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Attorneys for Rangen, Inc.

**BEFORE THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF IDAHO**

IN THE MATTER OF APPLICATION FOR
TRANSFER OF WATER RIGHT NO. 36-7072
(TRANSFER APPLICATION #79560) IN THE
NAME OF IGWA FOR NORTH SNAKE GWD,
MAGIC VALLEY GWD, AND SOUTHWEST
IRRIGATION DISTRICT ON BEHALF OF THE
OWNER, SEAPAC OF IDAHO, INC.

**RANGEN, INC.'S EXPERT REPORT
IN RESPONSE TO STAFF
MEMORANDUM**

COMES NOW Rangen, Inc. ("Rangen"), by and through its attorneys of record, and pursuant to the *Notice of Taking Official Notice of Staff Memorandum*, dated January 27, 2015, hereby submits the following expert report in response, a true and correct copy of which is attached hereto as Exhibit 1:

*Report on IDWR Staff Memorandum on a Technical Review of Expert
Witness Reports and Testimony Relative to Water Right Transfer No. 79560*

as Part of Mitigation Plan #4 by North Snake Ground Water District, Magic Valley Ground Water District and Southwest Irrigation District, prepared by Charles E. Brockway, 2/10/2015.

DATED This 10th day of February, 2015.

MAY BROWNING & MAY

By

J. Justin May

CERTIFICATE OF SERVICE

The undersigned, a resident attorney of the State of Idaho, hereby certifies that on the 10th day of February, 2015, I caused a true and correct copy of the foregoing document to be served using the method indicated upon the following:

Director Gary Spackman Idaho Department of Water Resources P.O. Box 83720 Boise, ID 83720-0098 Deborah.Gibson@idwr.idaho.gov	Hand Delivery ☒ U.S. Mail ☐ Facsimile ☐ Federal Express ☐ E-Mail ☒
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North Snake Ground Water District Lyn Carlquist, Chairman	Hand Delivery ☐ U.S. Mail ☐

c/o Joyce Moreno, Secretary 152 East Main Street Jerome, ID 83338 nsgwd@safelink.net	Facsimile ☐ Federal Express ☐ E-Mail ☒
Magic Valley Ground Water District Dean Stevenson, Chairman c/o Emily Haynes, Secretary P.O. Box 430 Paul, ID 83347 desteve@pmt.org mvgwd@hotmail.com	Hand Delivery ☐ U.S. Mail ☐ Facsimile ☐ Federal Express ☐ E-Mail ☒
Southwest Irrigation District c/o William A. Parsons, Attorney 137 West 13 th Street Burley, ID 83318 wparsons@pmt.org csearle@pmt.org	Hand Delivery ☐ U.S. Mail ☐ Facsimile ☐ Federal Express ☐ E-Mail ☒
Kathy McKenzie P.O. Box 109 Hagerman, ID 83332 knbmac@q.com	Hand Delivery ☐ U.S. Mail ☐ Facsimile ☐ Federal Express ☐ E-Mail ☒



J. Justin May

EXHIBIT 1

Project No. 1159-01-2011

**Report on IDWR Staff Memorandum on a
Technical Review of Expert Witness
Reports and Testimony Relative to Water
Right Transfer No. 79560 as Part of
Mitigation Plan #4 by North Snake Ground
Water District, Magic Valley Ground Water
District and Southwest Irrigation District.**

Prepared for:

Rangen, Inc.
Buhl, Idaho

February 10, 2015

For information concerning this report, contact
Charles E. Brockway, Ph.D., P.E.



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Report on IDWR Staff Memorandum on a Technical Review of Expert Witness Reports and Testimony Relative to Water Right Transfer No. 79560.

Prepared by: Brockway Engineering, PLLC
Date: February 10, 2015

A. Background

This report addresses the particulars of an IDWR Staff Memorandum review of "technical information contained in the above-described expert witness reports at the hearing, and data and information in possession of the Department". A hearing was held on December 18, 2014, and the following expert reports regarding the application for Transfer 79560 were submitted.

