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BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF DISTRIBUTION OF WATER TO WATER RIGHT NOS. 36-02356A, 36-07210, AND 36-07247 **(Blue Lakes Delivery Call)**	)	**A&B IRRIGATION DISTRICT'S RULE 43 MITIGATION PLAN**

COMES NOW, A&B IRRIGATION DISTRICT ("A&B"), by and through its counsel of record, BARKER ROSHOLT & SIMPSON LLP, and hereby submits this Mitigation Plan ("Plan") pursuant to Rule 43 of the Department's Conjunctive Management Rules (37.03.11.43) in the above-captioned matter for A&B's water rights 36-15127B, 36-15193B, 36-15194B, 36-15195B, and 36-15196B ("Enlargement Rights"). As detailed below, diversion of ground water under A&B's Enlargement Rights (with a 1994 subordination condition) is fully mitigated by the substitute curtailment actions performed within the A&B project and therefore the water rights should not be curtailed in response to Blue Lakes' water delivery call.

MITIGATION PLAN

I. Name and Address:

A&B Irrigation District
P.O. Box 675
Rupert, Idaho 83350-0675
(208) 436-3152

II. Water Rights to be Mitigated By Plan:

36-15127B
36-15193B
36-15194B
36-15195B
36-15196B

III. Description of Plan:

A&B has curtailed the diversion of groundwater under its senior priority water right (36-2080) for the irrigation of 1,377.8 acres within the Unit B portion of the irrigation district. *See* Ex. A. Although A&B is seeking to continue to serve these acres with groundwater through its senior priority right (36-2080, September 9, 1948 priority), diversion and use of water by other junior priority ground water rights within the Eastern Snake Plain Aquifer ("ESPA") has injured A&B's water right and prevented the continued use of groundwater on those acres.[1]

A&B has converted the 1,378 acres (Ex. A) from groundwater to a surface water supply of A&B Irrigation District, consisting of stored water in American Falls and Palisades Reservoirs (water rights as recommended in the SRBA Court, 1-2064, 1-2068). Pursuant to analysis performed by IDWR using the Eastern Snake Plain Aquifer Model (ESPAM), diversion of groundwater for the acres served by A&B's Enlargement Rights (2,063 acres), would result in a

[1] A&B's water right delivery call for water right 36-2080 is subject to a separate administrative proceeding before IDWR entitled *In the Matter of the Petition for Delivery Call of A&B Irrigation District for the Delivery of Ground Water and for the Creation of Groundwater Management Area.*

depletion to the Devil's Washbowl to Buhl ("DWB-BUL") reach of 921 acre-feet per year. *See* Ex. B.[2] Using the same analysis, A&B's conversion of the 1,378 acres from groundwater to a surface water supply would result in an increase of 1,055 acre-feet per year to the DWB-BUL reach. *See id.* In addition, A&B's use of surface water on the acres previously irrigated with groundwater provides additional incidental recharge to the ESPA in the amount of 341 acre-feet per year to the DWB-BUL reach. *See id.* Finally, A&B has enrolled 121 acres in the federal CREP program (Ex. C identifies acres), which results in 42 acre-feet per year to the DWB-BUL reach. *See* Ex. B. Therefore, ground water will be voluntarily curtailed under water right 36-2080 and will no longer be used on those acres for the duration of the program. Consequently, A&B's depletion and benefits from its mitigation actions are detailed as follows:

Depletions:

Action	Impact to DWB-BUL Reach	Impact to Blue Lakes
GW Irrigation – 2,063 acres	1.3 cfs / 921 af	0.26 cfs / 184 af (20% reach)
Total Mitigation Obligation	1.3 cfs / 921 af	0.26 cfs / 184 af (20% reach)

Mitigation Benefits:

Action	Benefit to DWB-BUL Reach	Benefit to Blue Lakes
Conversions – 1,378 acres	1.5 cfs / 1,055 af	0.30 cfs / 211 af (20% reach)
Incidental Recharge	0.5 cfs / 341 af	0.10 cfs / 68 af (20% reach)
CREP	0.06 cfs / 42 af	0.01 cfs / 8.4 af (20% reach)
Total Mitigation Performed	2.06 cfs / 1,438 af	0.41 cfs / 287.4 af (20% reach)

[2] The analysis was completed prior to the approval of Transfer No. 75339 which added points of diversion to A&B's water right 36-2080. Presently there are 195, not 188 points of diversion.

