

BROCKWAY
ENGINEERING
P.L.L.C.

Hydraulics

Hydrology

Water Resources

June 7, 2004

Idaho Department of Water Resources
Attn.: Allen Marritt
1341 Fillmore, Suite 200
Twin Falls, ID 83301

RE: Ron Hulme – Mitigation Plan for Transfer Application

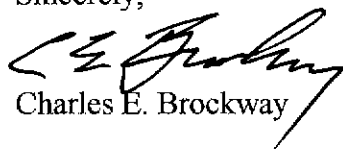
Dear Mr. Merritt:

Enclosed, please find the Mitigation Plan, Stipulation regarding mitigation,
and the hydrologic impact analysis for the Ron Hulm Transfer # ~~69306~~.

69270

Please feel free to call me with any questions.

Sincerely,



Charles E. Brockway

CEB/jjd

cc: Del Kohtz

Enclosure

CHARLES E.
BROCKWAY,
PH.D., P.E.

CHARLES G.
BROCKWAY,
PH.D., P.E.

2016 NORTH
WASHINGTON
STREET • SUITE 4

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IDAHO 83301

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RECEIVED
JUN 08 2004
Department of Water Resources
Southern Region

JUN 09 2004

Department of Water Resources
Southern Region

Mitigation Plan and Analysis

Transfer Number 69270

Applicant: Ron Hulme

Prepared for the Applicant
by Charles E. Brockway
Brockway Engineering, P.L.L.C.

June 7, 2004

Description of transfer

This application for a water right transfer proposes to transfer 0.28 cfs and 100 acre feet per annum, of ground water right(s) currently utilized for irrigation in Section(s) 19 and 30, T8S R22E in Minidoka County to the Hulme farm in the NE1/4 NW1/4 Section 9, T9S R20E in Jerome County. The Applicant is requesting the Department to transfer the entire quantity of water, but subject to the ongoing mitigation requirements outlined below as well as any other conditions imposed.

Director's Transfer Guidance

This transfer application has been prepared in accordance with the new Guidance Memorandum prepared by the Department. (A copy of this Administrator's Memorandum-Transfer Processing No. 24, dated October 30, 2002, was made available to the Parties via e-mail on October 30, 2002. This guidance memorandum specifies additional requirements for documentation with respect to proof of beneficial use and non-forfeiture. All documentation required under this memoranda has been submitted to the Department.

The Administrator's Memorandum now requires a determination of historical consumptive use on irrigated land for all transfers contemplating a change in nature of use, for example, irrigation to commercial/stockwater for dairies. However, since this proposed transfer is for irrigation use, no determination of historical consumptive use is required, and the full 53.2 af/yr is assumed to be transferred.

Mitigation Plan and Analysis

Transfer Number 69306

Applicant: Ron Hulme

RECEIVED

JUN 08 2004

Department of Water Resources
Southeast Region

Prepared for the Applicant
by Charles E. Brockway
Brockway Engineering, P.L.L.C.

June 7, 2004

Description of transfer

This application for a water right transfer proposes to transfer 0.28 cfs and 100 acre feet per annum, of ground water right(s) currently utilized for irrigation in Section(s) 19 and 30, T8S R22E in Minidoka County to the Hulme farm in the NE1/4 NW1/4 Section 9, T9S R20E in Jerome County. The Applicant is requesting the Department to transfer the entire quantity of water, but subject to the ongoing mitigation requirements outlined below as well as any other conditions imposed.

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The Applicant also acknowledges that the approval of the transfer will be conditioned in accordance with various requirements spelled out in that guidance.

Impacts on Snake River and springs

The location of current water use ("FROM well") and proposed water use ("TO well") are both within the Eastern Snake Plain aquifer area. (The TO well is actually more than one well in this instance, but is referred to in this analysis as the TO well for purposes of simplicity.)

Pumping at either site will impact the discharge of springs, tributaries and underground sources reaching the various reaches of the Snake River. When a point of diversion is moved within the aquifer, impacts on each of the reaches will differ, potentially affecting other water uses.

Consequently, the applicant has undertaken a hydrologic analysis comparing the pre-transfer and post-transfer impacts of the diversion. This analysis was a dynamic one, taking into account the time delay of changes in pumping on the various reaches. The purpose of the analysis is to help craft a mitigation plan which will avoid adverse impacts on other water uses.

The analysis was performed by C.E. Brockway P.E., Brockway Engineering P.L.L.C. Brockway Engineering utilized response functions for impacts within the Eastern Snake Plain aquifer prepared by the University of Idaho using the ESRPA Ground Water Flow Model. The Response Functions Procedure simulates the effect of the proposed transfer on each of the four (4) reaches of the Snake River: Ashton to Lewisville, Near Shelley to Neeley, Neeley to Minidoka, and Milner to King Hill.

In this case, the Response Functions Procedure predicts negative impacts (that is, an increase in depletion effect compared to pre-application conditions) on the Milner to King Hill reach. Each of the remaining three reaches would experience a positive effect (that is, a reduction in depletion effect compared to pre-transfer conditions). This is consistent with the basic premise of the model, which assumes that a negative effect in any given river reach will be offset by an equal and opposite effect in one or more of the remaining reaches.

Given these results, this mitigation plan addresses only the negative impacts in the Milner-King Hill reach. No mitigation is required for any of the remaining reaches.

The Response Functions Procedure utilizes response functions contained in an Ground Water Rights Transfer Spreadsheet developed by the University

of Idaho utilizing the current (old) ESRPA ground water model. Each response function predicts the transient impacts (that is, impacts over time) on selected reaches corresponding to pumping or recharge cells within the aquifer.

The appropriate response function is selected by choosing the "pumping cell" corresponding to TO well and the "recharge zone" corresponding to the FROM well(s).

