used or rented in the period immediately prior to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

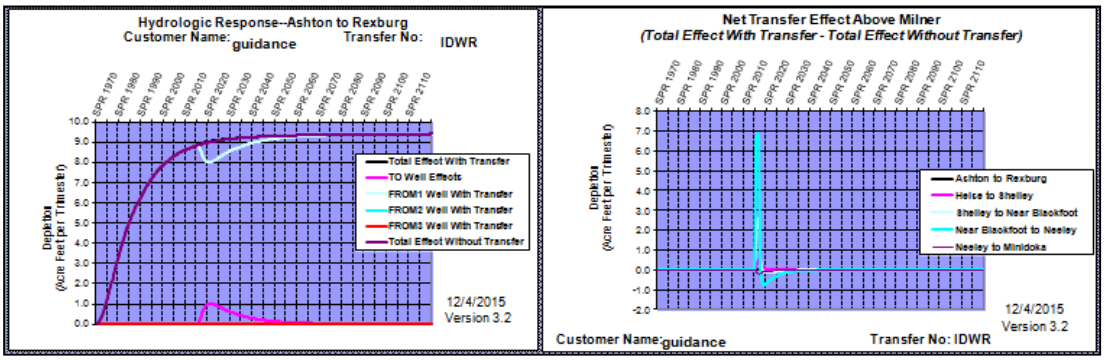


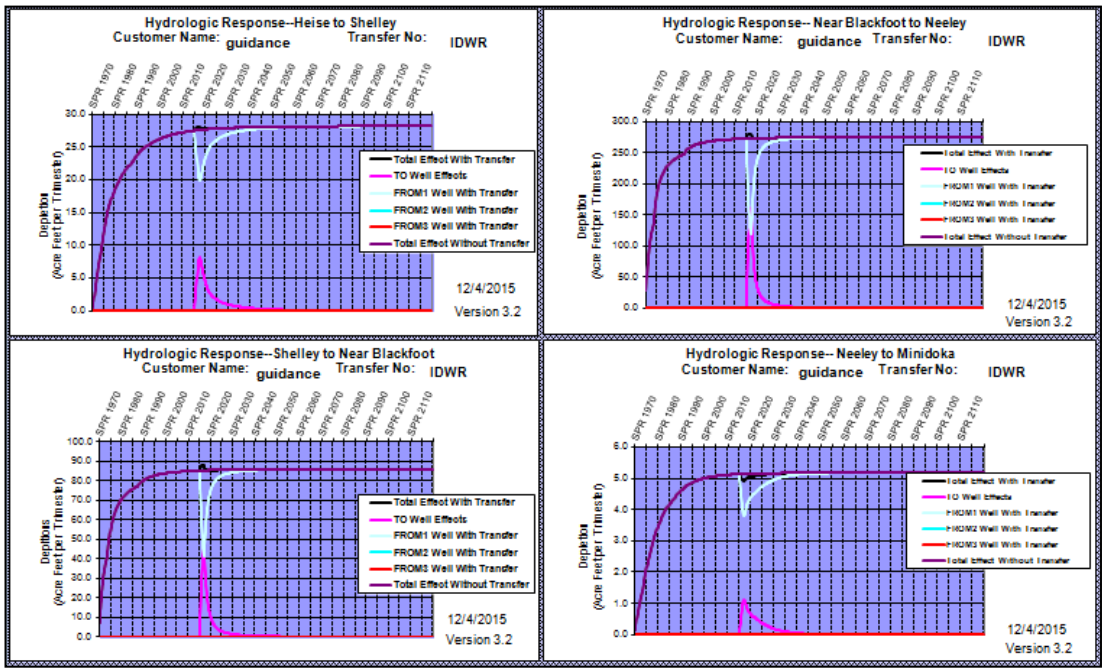
7. **View the results**. Inspect the GRAPHS BELOW MILNER and GRAPHS ABOVE MILNER tabs to look for depletion to various reaches of the Snake River. These graphs display the impact of the proposed rental on each of 11 reaches of the Snake River:
    1. Ashton to Rexburg
    2. Heise to Shelley
    3. Shelley 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.

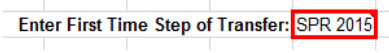
> **Modeler Tip**
>
> Remember that reading the depletion graphs is not entirely intuitive. When interpreting these graphs, the user should note that a large positive value indicates a greater depletion of the reach due to the rental. A negative value indicates a beneficial effect on flow of a reach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



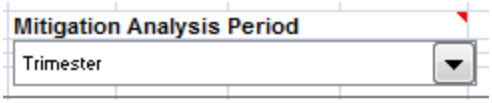
8.2. Copy the data in the perforated box.