As detailed above, A&B's actions completely mitigate for the depletions resulting from the use of the Enlargement Rights. The Mitigation Plan provides replacement water "at the time and place required by the senior-priority water right, sufficient to offset the depletive effect of ground water withdrawal on the water available in the surface or ground water source at such time and place as necessary to satisfy" Blue Lakes' water rights. *See* CMR 43.03.b. The Plan is based upon appropriate simulations and calculations using the ESPAM, and such simulations and calculations were performed by Dr. Allan Wylie (IDWR). *See* CMR 43.03.e; Ex. B. The simulations and calculations were further reviewed by Dr. Charles E. Brockway (Brockway Engineering PLLC). *See* Exs. B, D.

REQUEST FOR RELIEF

A&B hereby requests the Director to approve this plan in conformance with the procedures and criteria set forth in CMR 43.

DATED this 18th day of August, 2009.

BARKER ROSHOLT & SIMPSON LLP

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Exhibit
A

A&B Irrigation District

Unit B Lands Converted to Surface - 1377.8 acres

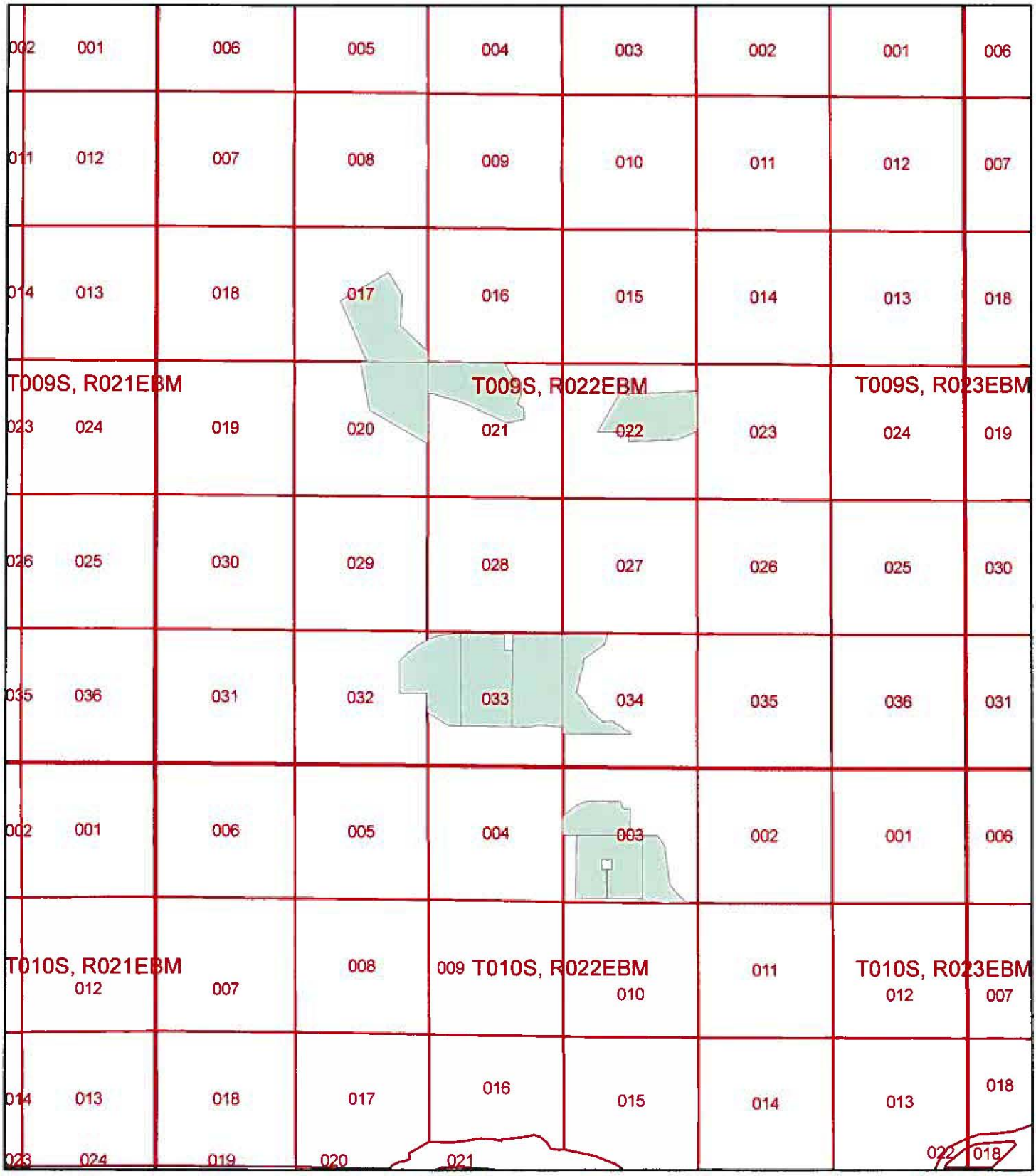
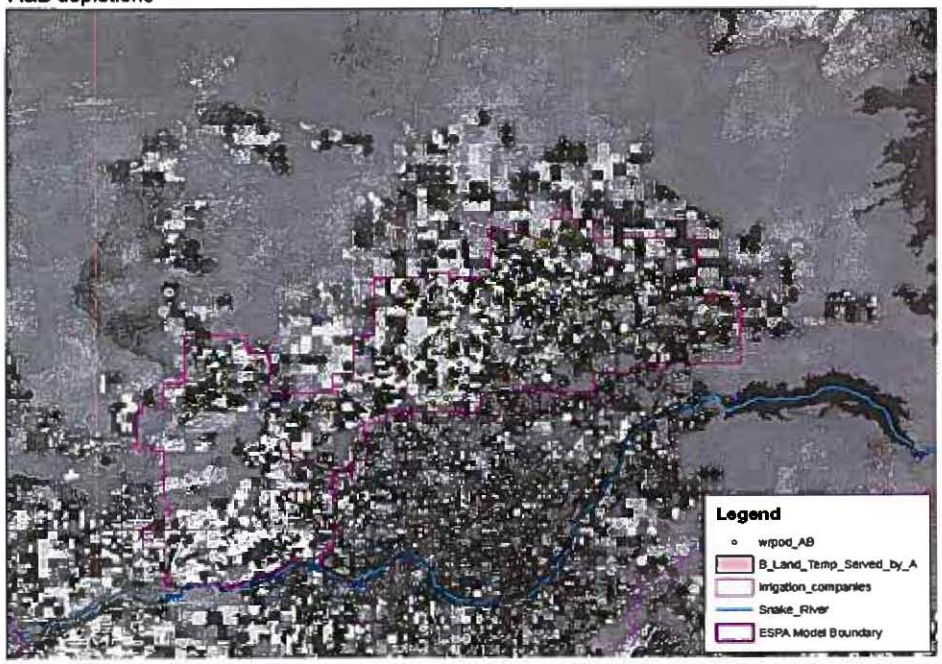


