

Project No. 1159-01-2011

## 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.

Prepared for:

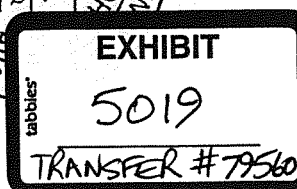
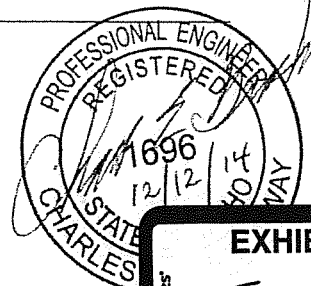
Rangen, Inc.  
Buhl, Idaho

December 12, 2014

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# **Rebuttal Expert Report**

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Prepared by: Brockway Engineering, PLLC  
Date: December 12, 2014

### **A. Background**

IGWA (Idaho Ground Water Appropriators Inc.) on behalf of North Snake Ground Water District, Magic Valley Ground Water District, and Southwest Irrigation District filed application for Transfer 79560 in order to secure a water supply 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. IGWA's 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 the aquaculture water supply. IGWA would secure, by purchase or lease, 10 cfs of non-consumptive water right under SeaPac's water right 37-7072, and transfer that water to the Rangen facility via Transfer 79560. Rangen, Inc. filed an Expert Report and Narrative addressing the components of proposed Transfer 79560, and SPF Engineering filed a response to Rangen's protest against IGWA's Water Right Application for Transfer 79560. This report addresses the SPF report and particulars regarding the impacts of the proposed Mitigation Plan #4 and the accompanying Transfer 79560.

#### **A.1. Water Source: Magic Springs**

IGWA proposes to secure 10 cfs of water right 36-7072 from SeaPac's Magic Springs aquaculture facility which is located adjacent to the Snake River in T8S R14E Section 6 and 8 and consists of several raceway complexes and diversions from adjacent springs. 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. There are four points of diversion authorized with some limitations on the discharge allowed from each set of diversion points. Effluent from the Magic Springs fish raceways flows through a small estuary directly into the Snake River.

## **B. Transfer Application 79560**

The stated purpose of Transfer 79560 is 'to provide IGWA a secure water source from SeaPac's Magic Springs to provide a supply of water for fish propagation/mitigation purposes to Rangen and to other senior rights in the Hagerman Valley' (Letter of intent). 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.

### **B.1. Transfer Approval Criteria**

The SPF Response to Rangen's Protest and engineering details submitted in the Fourth Mitigation Plan, CM-MP-2014-006 alleges that the Application should be approved because it is in compliance with the requirements for approval as set forth in Idaho Code §42-222. Namely:

- (a) No other water rights are injured thereby.
- (b) The change does not constitute an enlargement in use of the original right.
- (c) The change is consistent with the conservation of water resources within the state of Idaho and is in the local public interest as defined in section 42-201B, Idaho Code.
- (d) The change will not adversely affect the local economy of the watershed or local area within which the source of water for the proposed use originates, in the case where the place of use is outside of the watershed or local area where the source of water originates.
- (e) The new use is a beneficial use.
- (f) The change is in the local public interest.

## **C. Evaluation of Transfer Application Criteria**

### **C.1. The Change Can Injure Other Water Rights**

The proposed diversion of water from the Magic Springs complex to Rangen will decrease the flow of water in the Snake River from Magic Springs downstream. Since Magic Springs effluent from the aquaculture facility flows directly into the Snake River there will be 10 cfs less discharge in the river just below Magic Springs. The State of Idaho is obligated to protect the discharge rates at the Murphy Gage and, in the event of a violation of the minimum flow, would likely curtail some established water rights. Figure 5, shows the historical average discharge of the Snake River at the Murphy USGS gage and the 2003 daily discharge. This figure shows that the flow on June 10, 2003 was 4083 cfs or 183 cfs above the Swan Falls minimum flow. The State should evaluate the potential for a violation of minimum flows at Murphy as a result of this application for transfer. The State has the obligation to evaluate both the actuality of a violation of the Swan Falls minimum flows and the risk to a violation in the event of a proposed change in water use upstream of the Murphy gage.