AtR	HtS	StNB	NBtN	NtM	DWtB	BtTS	TS	TStM	M	MtB	Total
9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27	451.91
9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27	451.91
9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27	451.91
9.42	28.22	87.85	279.55	5.18	14.79	16.81	7.46	4.71	4.31	0.27	458.58

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

	Impact by Reach (AF/Trimester)										
	Ashton to Rexburg	Heise to Shelley	Shelley to Nr Blckft	Nr Blckft To Neeley	Neeley to Minidoka	Dev. Wbl. To Buhl	Buhl to Kspr	Kspr	Kspr to Malad	Malad	Malad to Bancroft
Pre-SS	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Post-SS	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Pre-TS	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Post-TS	9.42	28.22	87.85	279.55	5.18	14.79	16.81	7.46	4.71	4.31	0.27

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



8.5. *New Water Right* box: The highlighted box on the left-hand side of the 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

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								
0	8.4	1365.0	455.0	3/9/1970	8S26E-3	1365	455.0	SP082075
0	8.4	1365	455	3/9/1970	8S26E-3	1365	455.0	SP068066
Transfer 1: Worst Case Transient State Impacts following Transfer								
0	8.4	1365	455	3/9/1970	8S26E-3	1365	455.0	SP082075
0	8.4	1365	455	3/9/1970	8S26E-3	1365	455.0	SP068066

8.6. *Impact by Reach* box: The plain box on the right-hand side of the 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 Blckft	Nr Blckft To Neeley	Neeley to Minidoka	Dev. Wbl. To Buhl	Buhl to Kspr	Kspr	Kspr to Malad	Malad	Malad to Bancroft
Pre-SS:	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Post-SS:	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Pre-TS:	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Post-TS:	9.42	28.22	87.85	279.55	5.18	14.79	16.81	7.46	4.71	4.31	0.27

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 has two 'mitigation checks,' or tests to determine whether mitigation is necessary.

Transient State Analysis												
Mitigation Check 1 - >10% of Historical:	0.0%	0.0%	2.2%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mitigation Check 2: > 2.01 AF/T:	0.0	0.0	1.9	4.8	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
Mitigation Vol. Req'd (ac-ft):	0.0	0.0	1.9	4.8	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 <u>both</u> of the two conditions below occur for any reach:

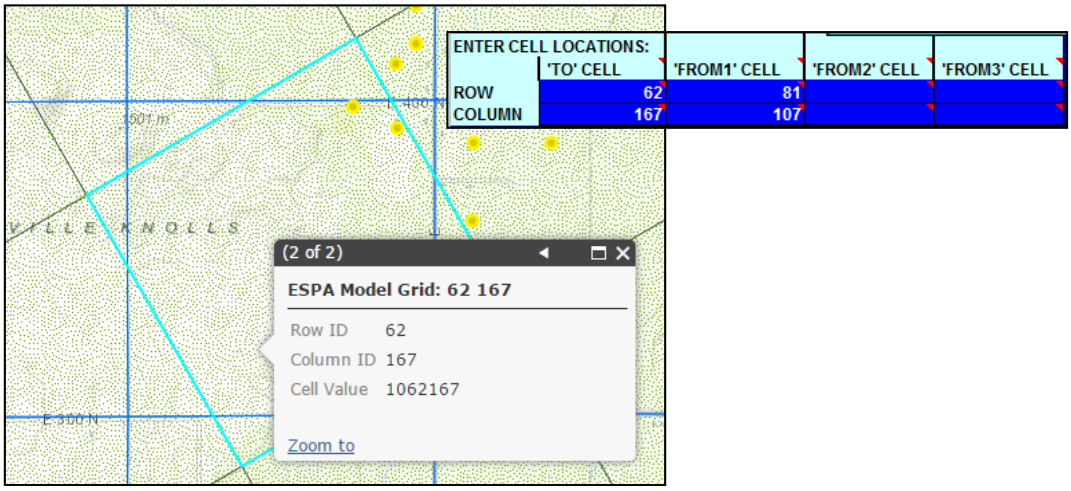
- ***Net increased depletion caused by the rental is greater than 10% of the historical depletion volume.***
- ***Depletion increases are greater than 2 acre-feet/trimester.***

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 Mitigation Analysis Spreadsheet table shown in step

