

Robertson, Jean

From: Robertson, Jean
Sent: Monday, November 09, 2009 2:34 PM
To: Weaver, Mathew
Subject: ESPA Ground Water Model Transfer Analysis

Attachments: img-Y09151512.pdf

Hi Mat,

Zach from Brockway submitted these two sheets, one for each portion of two rights being transferred into a PPU through pending transfer 74429. He indicated that Greg Sullivan, also of Brockway, had created this spreadsheet analysis either with your help or approval after they were quite confused with the new transfer memo. Would you mind checking them over real quick and see if the sheets provide sufficient information to show that no mitigation is required? Thanks, Jeanie



img-Y09151512.pdf
(109 KB)

Exhibit 1 - Step by Step Process for Evaluating Mitigation Requirements - New Transf Memo 24

ESPA Transfer Tool
Water Right:
36-7267

	To Cell		From Cell 1	From Cell 2	From Cell 3		
Row	72		79	0	0		
Column	70		68	0	0		
	Pre-Existing*		Proposed - Transient**		Proposed - Stead State***		Increase in Reach Depletion
	ac-ft/tri	ac-ft/yr	ac-ft/tri	ac-ft/yr	ac-ft/tri	ac-ft/yr	ac-ft/yr
Ashton to Rexburg:	0.3	0.8	0.3	0.8	0.3	0.8	0.0
Heise to Shelley:	0.3	0.9	0.3	1.0	0.3	1.0	0.1
Shelley to Near Blackfoot:	2.2	6.7	2.4	7.1	2.4	7.1	0.4
Near Blackfoot to Neeley:	7.9	23.7	8.3	24.8	8.3	24.8	1.2
Neeley to Minidoka:	3.3	10.0	2.4	7.3	2.4	7.3	-2.8
Devil's Washbowl to Buhl:	3.9	11.7	4.1	12.3	4.1	12.3	0.6
Buhl to 1000 Springs:	1.5	4.5	1.6	4.7	1.6	4.7	0.3
1000 Springs:	0.9	2.8	1.0	3.0	1.0	3.0	0.2
1000 Springs to Malad:	0.1	0.3	0.1	0.3	0.1	0.3	0.0
Malad:	0.9	2.7	0.9	2.8	0.9	2.8	0.2
Malad to Bancroft:	0.0	0.1	0.0	0.1	0.0	0.1	0.0
Sum:	21.4	64.2	21.1	64.2	21.4	64.2	0

*Preexisting depletion at time of transfer; value obtained from ESPA Transf Model "Total Effect w/out Transfer"

**Maximum model predicted increase in depletion; values obtained from time step w/ largest depletion value in the ESPA Transf Model "Total Effect w/ Transfer"

***Model predicted increase in depletion at future steady state condition; values obtained from last time step of the ESPA Transf Model "Total Effect w/ Transfer"

Step 1: Check to determine if the maximum increase in depletion to a single reach due to the conditions proposed by the transfer, including increases during the transient state, is no greater than 2 ac-ft/trimester.

If increase is greater than 2 ac-ft/trimester mitigation may be required. If increase is less than 2 ac-ft/trimester than mitigation will not be required for the reach in question.

$$\text{Eqn 1: Increase} = (D_{\text{trans, max}} - D_{\text{pre}}) / 3$$

If Increase > 2 ac-ft then 'mitigate' (1), else 'no mitigation' (0)

Value*	Check 1 - 2 ac-ft/trimester Mitigation Req'd?	
Ashton to Rexburg: 0.0	NO MITIGATION	0
Heise to Shelley: 0.0	NO MITIGATION	0
Shelley to Near Blackfoot: 0.1	NO MITIGATION	0
Near Blackfoot to Neeley: 0.4	NO MITIGATION	0
Neeley to Minidoka: -0.9	NO MITIGATION	0
Devil's Washbowl to Buhl: 0.2	NO MITIGATION	0
Buhl to 1000 Springs: 0.1	NO MITIGATION	0
1000 Springs: 0.1	NO MITIGATION	0
1000 Springs to Malad: 0.0	NO MITIGATION	0
Malad: 0.1	NO MITIGATION	0
Malad to Bancroft: 0.0	NO MITIGATION	0

*Obtained by using Eqn. 1

Step 2: Check to determine if the maximum increase in depletion to a single reach due to the conditions proposed by the transfer, at the steady state condition, is greater than the preexisting condition by 10.0%.

If increase is greater than 10% mitigation may be required. If increase is less than 10% than mitigation will not be required for the reach in question.

$$\text{Eqn 2: \% Increase} = 100 * (D_{\text{trans, ss}} / D_{\text{pre}} - 1)$$

If % Increase > 10% of Preexisting then 'mitigate' (1) else 'no mitigation' (0)

Value*	Check 2 - 10% Dep. Increase Mitigation Req'd?	
Ashton to Rexburg: 6%	NO MITIGATION	0
Heise to Shelley: 6%	NO MITIGATION	0
Shelley to Near Blackfoot: 6%	NO MITIGATION	0
Near Blackfoot to Neeley: 5%	NO MITIGATION	0
Neeley to Minidoka: 0%	NO MITIGATION	0
Devil's Washbowl to Buhl: 5%	NO MITIGATION	0
Buhl to 1000 Springs: 6%	NO MITIGATION	0
1000 Springs: 6%	NO MITIGATION	0
1000 Springs to Malad: 6%	NO MITIGATION	0
Malad: 6%	NO MITIGATION	0
Malad to Bancroft: 6%	NO MITIGATION	0

*Obtained by using Eqn. 2

Step 3: Check to determine if the depletion to a single reach due to the conditions proposed by the transfer, at the steady state condition, is greater than 10% of the total anticipated depletions to the Snake River.