The spreadsheet currently has a 50 year calculating period. It estimates impacts based on trimester (4 month) input in acre feet for the 50 year period (or 150 trimesters). The fifty year period begins on the date of pumping of the pre-transfer well was initiated. This is a sufficient time horizon for this proposed transfer.

Summary of Methodology

1. For this transfer, the single cells in the ESRPA model representing the FROM point of diversion and the TO point of diversion were determined.
2. The target FROM cell and target TO cell were designated in the modified Ground Water Rights Transfer Spreadsheet and the appropriate response functions were utilized automatically by the spreadsheet.
3. Since the Larsen ground water rights were developed at three different times historically, it was assumed that each right pumped from the date of priority though 1999. At this time the entire farm was entered into a CRP contract and it was assumed that for the purposes of the calculation of the effect without the transfer that pumping ceased. Each of the three different water rights on the Larsen farm was entered as a separate FROM well in the Transfer Spreadsheet to reflect the different pumping periods.
4. The combined depletion of the residual effect of the FROM well(s) pumping and the depletion from the TO well are added in the Transfer Spreadsheet to produce a combined or net effects curve.
5. Pumping at the TO node was adjusted over groups of years so that the combined depletion curve (net effects curve) for the Milner-King Hill reach either matched the 'without transfer' or was within 5% of the 'without transfer curve for the period after the commencement of pumping from the TO well. This reduced pumping volume below the transferred volume constitutes the "hydrologic mitigation" for this transfer. The reduced pumping volumes were determined by trial and error until a reasonable 'fit' to the 'without transfer' curve was accomplished and the difference in depletion caused by the combined effects of the FROM and TO wells was

less than 5% greater than the 'without transfer' curve depletion over the period.

6. The graphs for each of the 4 Snake River reaches show the comparison over time of the "net effect" on reach gains of the proposed transfer with the reduced pumping for mitigation.

7. A 'Net Percent Transfer Impact' curve for each of the Snake River Reaches was calculated to better depict both the negative and positive impacts of the proposed transfer.

7. For the Milner-King Hill reach, the ratio of the reduced pumping volume per year for mitigation to the transferred volume was calculated thereby providing a percentage of pumping allowed for each group of years.

11. The percentage pumping allowed, based on the 53.2 af/year transferred pumping volume, was multiplied by the amount transferred to give the absolute value of pumping allowed for regulation purposes.

Proposed mitigation

The applicant will reduce pumping under the transferred water rights at the new points of diversion in a quantity sufficient to assure that no additional impact in excess of 5% to the Milner to King Hill reach is experienced. The quantify of reduced pumping will change from time to time according to a schedule set out below. This reflects the dynamic nature of the relationship between the aquifer and the river.

The annual pumping volume proposed for mitigation is shown on Table 1 below. This analysis is based on a simulated annual volume of 53.2 af/year (which equates to 17.7 af/trimester).

Table 1
Proposed Limitation on Annual Pumping
Hulme Transfer No. Pending Transferred Volume=53.2 af/yr.

Years	Annual Pumping Acre Feet/ Year (simulated)	Percent Reduction in Pumping	Percent of Transferred Volume
2005	100 acre-feet	0 %	100%
2006	100 acre-feet	0 %	100%
2007	80 acre-feet	20 %	80%
2008-2012	80 acre-feet	20 %	80%

2013-2017	85 acre-feet	15%	85%
2018-2022	85 acre-feet	15%	85%
2023-2031	85 acre-feet	15%	85%
2032-2041	86 acre-feet	14%	86%
2042-2052	86 acre-feet	14%	86%
2053-2072	86 acre-feet	14%	86%
2073>>	86 acre-feet	14%	86%

Monitoring of mitigation requirements

Discharge from the proposed new well will be monitored by the applicant, in accordance with the Director's new guidance. The quantity of pumped volumes will be reported annually to IDWR as required under the new guidance.

Positive impacts on other reaches

The Department does not currently have a mechanism in place to provide credit to the Applicant reflecting these positive impacts. Whether such a system will come to be recognized remains to be seen. The Applicant supports creation of a credit pool system

The Applicant has agreed that no credits have been quantified or created in conjunction with the approval of this transfer at this time. However, that to the extent such credits are recognized in the future by the Department or other appropriate entity, the Applicant shall be allowed to quantify and claim such credits at that time as they may be entitled to. The fact that credits were not created or quantified at the time of this transfer shall not be deemed a basis for denial of a claim claim for such credits.

No reopening of mitigation calculation

The Applicant has agreed that the quantification of the mitigation obligation (as set out in Table 1) will be permanent. The quantity of mitigation will not be subject to re-opening or re-examination, even in the event that new data, modeling or other information becomes available.

Substitute mitigation

As specified above, the mitigation will be provided in the form of reduced pumping at the TO well. No other method of achieving the mitigation may be substituted by the Applicant, except upon approval of the Department of

an application for modification of the mitigation requirement pursuant to
Idaho Code § 67-5254 or other appropriate mechanism

JUN 09 2004

Department of Water Resources
Southern Region

Stipulations Regarding Mitigation Transfer Number 69270

Ron Hulme

June 7, 2004

1. Mitigation

The Applicant has agreed to reduce pumping of those water rights under this water right transfer in a quantity sufficient to assure that no additional impact to the Milner to King Hill reach or any other reach of the Snake River is experienced. The quantity of reduced pumping has been calculated and agreed to by the Parties Applicant. The reduced pumping schedule mitigates for the impact of the allowed annual volume applied for in the transfer application. The quantity of reduced pumping for each year is set out in the table(s) appended hereto. These mitigation requirements will be incorporated by the Department into the transfer approval and set out as permanent conditions on the affected water rights.