## C.2. The Change Will Result in Enlargement of Rights

The water pumped from Magic Springs will be delivered through a pipeline to either the small raceways or into the large raceways at the Bridge Diversion entry to the pipeline of the Rangen facility. The total flow will eventually enter Billingsley Creek at the west end of the Rangen property and the full 10 cfs can then either be diverted into the Current ditch or remain in Billingsley Creek and flow downstream. However, in no case, can the full 10 cfs be conveyed back to the reach of the Snake River from which it was transferred through existing facilities (Billingsley Creek or a pipeline).

Enlargement of a water right generally results from an increase in permitted, licensed, or decreed beneficial uses. Enlargement of an existing water right is not allowed under 42-222. This is construed to restrict any increase beyond authorized discharge rate, consumptive use, or (for irrigation water rights), the acreage irrigated. Enlargement of a right can be caused by changing the point of diversion or place of use, by preventing access or by increasing the cost of securing the water under an existing water right.

Additional water will be added to Billingsley Creek from the non-consumptive fish propagation right at Magic Springs. There are some 210 active water rights from Billingsley Creek according to the IDWR water rights data base of which 133 are irrigation water rights, see Figure 4. The 210 active water rights, which include hydro power rights, show a combined cumulative discharge of 969 cfs and the irrigation rights total 86.1 cfs. According to the Watermaster District 36, many of these irrigation rights cannot be filled as they have been historically because of declining spring flows which contribute to Billingsley Creek. Any additional flow added to Billingsley Creek from Magic Springs will result in increases in historical irrigation flow and enhancement of priority flows under these irrigation rights. Since irrigation use is consumptive, this will result in expansion of historical consumptive use from water right 36-7072, particularly during the irrigation season.

The Transfer Memo (Administrative memo No 24, Appendix C) addresses enlargement of water rights during transfers and prohibits the enlargement of the historic extent of beneficial use, 5d. (5).

The SPF, prepared a response to Rangen's protest against IGWA's Water Right Application for Transfer No. 79560 (Dec 2, 2014), alleges that "appropriate stream administration and mitigation could be utilized to minimize and offset consumption of water delivered to Rangen under the Application" (P2). This administrative fix is not likely to occur. The Watermaster is obligated to administer the water resource by priority and currently, there are shortages in senior water rights diverting from Billingsley Creek which would have to be satisfied with the new 10 cfs of water. In this case it will be utilized to meet senior water right requirements downstream of Rangen. The requested place of use for water right 36-7072 is the entirety of the Rangen fish propagation facility only and not the area served by diversions from Billingsley Creek. Therefore, utilization of the 10 cfs of new water in Billingsley Creek by fulfilling senior irrigation rights is a violation of the water right provisions not only by changing the nature of use of the right, but by expanding both the diversion component and the consumptive use.

### **C.3. The Change is Contrary to the Eastern Snake Plain Moratorium**

The State of Idaho adopted a moratorium to additional consumptive use water rights on the Eastern Snake River Plain in 1992 and that moratorium has been extended and amended (1993, see Appendix B). It is therefore not possible, without mitigation, to secure a water permit for additional consumptive use water. The proposed use of water right 37-7072 in the manner proposed in Transfer 79560 will result in additional consumptive use under this water right and is therefore in violation of the moratorium, Appendix B moratorium area includes the Eastern Snake River Plain and ESPA.

### **C.4. Water Right Administration**

The SPF report states that "IDWR can instruct the Watermaster to convey the Magic Springs water past Billingsley Creek diversions so that it flows directly to the Snake River, thereby preventing consumptive use of this water by other water users on Billingsley Creek. This would limit consumptive losses to evaporation that occurs between the Rangen Facility and the Snake River" (P 2 ¶ 2.2.1) there are at least 250 potential users from diversions from irrigation rights from Billingsley Creek with a myriad of priorities associated with the group of rights (Frank Irwin deposition, Sept 25k 2014). Shepherding 10 cfs of water through the miles of Billingsley Creek and the numerous irrigation diversions is a monumental task, especially without adequate water measuring devices on the creek and on many diversions. The Watermaster for Billingsley Creek, Frank Irwin, has testified that it would likely not be possible to shepherd the 10 cfs back to the Snake River (Irwin p24), and that "these non-consumptive uses, in fact, would be consumed by irrigation rights" (Irwin P25). With no measuring devices installed on the main stream and diversions, determining which users are short of water by priority would be nearly impossible. Determining the water available for priority diversion in a stream for which the discharge increases in the downstream direction is difficult. Inflow from springs and seeps (gaining stream) with no available measuring devices would likely cause in-equitable administration and extremely unhappy water users.