Exhibit
B

A&B depletions

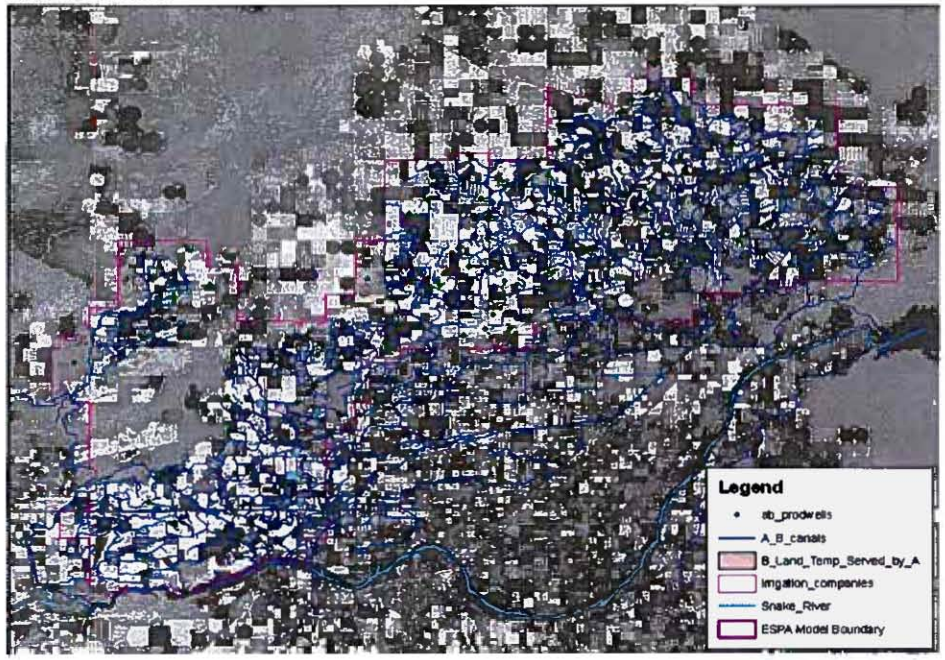


A&B depletions
select usbor wells withn A&B - total = 188
select water rights 36-15127B, 36-15195B, 36-15196B, 36-15193B, 36-15194B
these rights are junior to blue lakes injured right (12/28/1973)
all water rights are associated with 188 usbor wells
total junior acres = 2063.1
distribure junior ac evenly between 188 wells = 10.97 ac/well
extract net ET from net et raster
extract layer, row, col from model grid

irr_area		Depleation		ft/ac/yr
	m^2	517,624	ft^3/d	2.103751
2,063	ac	4,340	ac-ft/y	

reach	cfs gain	ac-ft/y
A-R	0.1	51
H-S	0.1	59
S-B	0.6	441
B-N	2.1	1,542
N-M	0.8	546
DWB-BUL	1.3	921
BUL-KSP	0.5	339
KSP	0.3	213
KSP-MLD	0.0	23
MLD	0.3	197
MLD-BAN	0.0	8
sum	6.0	4,340