2. Monitoring of mitigation requirements

Discharge from the new well(s) will be monitored by the Applicant, in accordance with the Director's new water right transfer guidance or other applicable requirements as determined by the Director. The quantity of pumped volumes will be reported annually to IDWR .

3. Positive impacts on other reaches

The Department does not currently have a mechanism in place to recognize the positive impacts that a transfer may have on other river reaches within the Eastern Snake Plain Aquifer.

The Applicant and the Protestant have agreed that no "reach credits" will be recognized in conjunction with the approval of this transfer at this time. The Parties have agreed, however, that if such "reach credits" are recognized in the future by the Department or other appropriate entity, the Applicant retains the right to apply for such credits based on this transfer.

Stipulations Regarding Mitigation

Transfer Number 69306

Ron Hulme

June 7, 2004

1. Mitigation

The Applicant has agreed to reduce pumping of those water rights under this water right transfer in a quantity sufficient to assure that no additional impact to the Milner to King Hill reach or any other reach of the Snake River is experienced. The quantity of reduced pumping has been calculated and agreed to by the Parties Applicant. The reduced pumping schedule mitigates for the impact of the allowed annual volume applied for in the transfer application. The quantity of reduced pumping for each year is set out in the table(s) appended hereto. These mitigation requirements will be incorporated by the Department into the transfer approval and set out as permanent conditions on the affected water rights.

2. Monitoring of mitigation requirements

Discharge from the new well(s) will be monitored by the Applicant, in accordance with the Director's new water right transfer guidance or other applicable requirements as determined by the Director. The quantity of pumped volumes will be reported annually to IDWR .

3. Positive impacts on other reaches

The Department does not currently have a mechanism in place to recognize the positive impacts that a transfer may have on other river reaches within the Eastern Snake Plain Aquifer.

The Applicant and the Protestant have agreed that no "reach credits" will be recognized in conjunction with the approval of this transfer at this time. The Parties have agreed, however, that if such "reach credits" are recognized in the future by the Department or other appropriate entity, the Applicant retains the right to apply for such credits based on this transfer.

when such credits are subsequently recognized, they will accumulate only from that point in time forward.

4. No reopening of mitigation calculation

The Applicant and the Protestant have agreed that the quantification of the mitigation obligation (as set out in the attached table(s)) will be permanent. The quantity of mitigation will not be subject to re-opening, re-examination, or re-calculation, except by mutual agreement and approval by the Department. This restriction applies even in the event that new data, new modeling or other information becomes available.

5. Substitute mitigation

As specified above, the mitigation will be provided in the form of reduced pumping. No other method of achieving the mitigation may be substituted by the Applicant, except upon approval of the Department of an application for modification of the mitigation requirement as provided for by law. Moreover, the Protestant shall be given notice of such application.

In any event, the Protestant will not be required to accept any substitute form of mitigation that is less effective than the original mitigation. Specifically, any substitute mitigation must be “in kind” (meaning that it must provide a substitute supply of water—rather than some other kind of compensation—to make up for the depletions caused by the transfer), “in time” (meaning that the make-up water must be provided so as to reach the impacted area at the appropriate time to respond to the depletion caused by the transfer), and “in place” (meaning that the replacement must provide water to same area as the depletions are experienced). Finally, the substitute mitigation must provide water to the depleted impacted areas with the same degree of certainty and reliability as the original mitigation.

6. Consumptive use

The parties recognize that this transfer is proposed for irrigation use and the diversion volume is premised on the allowed irrigation diversion volume by IDWR of 4.0 acre feet per acre per year. Consumptive use of water by crops, or the differences in crop consumptive use is not a factor in determination of the allowable pumped volume.

Table 1 Proposed Pumping Schedule

Mitigation Plan

TRANSFER NO 1	Model Node
Applicant: Hulme (3)	9 22
Transfer # Pending	TO: Hulme (3) 8 19

Acres dried up to transfer 25 acres Larsen
 Allowed vol. transfer 4 af/a Irrigation
 Volume Transferred: 100.0 af/year
 33.3 af/trimester

TRANSFER NO 2	Model Node
Applicant:	FROM: 0 9 22
Transfer # 0	TO: 0 9 22
Acres drier 11	0 acres
Allowed vo 13	4 af/a
Volume Transferred:	0.0 af/year 0.0 af/trimester

MITIGATION ACRES (if any)

Additional acres dried up acres FROM:
 Allowed transfer af/a
 Volume (Mitigation) 0.0 af/year
 af/trimester

Model Node

Years		Number	Actual Af/yr	Mitigation Acres		ANNUAL PUMPING			
Begin	End			Source	Hulme Irrigation Pumping af/year	Percent of Trans	Percent Reduction	Pumping af/year	Percent of Trans
2003		1		Reduced Pumping	0.0	0.00	1.00	0.0	0
2004		1		Reduced Pumping	0.0	0.00	1.00	0.0	0
2005		1		Reduced Pumping	100.0	1.00	0.00	0.0	0
2006		1		Reduced Pumping	100.0	1.00	0.00	0.0	0
2007		1		Reduced Pumping	80.0	0.80	0.20	0.0	0
2008		5		Reduced Pumping	80.0	0.80	0.20	0.0	0
2013		5		Reduced Pumping	85.0	0.85	0.15	0.0	0
2018		5		Reduced Pumping	85.0	0.85	0.15	0.0	0
2023		9		Reduced Pumping	85.0	0.85	0.15	0.0	0
2032		11		Reduced Pumping	86.0	0.86	0.14	0.0	0
2043		10		Reduced Pumping	86.0	0.86	0.14	0.0	0
2053		20		Reduced Pumping	86.0	0.86	0.14	0.0	0
2073	>>>>			Reduced Pumping	86.0	0.86	0.14	0.0	0

Mitigation for impacts to reaches of the Snake River will be achieved by reduced pumping at the proposed place of use