A.1.1 LIST OF EXPERT REPORTS FROM NOTICE

- Brockway Engineering, PLLC – Expert Report and Narrative relative to Water Right Transfer No. 79560 as Part of Mitigation Plan #4 by North Snake Ground Water District, Magic Valley Ground Water District and Southwest Irrigation District (Dec. 2, 2014).
- SPF Water Engineering – Response to Rangen's Protest Against IGWA's Water Right Application for Transfer No. 79560 (Dec. 2, 2014).
- SPF Water Engineering – Rebuttal Response to Brockway's Expert Report and Narrative Relative to Water Right Transfer No. 79560 (Dec. 12, 2104).
- Brockway Engineering, PLLC – Rebuttal Expert Report Water Right Transfer No. 79560 as Part of Mitigation Plan #4 by North Snake Ground Water District, Magic Valley Ground Water District and Southwest Irrigation District (Dec. 12, 2014).

The applicants filed the application for Transfer 79560 in connection with Mitigation Plan #4 in order to secure a water supply to provide water to mitigate impacts to the water supply for the Rangen aquaculture facility at the head of Billingsley Creek caused by junior ground water pumping from the ESPA. Mitigation Plan #4 proposes the construction and operation of a pumping plant and pipeline from the Magic Springs fish hatchery owned by SeaPac to the Curren Springs complex from which Rangen secures their aquaculture water supply. IGWA's plan is to pump up to 10 cfs of the Magic Springs non-consumptive water right 36-7072, to the Rangen facility where it would be diverted to the raceways and thence into Billingsley Creek. The transfer also proposes to change the nature of use of 10 cfs of water from fish propagation to fish propagation/mitigation under water right 37-7072. Once delivered to Billingsley Creek, the new 10 cfs of water would likely be distributed to irrigation water right holders and other users according to priority in Billingsley Creek. The staff memorandum prepared by Jennifer Sukow P.E., P.G of the IDWR Hydrology Section responded, at the request of Director Spackman, primarily to the "potential impacts to flow in the Snake River resulting from changing the place of use for fish propagation from the Magic Springs Hatchery and proposed mitigation of such impacts". Ms. Sukow referred primarily to the report and testimony by Sophia Sigstedt of AMEC and testimony by Charles E. Brockway, testifying for Rangen, Inc.

B. Water Source: Magic Springs

Water right 36-7072 is the source of water for SeaPac's Magic Springs aquaculture facility which is located adjacent to the Snake River in T8S R14E Section 6 and 8. Water right 37-7072 has a decreed priority of September 5, 1969 for a non-consumptive right and an allowed discharge of 148.2 cfs. Effluent from the Magic Springs fish raceways flows through a small estuary directly into the Snake River. Pumping of 10 cfs from Magic Springs to Rangen will result in a decrease in Snake River flow of 10 cfs and an increase in discharge of 10 cfs in Billingsley Creek downstream of the Rangen hatchery.

C. Consumptive Use by Irrigators who divert from Billingsley Creek

Ms. Sigstedt did not opine on whether or not any of the additional 10 cfs in Billingsley Creek would or could be diverted by existing irrigation water right holders resulting in consumptive use from the water transferred. The Watermaster, Frank Irwin, testified at hearing that there would be diversions of the increased 10 cfs from Billingsley Creek to irrigators who have historically

been short of water under existing water rights and that he could not 'shepherd' the additional flow through the Billingsley Creek system to the Snake River. Mr. Erwin also testified that, even though he could not quantify the exact volume of additional consumptive use that may occur, it could be up to the entire 10 cfs. Even though neither SPF nor Ms. Sukow attempted to estimate the potential consumptive use of all or part of the 10 cfs of new water which would be available in Billingsley Creek, the magnitude is likely to be significant. Frank Irwin testified that the only way he would be able to assure that the 10 cfs reached the Snake River is if there were a pipeline installed from the end of the Rangen raceways.