A&B conversions

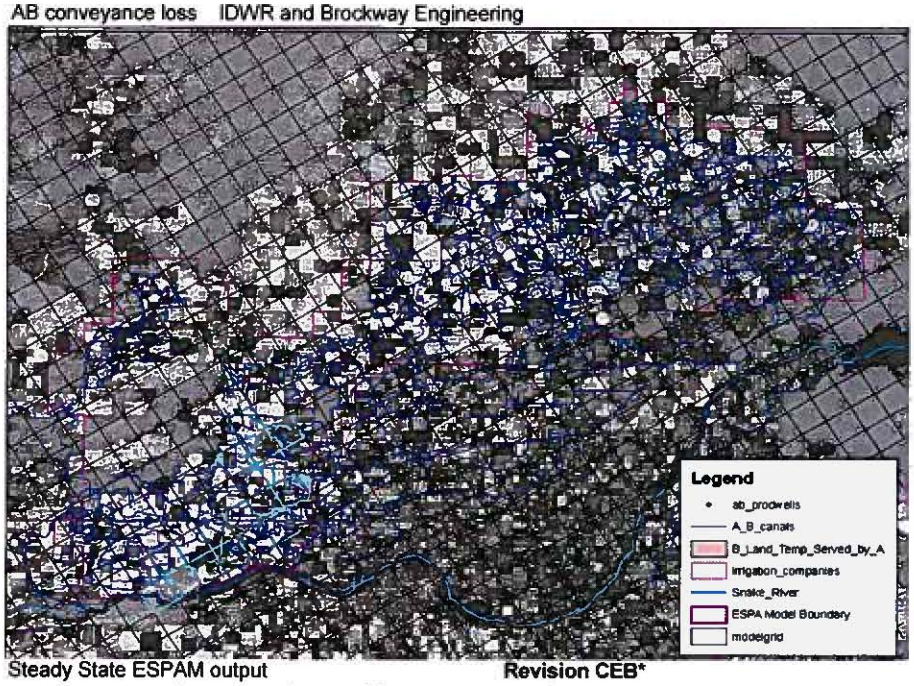


B_lands_served_A from 'Item Q from Directors request'
select model cells intercected by 'B_lands_served_A'
apportion 3870.27 ac-f (from A&B mitigation plan) by converted acres

irr_area		Benefit		ft/ac/yr
	m^2	461,888	ft^3/d	2.810934
1,378	ac	3,873	ac-ft/y	

reach	cfs gain	ac-ft/y
A-R	0.1	39
H-S	0.1	45
S-B	0.5	338
B-N	1.6	1,180
N-M	0.6	414
DWB-BUL	1.5	1,055
BUL-KSP	0.5	356
KSP	0.3	221
KSP-MLD	0.0	24
MLD	0.3	194
MLD-BAN	0.0	7
sum	5.3	3,873

AB conveyance loss IDWR and Brockway Engineering



Steady State ESPAM output — Revision CEB*

reach	cfs gain	ac-ft/y	cfs gain	ac-ft/y
A-R	0.0	11	0.0	8
H-S	0.0	13	0.0	9
S-B	0.1	96	0.1	70
B-N	0.5	335	0.3	246
N-M	0.2	115	0.1	84