UNIVERSITY OF IDAHO - IDAHO WATER RESOURCES RESEARCH INSTITUTE

IDAHO DEPARTMENT OF WATER RESOURCES

ENTER STARTING DATE FOR TRANSFER #1:
SIMULATION. THEN PUSH
"UPDATE DATES" BUTTON
Hulme (3)

Felceus purpurus

Cell	'FROM' CELL	'FROM' CELL	'FROM' CELL
Latent	9	9	9
Latent	22	22	22

	2008 to	2012	0.60	2008	2012	0
5	2013	2017	0.85	2013	2017	0
9	2018	2022	0.85	2018	2022	0
9	2023	2031	0.85	2023	2031	0

TRIMESTER OF ACTIVITY	PROJECTED USE AFTRIMESTER	FROM1 WELL		FROM2 WELL		FROM3 WELL	
		With Transfer AFTRIMESTER	Without Transfer AFTRIMESTER	With Transfer AFTRIMESTER	Without Transfer AFTRIMESTER	With Transfer AFTRIMESTER	Without Transfer AFTRIMESTER
SPR 1987	0.00	11.87	11.87	0.00	0.00	0.00	0.00
SUM 1987	0.00	11.87	11.87	0.00	0.00	0.00	0.00
WIN 1987	0.00	11.87	11.87	0.00	0.00	0.00	0.00
SPR 1988	0.00	11.87	11.87	0.00	0.00	0.00	0.00
SUM 1988	0.00	11.87	11.87	0.00	0.00	0.00	0.00
WIN 1988	0.00	11.87	11.87	0.00	0.00	0.00	0.00
SPR 1989	0.00	11.87	11.87	15.33	15.33	0.00	0.00
SUM 1989	0.00	11.87	11.87	15.33	15.33	0.00	0.00
WIN 1989	0.00	11.87	11.87	15.33	15.33	0.00	0.00
SPR 1990	0.00	11.87	11.87	15.33	15.33	0.00	0.00
SUM 1990	0.00	11.87	11.87	15.33	15.33	0.00	0.00
WIN 1990	0.00	11.87	11.87	15.33	15.33	0.00	0.00
SPR 1991	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1991	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1991	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 1992	0.00	11.87	11.87	10.33	10.33	6.33	6.33
SUM 1992	0.00	11.87	11.87	10.33	10.33	6.33	6.33
WIN 1992	0.00	11.87	11.87	10.33	10.33	6.33	6.33
SPR 1993	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1993	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1993	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 1994	0.00	11.87	11.87	10.33	10.33	6.33	6.33
SUM 1994	0.00	11.87	11.87	10.33	10.33	6.33	6.33
WIN 1994	0.00	11.87	11.87	10.33	10.33	6.33	6.33
SPR 1995	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1995	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1995	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 1996	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1996	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1996	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 1997	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1997	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1997	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 1998	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1998	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1998	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 1999	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 1999	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 1999	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SPR 2000	0.00	11.87	11.87	15.33	15.33	6.33	6.33
SUM 2000	0.00	11.87	11.87	15.33	15.33	6.33	6.33
WIN 2000	0.00	11.87	11.87	15.33	15.33	6.33	6.33

REDUCED PUMP Volume	irrigation	Trans #	Pending	Transfers	Trans #	0
AFTR 33.3				AFTR 0		
2003	100.0	%Pumped	0.00	AFTR 0	%Pumped	0
2004		0.00				
2005		1.00				
2006		1.00				
2007		0.80	2003 to	2007	0	0
2008 to	2012	0.80	2008	2012	0	0
2013	2017	0.85	2013	2017	0	0
2018	2022	0.85	2018	2022	0	0
2023	2031	0.85	2023	2031	0	0
2032	2042	0.86	2032	2042	0	0
2043	2052	0.86	2043	2052	0	0
2053	2072	0.86	2053	2072	0	0
2073 >>>		0.86	2073 >>>		0	0

[illegible]

[illegible]

[illegible]