The AMEC report states that "Additional mitigation opportunities are also available to IGWA including securing storage water that could be released to Snake River, or reducing consumptive use of irrigation water rights from the Snake River or from spring's tributary to the Snake River upstream from Swan Falls and downstream from Milner Dam. This latter approach could take the form of interruptible delivery agreements where irrigation could be temporarily curtailed to satisfy minimum stream flow requirements".

These 'additional mitigation opportunities' are tantamount to requiring mitigation for an attempt to mitigate for the proposed transfer if needed, or in other words providing mitigation for the water rights offered for mitigation of the original injury.

This proposed procedure exemplifies IGWAs approaches to mitigation by transferring water within a fully appropriated water supply area

### C.5. Evaporation from Billingsley Creek

The SPF report (§2.2.2) cites a report by AMEC which calculates evaporation from Billingsley Creek due to the 10cfs of Magic Spring's water which would be delivered to the Rangen Facility. AMEC calculates that the increased evaporation from open water on Billingsley Creek due to the additional 10 cfs would be 0.039 cfs.

AMEC simply multiplied the estimated area (length times estimated width) from aerial photographs of the Billingsley Creek open water times the estimated ET Idaho precipitation deficit (probably for Hagerman) and assumed that product is the total net evaporation from the creek. They then calculated the portion of the total net evaporation attributable to the new 10 cfs of Magic Spring's water, this calculation used the total net evaporation from the creek times the ratio of the increased flow (10cfs) to the measured average WY2012 Billingsley Creek flow at the USGS gage Billingsley Creek at Hagerman plus the 10 cfs of Magic Spring's water. The result is a 0.039 cfs calculated annual evaporation of Billingsley Creek due to an increase in discharge of 10 cfs (AMEC, Table 2).

This calculation procedure assumes two premises which are incorrect, the assumptions are:

1. There is no change in open water area as a result of an increase in discharge of 10 cfs.
2. The purported evaporation in cfs is calculated for the entire year, not the peak or summertime evaporation which will be most impactful on the available water for diversion.

The magnitude of additional evaporation is small and will be small, however it is calculated. However, AMEC states their "calculations show IGWA's recharge, conversions, and CREP add more than ten cfs to Billingsley Creek and other reaches of the Snake River upstream from Swan Falls and downstream from Milner Dam" (AMEC 2.2.3 Page 2). AMEC's reported simulation results from IDWR runs of the ESPAM 2.1 model are included in the AMEC report (Table 2) for major spring cells in the reach of the Snake River from Blue Lakes to Malad and Thousand Springs. AMEC reported the 5 year average of IDWR simulations from 2014 to 2019 as a 35 cfs increase in flow of 6 major spring cell sites due to IGWA efforts. It appears from analysis of the IDWR input to the ESPAM 2.1 model for the reported simulations that IDWR used the SWID mitigation efforts in addition to the IGWA efforts input to the model. The current increase in the 6 spring cells is more likely 20 cfs.

ESPAM 2.1 ground water model results from simulations run by Brockway Engineering show that the simulated steady state benefit to the 6 model cells contributing to Billingsley Creek flow from 2013 IGWA mitigation efforts (IDWR data, conversions, CREP and recharge) in the ESPA are about 2.83 cfs. However, the reduction in spring flow in the Billingsley Creek ground water model cells due to pumping by ground water users junior to July 1962 is 33.3 cfs. The benefit from proposed IGWA mitigation efforts makes up for the small (0.039 cfs) estimated increase in Billingsley Creek evaporation caused by the increased discharge from the 10 cfs from Magic Springs. However, the

impact of junior pumping is 11.8 times greater than the estimated 2.83 cfs achieved by IGWA mitigation efforts to date.

IGWA's conclusion that the increased reach gain from simulated improvement in springs in non-Rangen model cells mitigates for a potential 10 cfs loss in Billingsley Creek and evaporation increase is incorrect for the Billingsley Creek reach. Simulated increases in major springs from Blue Lakes to Malad (AMEC Table 2) do not mitigate for the impacts to Billingsley Creek. The fact that the benefits of IGWA efforts on the ESPA for the Rangen call make up for the small evaporation of 0.039 cfs from Billingsley Creek does not justify the expansion of the consumptive use under water right 37-7072, which will occur under Transfer 79560.