DWB-BUL	0.5	341	0.3	250
BUL-KSP	0.2	112	0.1	82
KSP	0.1	69	0.1	51
KSP-MLD	0.0	7	0.0	5
MLD	0.1	60	0.1	44
MLD-BAN	0.0	2	0.0	2
sum	1.6	1,162	1.2	852.0

IDWR: select most direct route from Snake R to "B_lands_served_A' from AB_Canals
select model grid intersected by canals
assume 30% convayance loss (same as NSCCo)

Brockway, CE Aug. 6, 2009
* Based on Worstell Method for determining conveyance:

loss : B = 0.667*I*W
S = Seepage loss - ft/mile
I = Seepage rate - ft/day
W = Canal Water Surface width - ft

I : based on Portneuf silt loam soil, Hubble report
Volume based on reported April - September operationdeliveries by A&B

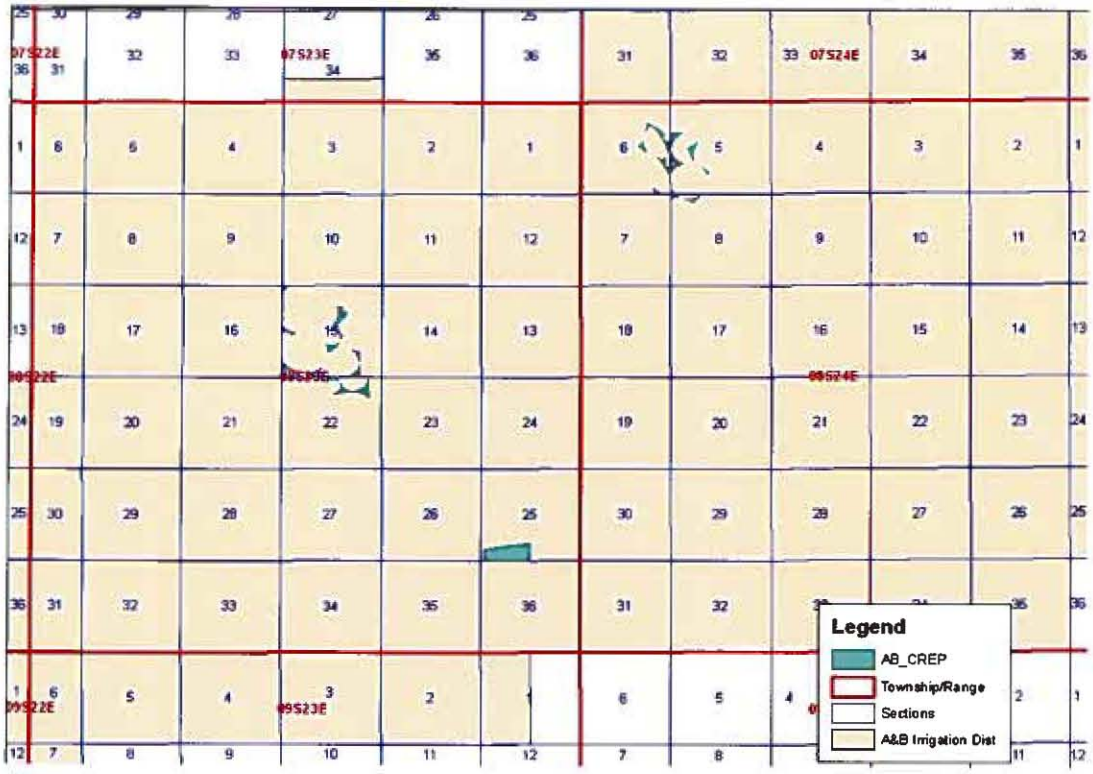
Main Canal and Laterals to Conversions Acres (Groundwater B to Surface A)