An estimate of the potential consumptive use increase can be performed if it is assumed, as the Watermaster stated, that the full 10 cfs is diverted to existing water short users and a reasonable irrigation application efficiency is utilized. However, it is not possible to determine which existing irrigation water rights would require additional water to be fully supplied or where they are located. There are approximately 210 water rights diverting from Billingsley Creek which authorize the irrigation of a total of 86.1 acres.

In any case, there will be increased consumptive use attributable to the use of water right 36-7072 and this is not allowed under Idaho Code 42-222. The application for transfer specifically states that a change in nature of use of water right 36-7072 from fish propagation to fish propagation/mitigation is contemplated. Idaho Code 42-222 (1) requires that 'the director of the department of water resources shall examine all the evidence and available information and shall approve the change in whole or in part upon conditions, provided no other water rights are injured thereby, the change does not constitute an enlargement in use of the original right,-----'. Further, "The director may consider consumptive use, as defined in section 42-202B, Idaho Code, as a factor in determining whether a proposed change would constitute an enlargement in the use of the original water right."

Administrator's Memorandum, Transfer Processing memo No 24, the transfer memo dated January 21, 2009 page 14, states: Historic Beneficial Use. If the application for transfer proposes to change the nature or purpose of use or the season of use, the applicant must include an attachment documenting the historic extent of beneficial use under the right" Although no such document was submitted with the transfer application, the fact that water right 36-7072 is a non-consumptive right for fish propagation, the historical consumptive use is presumed to be zero. Any additional consumptive use which would occur as a result of the proposed transfer to Billingsley Creek should prevent the Director from approving the transfer.

Section 5d, Enlargement of Use page 26 of the Transfer Memo states "For any application for transfer, the department must determine whether the proposed

change will enlarge the use of water under the water right(s) Enlargement will occur if the total diversion rate, annual diversion volume, or extent of beneficial use (except for non-consumptive rights), exceeds the amounts or beneficial use authorized under the water right(s) prior to the proposed transfer”.

Ms. Sukow, in her review and analysis of the technical information contained in the expert reports and testimony, did not review and analyze the expansion of consumptive use as a result of the proposed transfer 79560. The failure of the applicant to provide the required information on historical consumptive use and increased potential consumptive use from the proposed transfer is cause for denial of the application.

D. Proposed Mitigation for Impacts to Snake River Flow

Ms. Sukow recognizes that the proposed transfer will result in a depletion to the Snake River flow and some loss to consumptive use by irrigation diversions of the additional 10 cfs but that “it is difficult to determine what percentage of the 10 cfs will reach the Snake River during the irrigation season if diversion and consumptive use by downstream water users are not prevented” (p. 2 technical memo to Gary Spackman). However, the bulk of the memo is devoted to an analysis and review of the results of ESPAM 2.1 runs to determine the benefits to the Snake River flows as a result of IGWA and SWID aquifer enhancement activities. Her analysis purportedly is to show that, if the aquifer enhancement activities performed by IGWA and SWID in 2013 were to continue indefinitely, the benefits to the Snake River flow between Kimberly and King Hill are predicted to exceed the potential impact of the proposed transfer on the Snake River. Ms. Sukow predicts that the “model predicted benefit to springs tributary to the Snake River between Kimberly and King Hill is 48.5 cfs between April 2014 and March 2015 and 67.5 cfs at steady state” as shown in Table 1 of her Memo. Ms. Sukow indicates that her analysis of ESPAM 2.1 computer results agrees generally with the analysis performed by AMEC (Sigstedt and Brendecke) and concludes that the predicted increases in discharge from the springs and general head boundary cells exceeds the estimated evaporation from Billingsley Creek and the potential consumptive use from diversion of the increased 10 cfs which might be diverted to irrigation. In other words Ms. Sukow concludes that the benefit to the Snake River flows from IGWA aquifer enhancement from conversions, CREP, and managed recharge exceeds the impact of the diversion of 10 cfs of Magic Springs water to Rangen.