If increase in depletions to the reach in question is greater than 10% of the total depletions to the River, mitigation may be required. If increase is less than 10% of the total, then mitigation will not be required for the reach in question.

$$\text{Eqn 3: \% Increase} = 100 * (D_{\text{trans, ss}} / \sum D_{\text{trans, ss}})$$

If Increase to Reach > 10% of Total Increase Then 'mitigate' (1), else 'no mitigation' (0)

Value*	Check 3 - 10% of Total Dep. Mitigation Req'd?	
Ashton to Rexburg: 1.3%	NO MITIGATION	0
Heise to Shelley: 1.5%	NO MITIGATION	0
Shelley to Near Blackfoot: 11.1%	MITIGATION	1
Near Blackfoot to Neeley: 38.7%	MITIGATION	1
Neeley to Minidoka: 11.3%	MITIGATION	1
Devil's Washbowl to Buhl: 18.1%	MITIGATION	1
Buhl to 1000 Springs: 7.4%	NO MITIGATION	0
1000 Springs: 4.7%	NO MITIGATION	0
1000 Springs to Malad: 0.5%	NO MITIGATION	0
Malad: 4.4%	NO MITIGATION	0
Malad to Bancroft: 0.2%	NO MITIGATION	0

*Obtained by using Eqn. 3

Step 4: If each check (checks 1 - 3) determined that mitigation is required then the applicant is required to mitigate for the full value of increased depletion to the reach in question, as determined by the model.

If any of the checks (checks 1 - 3) determine that mitigation is not required, then the applicant is not required to mitigate.

If sum of mitigation check indicators = 3 Then 'mitigation required', else 'no mitigation required'

Ashton to Rexburg:	No Mitigation Required
Heise to Shelley:	No Mitigation Required
Shelley to Near Blackfoot:	No Mitigation Required
Near Blackfoot to Neeley:	No Mitigation Required
Neeley to Minidoka:	No Mitigation Required
Devil's Washbowl to Buhl:	No Mitigation Required
Buhl to 1000 Springs:	No Mitigation Required
1000 Springs:	No Mitigation Required
1000 Springs to Malad:	No Mitigation Required
Malad:	No Mitigation Required
Malad to Bancroft:	No Mitigation Required

Exhibit 1 - Step by Step Process for Evaluating Mitigation Requirements - New Trnsf Memo 24

ESPA Transfer Tool

Row Column	To Cell		From Cell 1		From Cell 2		From Cell 3		Increase in Reach Depletion	
	72	70	81	69	0	0	0	0		
	Pre-Existing*		Proposed - Transient**		Proposed - Stead State***					
	ac-ft/ri	ac-ft/yr	ac-ft/ri	ac-ft/yr	ac-ft/ri	ac-ft/yr			ac-ft/ri	ac-ft/yr
Ashton to Rexburg:	0.2	0.7	0.3	0.8	0.3	0.8			0.0	0.1
Heise to Shelley:	0.3	0.8	0.3	0.9	0.3	0.9			0.0	0.1
Shelley to Near Blackfoot	2.0	6.0	2.2	6.5	2.2	6.5			0.2	0.5
Near Blackfoot to Neeley:	7.0	21.1	7.6	22.8	7.6	22.8			0.6	1.7
Neeley to Minidoka:	3.7	11.0	2.2	6.7	2.2	6.7			-1.4	-4.3
Devil's Washbowl to Buhl:	3.4	10.3	3.8	11.3	3.8	11.3			0.3	1.0
Buhl to 1000 Springs:	1.3	3.9	1.4	4.3	1.4	4.3			0.1	0.4
1000 Springs:	0.8	2.5	0.9	2.8	0.9	2.8			0.1	0.3
1000 Springs to Malad:	0.1	0.3	0.1	0.3	0.1	0.3			0.0	0.0
Malad:	0.8	2.4	0.9	2.6	0.9	2.6			0.1	0.3
Malad to Bancroft:	0.0	0.1	0.0	0.1	0.0	0.1			0.0	0.0
Sum:	19.7	59.0	19.4	59.0	19.7	59.0			0	0

*Preexisting depletion at time of transfer; value obtained from ESPA Trnsf Model "Total Effect w/out Transfer"

**Maximum model predicted increase in depletion; values obtained from time step w/ largest depletion value in the ESPA Trnsf Model "Total Effect w/ Transfer"

***Model predicted increase in depletion at future steady state condition; values obtained from last time step of the ESPA Trnsf Model "Total Effect w/ Transfer"

Step 1: Check to determine if the maximum increase in depletion to a single reach due to the conditions proposed by the transfer, including increases during the transient state, is no greater than 2 ac-ft/trimester.