All channals in Portneuf Silt Loam — Canal Capacity 270 cfs
Using Worstell Method — I= 0.5

Canal	Length ft	miles	Width ft	Loss cfs/mile	Loss cfs
LATMain	24830	4.70	32	10.67	50.19
LATMMain	3475	0.66	25	8.34	5.49
LATG3.9	1523	0.29	14	4.67	1.35
LATG	1664	0.32	10	3.34	1.05
				sum	58.07
				%of capaci	0.22

Delivery to conversions 3873 acre feet/year
Conveyance Loss from conversion del. 833 acre feet/year or 22% of delivery

A&B CREP



irr_area	Non-Depleation		ft/ac/yr
488390.7	25,488	ft^3/d	1.770855
121	214	ac-ft/y	

reach	cfs gain	ac-ft/y
MLD-BAN	0.000	0
MLD	0.013	9
KSP-MLD	0.002	1
KSP	0.014	10
BUL-KSP	0.022	16
DWB-BUL	0.058	42
A-R	0.004	3
H-S	0.004	3
S-B	0.031	23
N-M	0.038	27
B-N	0.109	79
sum	0.29	213.71

Exhibit
C

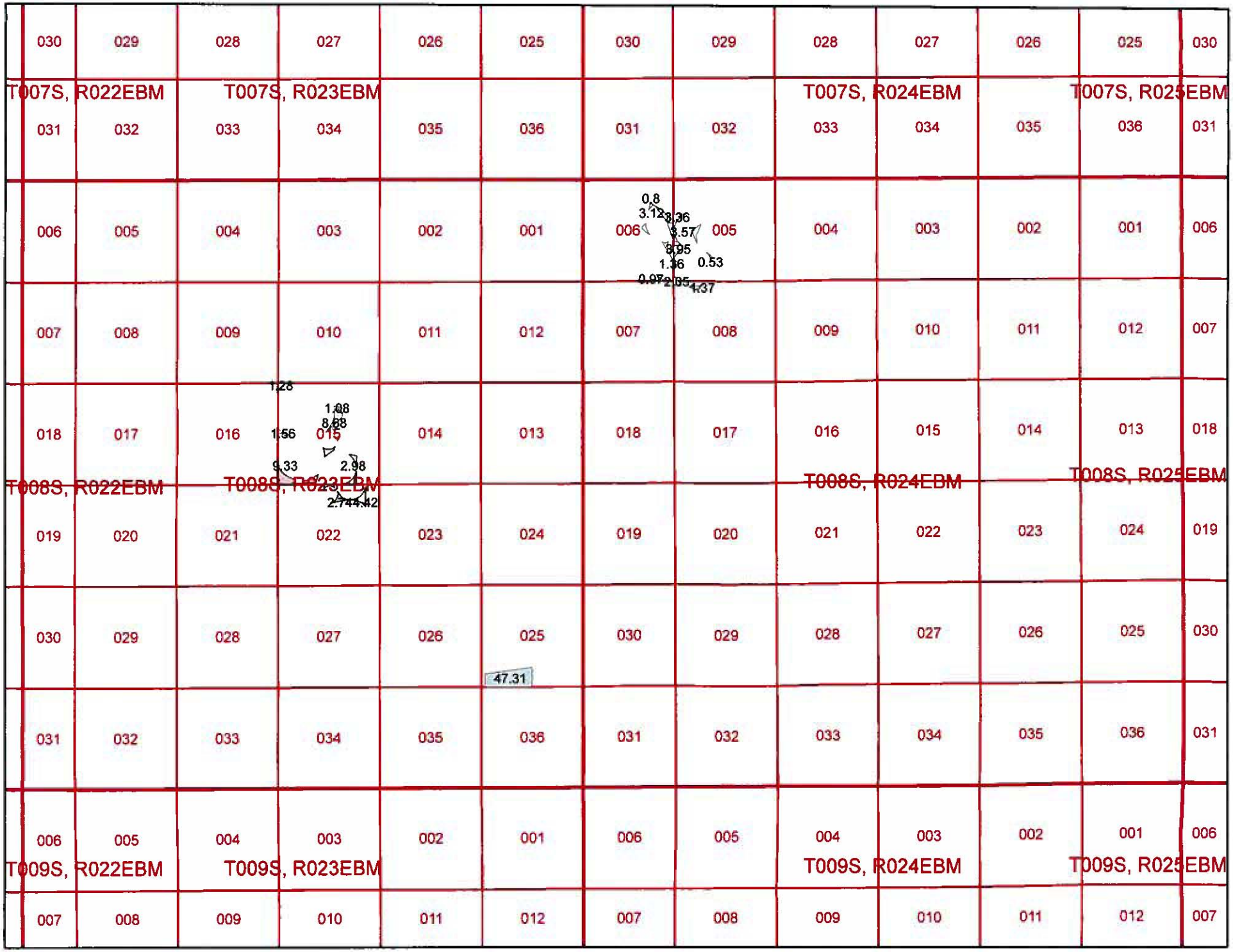

T007S, R022EBM
T007S, R023EBM
T007S, R024EBM
T007S, R025EBM
T008S, R022EBM
T008S, R023EBM
T008S, R024EBM
T008S, R025EBM
T009S, R022EBM
T009S, R023EBM
T009S, R024EBM
T009S, R025EBM
0.8
3.12
3.36
3.57
3.95
1.36
0.53
0.97
2.05
1.37
1.28
1.08
8.68
1.56
9.33
2.98
2.74
4.42
47.31

Exhibit
D

Review ofIDWR Analysis of A&B Depletions C.E. Brockway P.E. Brockway Engineering August 6, 2009

Allan Wylie of IDWR analyzed the impacts on the Snake River of ground water use by A&B Irrigation District due to pumping and irrigation on 2,063 expansion acres (pursuant to junior priority enlargement water rights) and the additions to the aquifer and Snake River due to the conversion of 1,378 acres from ground water irrigation to a surface water source through the A Canal system.

The analysis of depletions assumed a net consumptive use of 2.10 af/ac/year with a total depletion of 4,340 af/year. It was assumed that the net depletion was distributed uniformly throughout the 188 wells of the A&B system and the ESPAM model nodes within which the wells were located (i.e. approximately 11 acres per node). Since the 2,063 acres are spread throughout the district in varying amounts at various locations, this approach is reasonable. The ESPAM model was then used to simulate the steady state depletions within the 11 reaches of the Snake River from Ashton to Bancroft spring. The Devils Washbowl to Buhl reach simulated steady state depletion was calculated at 921 af/year or 1.3 cfs.