Sigstedt and Brendecke, and Sukow fail to acknowledge or incorporate in their benefit analysis the negative impact on spring flows and Snake River reach-gain that has occurred from historical and current junior ground water pumping. An analysis of junior ground water pumping effects, as calculated by IDWR on

specific springs, is shown in Table 1 column 2. Brockway Engineering utilized the IDWR input to ESPAM 2.1 for the IGWA aquifer enhancement due to CREP, conversions, and recharge for an analysis of the beneficial impact to each spring in the Kimberly to King hill reach. The results are shown in Table 1. This analysis shows that, at steady state, the beneficial impact on all springs in the ESPAM2.1 model total to 56.43 cfs not including the general head boundaries in the ESPAM2.1 model. . Table 1 also shows that the historical decrease in total spring flow due to junior pumping is 315.67cfs at steady state, again not including the general head boundary cells. The benefit from IGWA aquifer enhancement is therefore 259.24 cfs less than the historical decrease in flow of the springs due to junior ground water pumping.

Ms. Sukow, p 3, states that the “The sum of model-predicted benefits to the Box Canyon reach, the Devil’s Washbowl and Devil’s Corral spring cells, and the baseflow represented by general head boundaries is 13.5 cfs between April 2014 and March 2015, and 18.3 cfs at steady state (Table 1, Sukow memo), and exceeds the maximum potential impact of 10 cfs resulting from the proposed transfer”. The IGWA aquifer enhancement does not mitigate the impact on the Snake River from IGWA junior pumping and the 10 cfs of Magic Springs pumping to Rangen. Both AMEC and Ms. Sukow have failed to consider the total impact of IGWA activities on the aquifer and the Snake River.

Table 1: Comparison of simulated aquifer enhancement and historical junior pumping impact.

	Pumping Impact from	Simulated Mitigation Benefit to Spring Cells from IDWR Credited						Steady State
		4/2014 - 3/2015	4/2015 - 3/2016	4/2016 - 3/2017	4/2017 - 3/2018	4/2018 - 3/2019	Steady State (150 years)	
BANBURY	-2.62	0.36	0.38	0.41	0.42	0.44	0.45	-2.17
BANCROFT	-0.66	0.02	0.02	0.02	0.02	0.02	0.02	-0.64
BIGSP	-5.74	0.74	0.80	0.85	0.88	0.91	0.93	-4.80
BIRCH	-0.05	0.01	0.01	0.01	0.01	0.01	0.01	-0.05
BLUELK	-15.05	3.70	3.94	4.13	4.27	4.38	4.40	-10.65
BOX	-54.44	7.51	8.11	8.57	8.92	9.20	9.44	-45.00
BRIGGS	-0.90	0.12	0.13	0.14	0.15	0.15	0.15	-0.75
CLEARLK	-33.16	4.55	4.91	5.19	5.40	5.57	5.72	-27.44
CRYSTAL	-35.84	5.18	5.60	5.92	6.17	6.36	6.52	-29.31
D030013	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	-0.02
D031013	-0.07	0.01	0.01	0.01	0.01	0.01	0.01	-0.06
D031014	-0.08	0.01	0.01	0.01	0.01	0.01	0.01	-0.07
D032013	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
D032014	-0.27	0.03	0.03	0.03	0.03	0.03	0.03	-0.24
D033013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D033014	-0.47	0.04	0.05	0.05	0.05	0.05	0.06	-0.41
D034014	-1.28	0.12	0.13	0.14	0.15	0.15	0.16	-1.12
D035014	-0.16	0.02	0.02	0.02	0.02	0.02	0.02	-0.14
D036014	-0.18	0.02	0.02	0.02	0.02	0.02	0.02	-0.15
D037014	-0.12	0.02	0.02	0.02	0.02	0.02	0.02	-0.10
D038014	-0.79	0.10	0.11	0.12	0.12	0.12	0.13	-0.66
D040013	-0.07	0.01	0.01	0.01	0.01	0.01	0.01	-0.06
D040014	-0.66	0.09	0.09	0.10	0.10	0.10	0.11	-0.55
D045011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D045012	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	-0.02
D047011	-0.09	0.01	0.01	0.01	0.01	0.01	0.02	-0.07
D050014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D051014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D057020	-0.04	0.01	0.01	0.01	0.01	0.01	0.01	-0.03
D058020	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
D059021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D059022	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
D061023	-0.13	0.03	0.03	0.03	0.03	0.03	0.03	-0.10
D062023	-0.03	0.01	0.01	0.01	0.01	0.01	0.01	-0.02
D064026	-0.38	0.11	0.11	0.12	0.12	0.13	0.13	-0.25
D065027	-0.39	0.12	0.12	0.13	0.13	0.13	0.14	-0.25
D068029	-0.03	0.01	0.01	0.01	0.01	0.01	0.01	-0.02
D069029	-0.04	0.01	0.01	0.01	0.01	0.01	0.01	-0.02
D070030	-0.03	0.01	0.01	0.01	0.01	0.01	0.01	-0.02
DEVILC	-5.56	1.68	1.77	1.84	1.90	1.94	1.96	-3.60
DEVILW	-4.27	1.30	1.37	1.43	1.47	1.50	1.52	-2.75
ELISON	-0.09	0.02	0.02	0.02	0.02	0.02	0.02	-0.07
MALAD	-36.85	3.87	4.20	4.45	4.64	4.80	4.95	-31.90
NIAGARA	-25.27	3.51	3.80	4.01	4.18	4.31	4.42	-20.85
NTLESHH	-9.17	1.20	1.30	1.37	1.43	1.47	1.51	-7.66
RANGEN	-14.43	1.89	2.04	2.16	2.25	2.32	2.38	-12.05
SAND	-14.53	2.00	2.17	2.29	2.38	2.46	2.52	-12.01
THOUSAND	-40.20	5.31	5.73	6.06	6.31	6.50	6.67	-33.53
THREESP	-10.52	1.38	1.49	1.57	1.63	1.68	1.73	-8.79
TUCKER	-0.91	0.12	0.13	0.14	0.14	0.15	0.15	-0.76
Total	-315.67	45.24	48.75	51.42	53.49	55.12	56.43	-259.24