If increase is greater than 2 ac-ft/trimester mitigation may be required. If increase is less than 2 ac-ft/trimester then mitigation will not be required for the reach in question.

$$\text{Eqn 1: Increase} = (D_{\text{trans max}} - D_{\text{pre}})/3$$

If Increase > 2 ac-ft then 'mitigate' (1), else 'no mitigation' (0)

Step 2: Check to determine if the maximum increase in depletion to a single reach due to the conditions proposed by the transfer, at the steady state condition, is greater than the preexisting condition by 10.0%.

If increase is greater than 10% mitigation may be required. If increase is less than 10% then mitigation will not be required for the reach in question.

$$\text{Eqn 2: \% Increase} = 100 * (D_{\text{trans ss}} / D_{\text{pre}} - 1)$$

If % Increase > 10% of Preexisting then 'mitigate' (1) else 'no mitigation' (0)

Step 3: Check to determine if the depletion to a single reach due to the conditions proposed by the transfer, at the steady state condition, is greater than 10% of the total anticipated depletions to the Snake River.

If increase in depletions to the reach in question is greater than 10% of the total depletions to the River, mitigation may be required. If increase is less than 10% of the total, then mitigation will not be required for the reach in question.

$$\text{Eqn 3: \% Increase} = 100 * (D_{\text{trans ss}} / \sum D_{\text{trans ss}})$$

If Increase to Reach > 10% of Total Increase Then 'mitigate' (1), else 'no mitigation' (0)

Step 4: If each check (checks 1 - 3) determined that mitigation is required than the applicant is required to mitigate for the full value of increased depletion to the reach in question, as determined by the model.

If any of the checks (checks 1 - 3) determine that mitigation is not required, then the applicant is not required to mitigate.

If sum of mitigation check indicators = 3 Then 'mitigation required', else 'no mitigation required'

	Value*	Check 1 - 2 ac-ft/trimester Mitigation Req'd?	
Ashton to Rexburg:	0.0	NO MITIGATION	0
Heise to Shelley:	0.0	NO MITIGATION	0
Shelley to Near Blackfoot	0.2	NO MITIGATION	0
Near Blackfoot to Neeley:	0.6	NO MITIGATION	0
Neeley to Minidoka:	-1.4	NO MITIGATION	0
Devil's Washbowl to Buhl:	0.3	NO MITIGATION	0
Buhl to 1000 Springs:	0.1	NO MITIGATION	0
1000 Springs:	0.1	NO MITIGATION	0
1000 Springs to Malad:	0.0	NO MITIGATION	0
Malad:	0.1	NO MITIGATION	0
Malad to Bancroft:	0.0	NO MITIGATION	0

*Obtained by using Eqn. 1

	Value*	Check 2 - 10% Dep. Increase Mitigation Req'd?	
Ashton to Rexburg:	10%	NO MITIGATION	0
Heise to Shelley:	9%	NO MITIGATION	0
Shelley to Near Blackfoot	9%	NO MITIGATION	0
Near Blackfoot to Neeley:	8%	NO MITIGATION	0
Neeley to Minidoka:	0%	NO MITIGATION	0
Devil's Washbowl to Buhl:	10%	NO MITIGATION	0
Buhl to 1000 Springs:	10%	MITIGATION	1
1000 Springs:	11%	MITIGATION	1
1000 Springs to Malad:	11%	MITIGATION	1
Malad:	11%	MITIGATION	1
Malad to Bancroft:	11%	MITIGATION	1

*Obtained by using Eqn. 2

	Value*	Check 3 - 10% of Total Dep. Mitigation Req'd?	
Ashton to Rexburg:	1.3%	NO MITIGATION	0
Heise to Shelley:	1.5%	NO MITIGATION	0
Shelley to Near Blackfoot	11.1%	MITIGATION	1
Near Blackfoot to Neeley:	38.7%	MITIGATION	1
Neeley to Minidoka:	11.3%	MITIGATION	1
Devil's Washbowl to Buhl:	19.1%	MITIGATION	1
Buhl to 1000 Springs:	7.4%	NO MITIGATION	0
1000 Springs:	4.7%	NO MITIGATION	0
1000 Springs to Malad:	0.5%	NO MITIGATION	0
Malad:	4.4%	NO MITIGATION	0
Malad to Bancroft:	0.2%	NO MITIGATION	0

*Obtained by using Eqn. 3

Ashton to Rexburg:	No Mitigation Required
Heise to Shelley:	No Mitigation Required
Shelley to Near Blackfoot	No Mitigation Required
Near Blackfoot to Neeley:	No Mitigation Required
Neeley to Minidoka:	No Mitigation Required
Devil's Washbowl to Buhl:	No Mitigation Required
Buhl to 1000 Springs:	No Mitigation Required
1000 Springs:	No Mitigation Required
1000 Springs to Malad:	No Mitigation Required
Malad:	No Mitigation Required
Malad to Bancroft:	No Mitigation Required