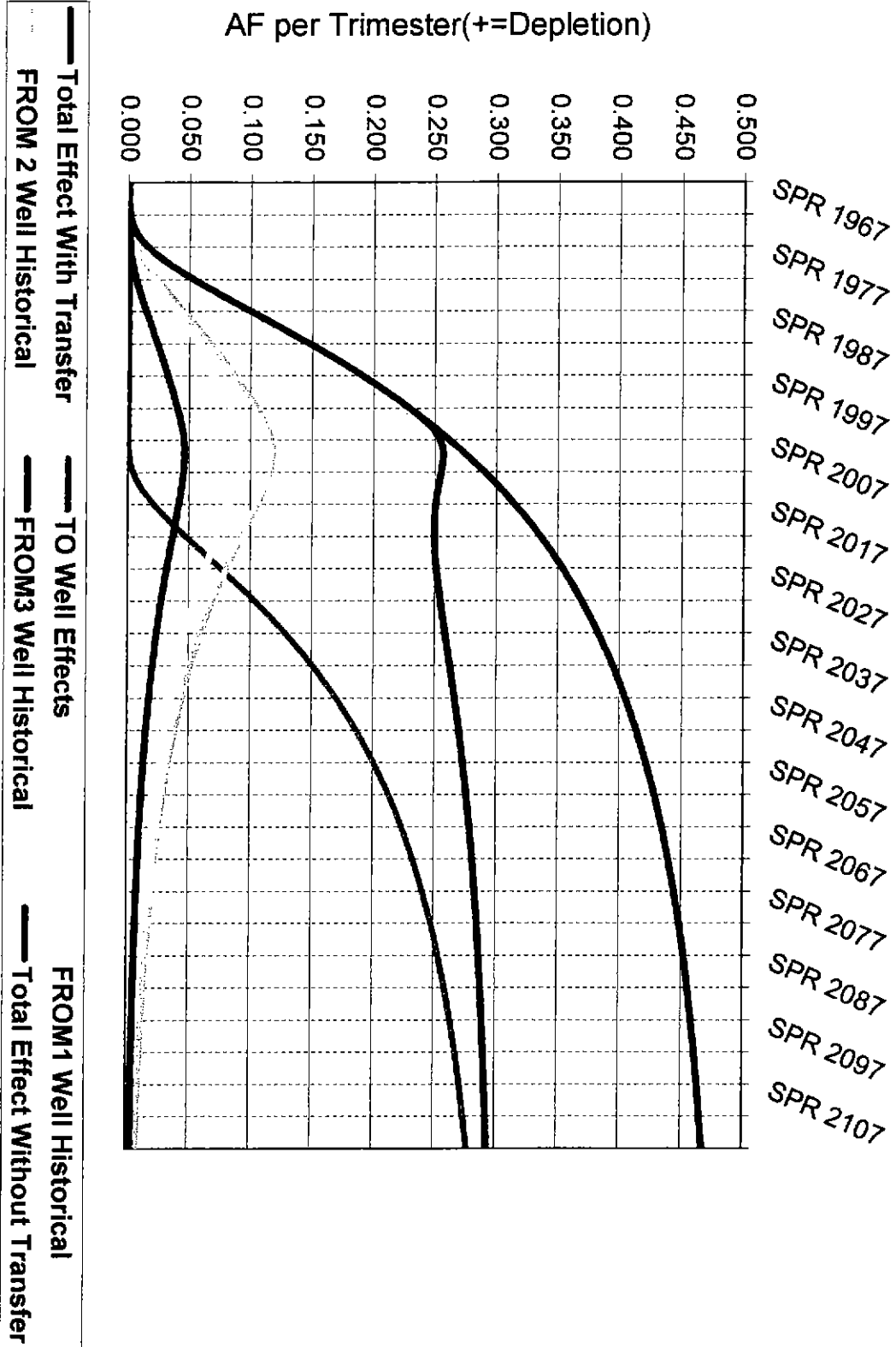
SPR 2114	28.67	0.00	11.67	0.00	15.33	0.00	6.33
SUM 2114	28.67	0.00	11.67	0.00	15.33	0.00	6.33
WIN 2114	28.67	0.00	11.67	0.00	15.33	0.00	6.33
SPR 2115	28.67	0.00	11.67	0.00	15.33	0.00	6.33
SUM 2115	28.67	0.00	11.67	0.00	15.33	0.00	6.33
WIN 2115	28.67	0.00	11.67	0.00	15.33	0.00	6.33
SPR 2116	28.67	0.00	11.67	0.00	15.33	0.00	6.33
SUM 2116	28.67	0.00	11.67	0.00	15.33	0.00	6.33
WIN 2116	28.67	0.00	11.67	0.00	15.33	0.00	6.33

Hydrologic Response--Heise/Ashton to Lewisville

Transfer No: Pending

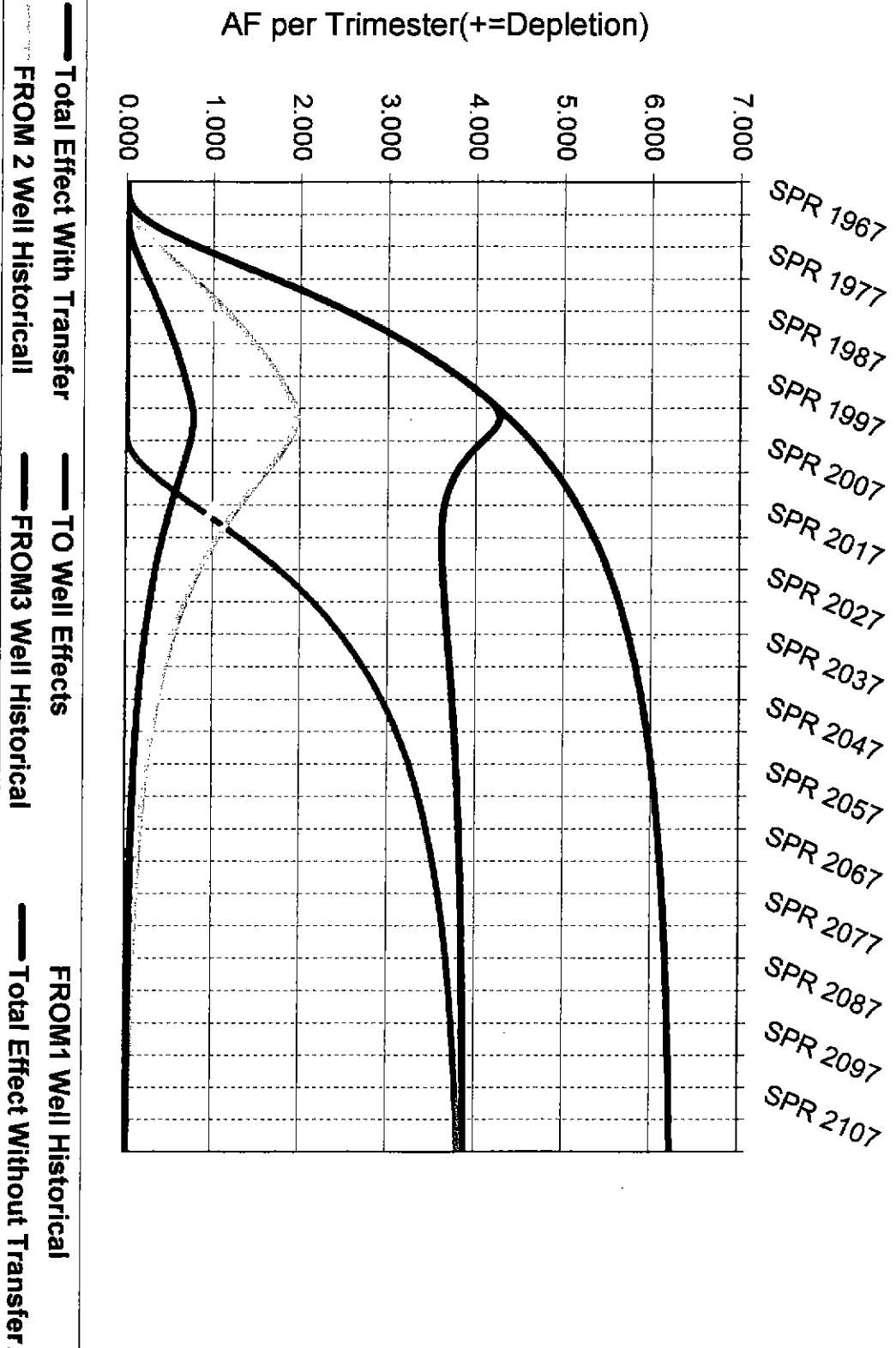
Applicant:

Hulme (3)



Hydrologic Response--Near Shelley to Neeley Reach

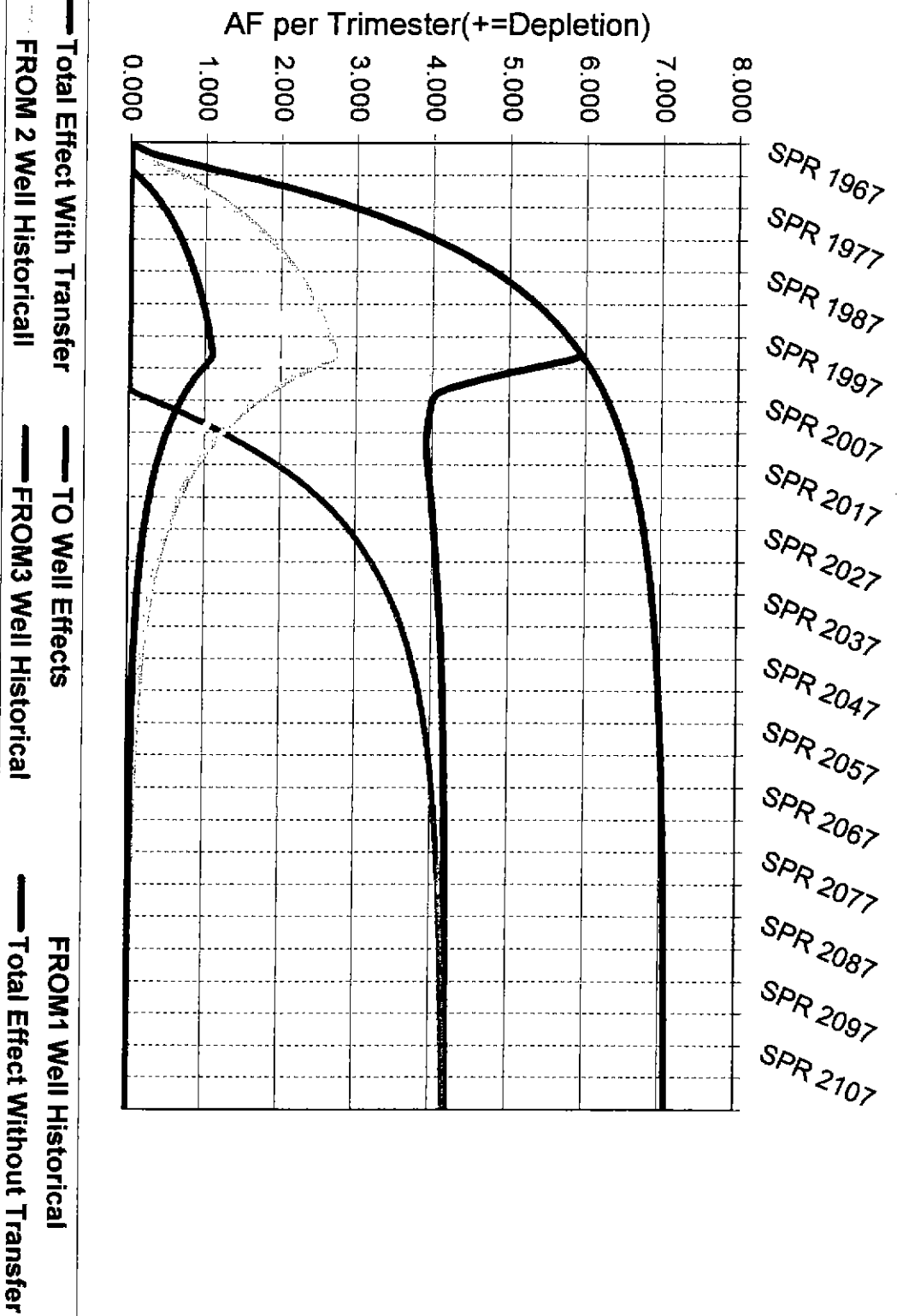
Transfer No: Pending Applicant: Hulme (3)