^a IDWR ESPA 2.1 analysis of impact to of Junior Groundwater Pumping to 7/1/1962, using the Great Rift Trimline

^b IDWR ESPA 2.1 analysis of simulated mitigation benefit of IGWA & SWID Credited Activities, all credited mitigation for 2013 extended for 150 year model runs, except IGWA CREP as modeled by IDWR.

Ms. Sukow indicates that a few of the spring cells without irrigation use are predicted by ESPAM2.1 to benefit significantly from the IGWA and SWID aquifer enhancement activities. Whether or not there are irrigation water rights and use from a spring impacted or enhanced by aquifer project is immaterial. Box Canyon spring, which Ms. Sukow cites as an example of a spring with no irrigation use has significant (300 cfs) water rights for fish propagation. Devils Corral spring is fully appropriated and the State of Idaho has an instream flow right for the full discharge of the spring. These rights must be protected also.

E. Continuity of IGWA and SWID Aquifer Enhancement Activities

The level of future aquifer enhancement activities by IGWA and SWID is not based on historical variability of CREP, conversions, and managed recharge. This is why Ms. Sukow did not include 2014 activities in her analysis and she indicates that “ the benefit of past aquifer enhancement activities decrease with time, long term mitigation of the potential impact of the proposed transfer will be dependent on future aquifer enhancement activities’ Even though the historical and current aquifer enhancement activities do not mitigate for spring declines or increased consumptive use from the proposed transfer, the unreliability of future aquifer enhancement should be cause to scrutinize any future claims for mitigation plans and transfers as proposed in these proceedings. It is speculative to assume that the 2013 level of aquifer enhancement by IGWA and SWID will occur forever even though ESPAM 2.1 simulations assume that effort to arrive a steady-state simulated response.