Whether or not the incidental increase in spring flows in non-Rangen model cells can be credited to mitigation or compensation for the impact or injury to a fully appropriated stream is likely a matter of law, not hydrology.

### **C.6. Enlargement**

The AMEC report alleges that no enlargement of water right 36-7072 will occur because part of the right is utilized for non-consumptive fish propagation at the Rangen facility. This statement is true if the true full use of the water right is not considered. After the 10 cfs of non-consumptive Magic Springs water is used for fish propagation, the further use of the water throughout the Billingsley Creek watershed must be considered. It is obvious that the water must flow somewhere after it leaves the Rangen facility, and absent a new pipeline to the Snake River, the opportunity exists for consumptive use of the non-consumptive water right. The Watermaster believes that the 10 cfs will be diverted to satisfy current shortages to irrigation rights and he is doubtful he can administer the additional flow to reach the Snake River.

### **C.7. The Change Will Not Result in Additional Flow in Springs Emanating From the Eastern Snake Plain Aquifer**

Declines in discharge from springs issuing from the ESPA are partially a result of pumping by groundwater pumpers under junior priority ground water rights. Implementation of the change in place of use of part of water right 37-7072, under Transfer 79560, will not provide any additional water from the ESPA or enhance the flow of any spring issuing from the ESPA. Therefore, the proposed Transfer 79560 will not mitigate the cause of declining water levels in the ESPA, and will not mitigate for declining spring flows, or provide any new water to the Billingsley Creek or Thousand Springs watersheds. In particular, spring flows emanating from the ESPA will likely continue to decline if the current level of ground water use from the ESPA continues.

### **C.8. Watermaster Concurrence**

The Watermaster who has jurisdiction over the Magic Springs water rights (Cindy Yenter) has reviewed the application for Transfer 79560 and opposes approval of the application because it included mitigation as a nature of use, is speculative, and constitutes an enlargement of use. I concur with the Watermaster's conclusion.

## D. Water Rights for Mitigation

The term mitigation, by itself, does not connote any specific physical use of the resource. For instance, the terms irrigation, stock water, municipal, commercial, industrial, and mining are explanatory in themselves and leave no doubt as to the physical use or beneficial use of the water. The term mitigation, by itself, does not explain explicitly how the water will actually be utilized or what physical benefit will actually occur.

Identification of the physical beneficial use anticipated or actually accomplished under a water right for 'mitigation' has to be accompanied by an explanation of how the water will be physically used in its entirety. This requires an evaluation of the total use of the water used for 'mitigation' not just the first use.

Applications for water rights or transfers are evaluated by IDWR to determine whether or not injury to existing water rights will occur. If approval of an application for a water permit or a transfer of an existing water right requires some type of mitigation, it generally requires giving up or retiring or leaving behind some water use or modification of a water right to mitigate for a change in use or increase in use. For instance if a proposed ground water right transfer will, as determined by a ground water model evaluation or some other analysis, result in a negative impact, the magnitude of which results in injury to an existing water right or river reach gain or violation of an administrative rule or statute, then the applicant must either 1) reduce the depletion from the aquifer to a level which results in no depletion or an acceptable depletion or 2) provide net recharge to the aquifer sufficient to mitigate for any injury or 3) provide another existing water right, for which the cessation of use reduces aquifer depletion sufficient to nullify the negative effect or violation of the proposed permit or transfer. In each case, some existing water use is reduced or modified to mitigate for the injury or violation which would occur.

In no case that I know of, is the use of a proposed new water right or transfer of an existing right the use of which causes a violation of the existing right approved as mitigation for another injured water right. I know of no other instance since the ESPA moratorium was enacted in which the Department has approved a transfer, permit, or mitigation plan which would have resulted, either primarily or secondarily, in an increase in consumptive use except for minimal potential increases resulting from transfers in the ESPA.

If this were allowed, then an application for a new ground water permit could be offered to offset or mitigate for the potential injury caused by an adjacent well pumping from the same aquifer and causing injury the same as the right for which the new well was drilled. The application for transfer 79560 appears to do just that. It proposes diversion of water from the same source (the ESPA) to mitigate for anticipated injury to water rights diverting from the same source. There is no new water required for mitigation with the application Transfer No. 79560.