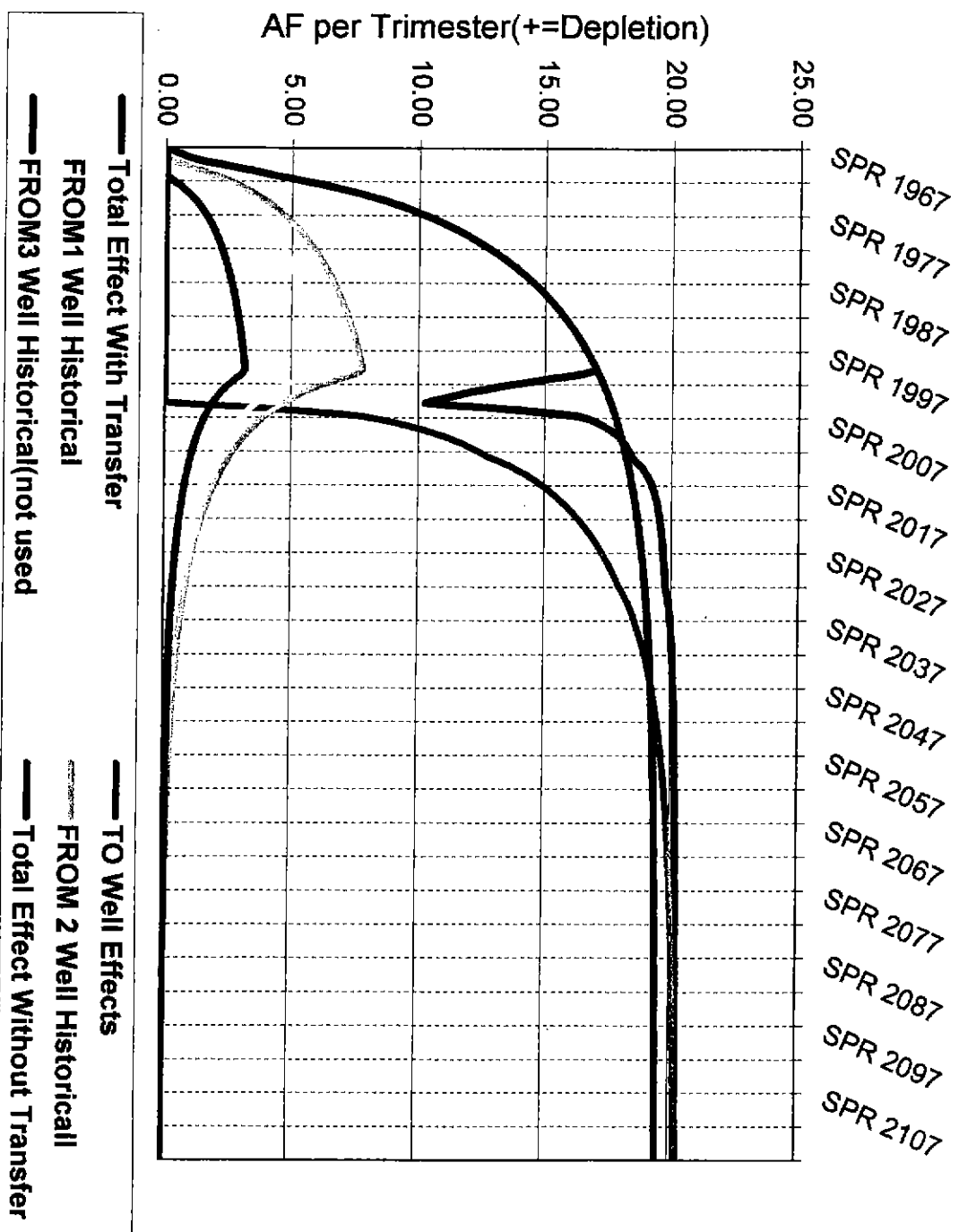
Hydrologic Response--Neeley to Minidoka

Transfer No: Pending Applicant:

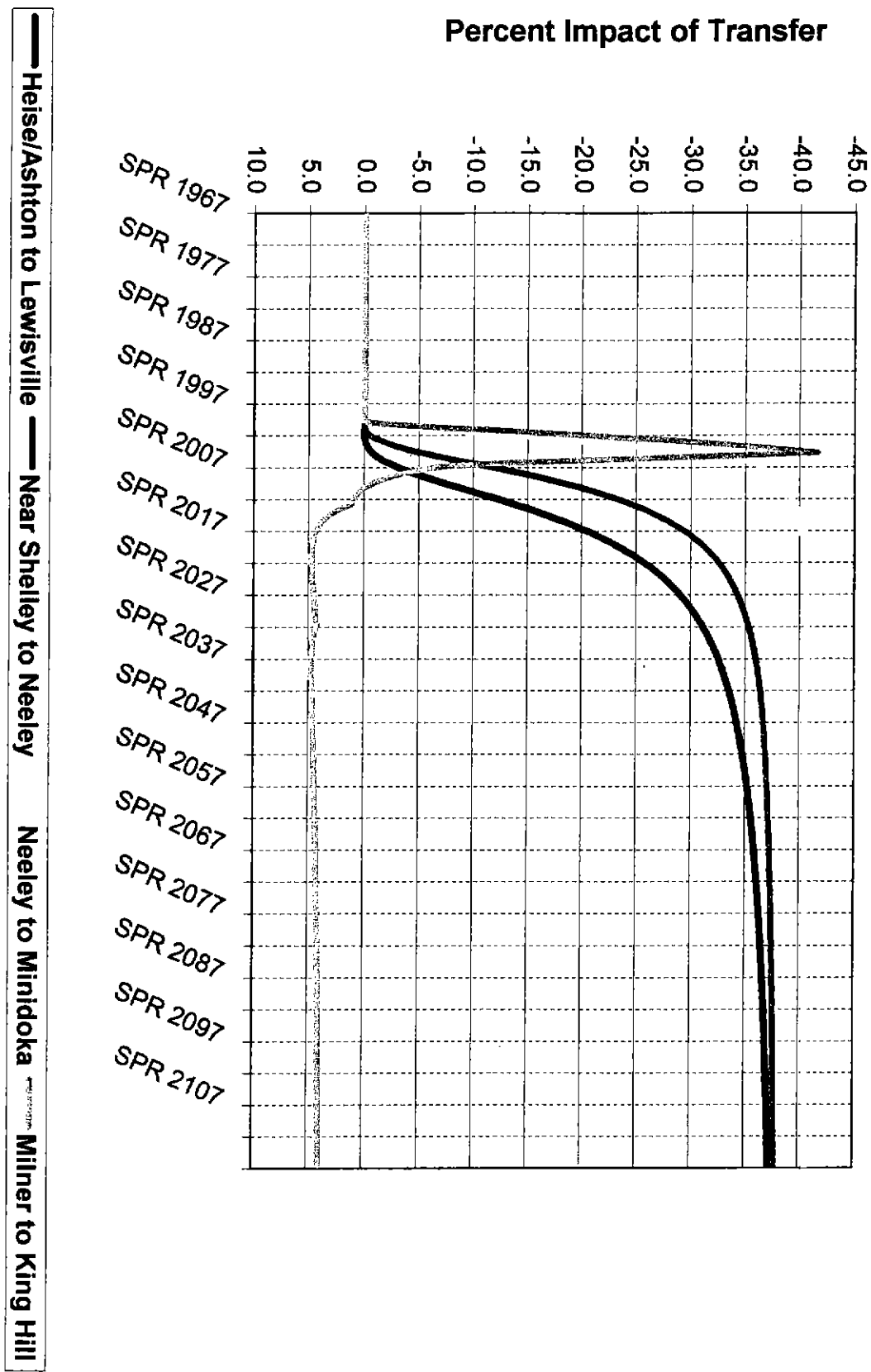
Hulme (3)