The ESPAM model was not run for this review by Brockway Engineering. However, the approach is reasonable and the output distribution and total steady state depletion matches the input depletion.

The analysis by IDWR of the impact of conversion of 1,378 acres from ground water irrigation to surface water irrigation from the A system assumed that the converted acres were located in 4 areas as depicted by the A&B Irrigation District (the location of the converted acres). These areas were then located in the proper ESPAM nodes and the model run at steady state. The net positive input per acre to the aquifer was determined by dividing the reported annual (2006) volume delivered to the conversion acres by A&B(3,873 af) by the acres converted(1,378 ac) to get a value of 2.81 af/acre. This value includes the consumptive use forgone by not pumping from the aquifer and deep percolation of the additional 0.71 af/acre due to decreased application efficiencies occurring with surface irrigation.

This analysis shows a net positive impact on the Devil's Washbowl to Buhl reach of 1,055 acre feet/year and the steady state total gain is equal to the 3,873 gross delivery to the converted acres. The ESPAM model was not run by Brockway Engineering for this review. The assumptions are reasonable and the output distribution and total steady state depletion matches the input.

The analysis of the contribution from canal conveyance loss by IDWR assumed that the irrigation water for the conversion acres was delivered by 'the most direct route from Snake R to "B_lands_served_A from ABCanals" and assumed a 30% loss of the reported deliveries, purported to be the same as Northside Canal Company.

A better estimate of the conveyance loss can be achieved by using the Worstell method as outlined in the Hubble report. This analysis was used in the Surface Water Coalition Expert Report of September 26, 2007. Utilizing data from that report, Brockway Engineering PLLC estimated the losses in the Main A

canal and laterals used to deliver to the converted acres. Canal and lateral widths were digitized and the Worstell equation, utilizing the wetted area and seepage rate for the Portneuf silt loam soils, was used to calculate losses. This analysis showed that the total seepage loss in the canal system to the converted acres is about 22 percent of the system capacity. Therefore, an estimate of 22% loss in the reach is more justifiable than the 30% loss assumed by IDWR.

The **attached spreadsheet** with aerial photo shows the Brockway Engineering analysis and the IDWR analysis. Using the reduced 22% estimated loss to the converted acres results in an estimated positive impact in the Devil's Washbowl to Buhl reach of 250 acre feet per year compared to the IDWR estimate of 341 acre feet per year. Again, the ESPAM model was not run for the Brockway Engineering review but the depletion values are linear with input volumes so the Brockway Engineering estimates are multiples of the IDWR values (.22/.30=.733).

At the request of A&B Irrigation District(Memo from D. Temple, Aug 10, 2009) , iDWR (Alan Wylie) analyzed the benefits to Snake River Reaches from the implementation of 121 acres under the CREP program on the A&B District. These acres are separate from the CREP acres credited to IGWA. The analysis assumed that the 121 acres were located in Sec 25, 15, and 22 T8S R23E and Sec 5, 6, and 8 T8S R24E and the net reduction in aquifer depletion was 1.77 af/ac/year. This appears consistent with the assumption that a cover crop on the CREP acres would account for about 1/3 of an acre foot per year so that the full crop consumptive use could not be attributed to reduced depletion of the aquifer.

Wylie performed a simulation with the ESPAM model similar to the steady state analysis performed for the A&B conversion acres. Total reduced depletion input to the model was calculated as 121 acres x 1.77 af/ac/year or 214 af/year. The ESPAM steady state model shows a total of 214 af/year steady state output for all Snake River reaches. The ESPAM model calculated Devils Washbowl to Buhl reach steady state depletion reduction is 42 af/year. Brockway Engineering did not run the ESPAM model to confirm the IDWR output, but the results appear reasonable.

Combining the previous analysis of the conversion of 1378 acres of B lands which resulted in a beneficial impact on the Devils Washbowl to Buhl reach of 1055 af/ year with the 42 af/year attributable to the 121 A&B CREP acres results in a decrease in depletion of 1097 af/year.