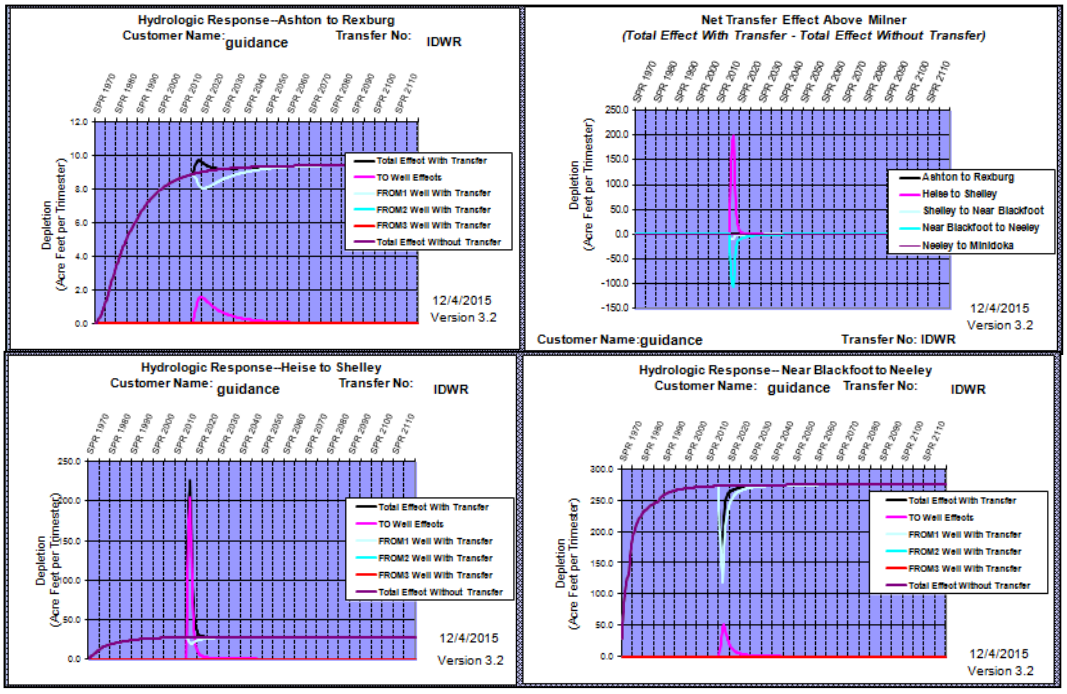
8.7 demonstrates this conclusion with a “NO” entry in the “Mitigation Required?” row for each reach.

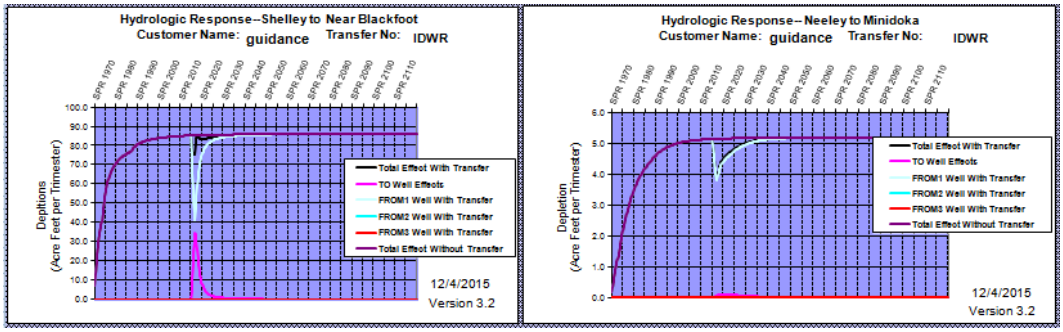
9. **When mitigation is necessary, determine how to proceed**. Now let’s work through an example with mitigation or adjustment required. For our new example, let’s change the location of the TO WELL to the cell: Row 62 Column 167.



9.1. Click “Run Model,” followed by “Get Output,” then “Calculate Effects.”

9.2. 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.

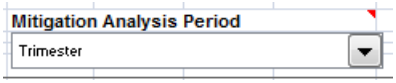




9.3. Copy the outlined data at the bottom of the "Calculated Effects" tab. Paste (paste values) it into the outlined area of the Mitigation Analysis Spreadsheet.

	Impact by Reach (AF/Trimester)										
	Ashton to Rexburg	Heise to Shelley	Shelley to Nr Blckft	Nr Blckft To Neeley	Neeley to Minidoka	Dev. Wbl. To Buhl	Buhl to Kspr	Kspr	Kspr to Malad	Malad	Malad to Bancroft
Pre-SS:	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Post-SS:	9.42	28.22	85.95	274.77	5.18	14.78	16.81	7.46	4.71	4.31	0.27
Pre-TS:	9.42	28.22	85.95	274.78	5.18	14.79	16.81	7.46	4.71	4.31	0.27
Post-TS:	9.70	225.67	85.95	274.77	5.18	14.78	16.81	7.46	4.71	4.31	0.27

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

Transient State Analysis												
	Mitigation Check 1 - >10% of Historical:	2.9%	699.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Mitigation Check 2: > 2.01 AF/T:	0.3	197.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mitigation Required?:	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
	Mitigation Vol. Req'd (ac-ft):	0.3	197.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

multiple "mitigation checks," or tests to determine whether mitigation is necessary. Notice that one of the boxes is now illuminated in yellow, and notes *YES* to the mitigation requirement. Mitigation or adjustment is required because the increase in depletion in the *Heise to Shelley* reach is more than 10% and more than 2.0 AF/trimester.

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) he can seek to rent and model additional water rights from the Bank, even though they may not actually be diverted.[3] Water rights which are not diverted should be included in a FROM WELL column, but not a TO WELL column of the modeling spreadsheet. Each of these options would allow the applicant to fulfill the mitigation volumes required and demonstrate that the rental request meets the mitigation requirements.

[3] 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.

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 sheet 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 Mitigation Analysis Spreadsheet, including all of the tables utilized within the sheet.