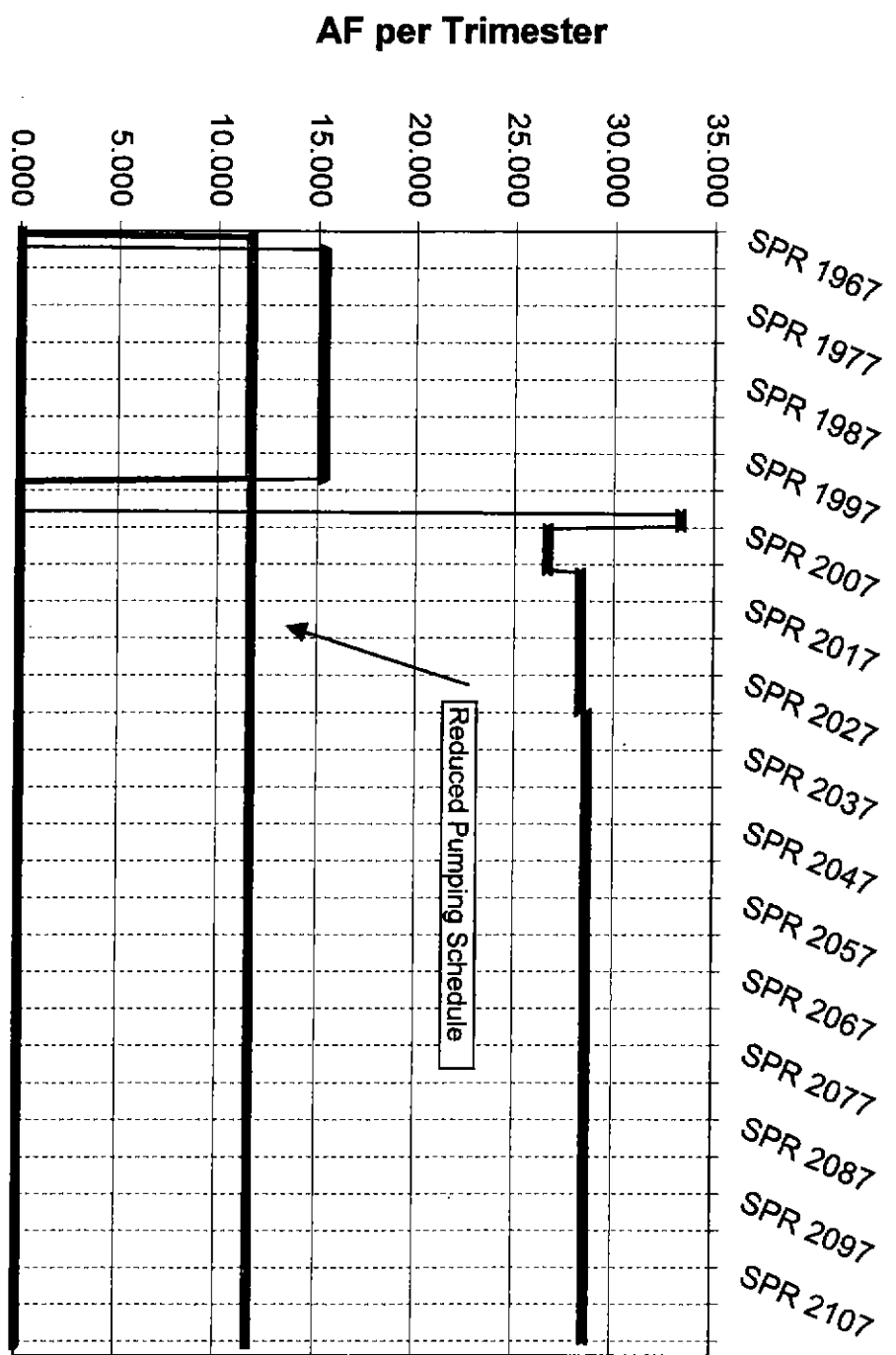
Hydrologic Response-- Milner to King Hill Reach Transfer No.: Pending Applicant: Hulme (3)



Net Percent Transfer Impact
Transfer No: Pending Applicant: Hulme (3)



Pumping and Mitigation Schedule **Transfer No Pending Applicant: Hulme (3)**



— TO Well — From 1 Well w/ Transfer — From 1 Well wo/Transfer — From 2 Well (Mitigation)