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BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF DISTRIBUTION OF WATER TO VARIOUS WATER RIGHTS HELD BY OR FOR THE BENEFIT OF A&B IRRIGATION DISTRICT, AMERICAN FALLS RESERVOIR DISTRICT #2, BURLEY IRRIGATION DISTRICT, MILNER IRRIGATION DISTRICT, MINIDOKA IRRIGATION DISTRICT, NORTH SIDE CANAL COMPANY, AND TWIN FALLS CANAL COMPANY	Docket No. CM-DC-2010-001 **AMERICAN FALLS-ABERDEEN GROUND WATER DISTRICT'S MOTION TO RECONSIDER *ORDER GRANTING HEARING* AND VACATE HEARING OR, ALTERNATIVELY, TO CLARIFY THE SCOPE OF HEARING; REQUEST FOR EXPEDITED RULING; BRIEF IN SUPPORT**

COMES NOW American Falls-Aberdeen Ground Water District ("AFA"), by and through undersigned counsel of record, pursuant to Rules 220 and 300 of the Idaho Department of Water Resources' ("IDWR" or "Department") Rules of Procedure,[1] and hereby moves the

[1] Unless stated otherwise, any "Rules" referenced herein are from the Department's Rules of Procedure located at IDAPA 37.01.01.

Additionally, unless stated otherwise, all documents cited herein are available at the webpage for the Surface Water Coalition Delivery Call, IDWR Docket No. CM-DC-2010-001: https://idwr.idaho.gov/legal-actions/delivery-call-actions/swc/ (last visited Nov. 17, 2025).

Director to reconsider the *Order Granting A&B Irrigation District's Requests for Hearing, Consolidating Proceedings for Hearing, and Appointing Hearing Officer; Notice of Prehearing Conference* dated September 3, 2025 ("*Order Granting Hearing*") and vacate the hearing set to commence on January 14, 2026, or, alternatively, to clarify the scope of the hearing. AFA also requests an expedited ruling on this motion.

This Motion is made to the Director rather than the Hearing Officer for two reasons: first, under the Department's Rules, motions to reconsider interlocutory orders must be made to the official who issued the order; second, and more practically, because the *Order Granting Hearing* describes the scope of the Hearing Officer's authority in this matter, the Director is arguably the only official who can either reconsider whether the Order was proper **or** clarify the scope of the hearing. This motion and a brief in support are contained below.

MOTION

I. Reconsideration of the Department's *Order Granting Hearing* and Vacation of the Hearing

AFA moves the Department to reconsider the *Order Granting Hearing* and deny A&B Irrigation District's ("A&B") requests for hearing on two grounds: first, as shown in the table attached hereto as Exhibit 1, five of the six issues raised in A&B's two requests for hearing were previously the subject of a hearing in front of the Department on June 6-9, 2023. Thus, A&B is not entitled to another hearing on these issues under Idaho Code ("I.C.") section 42-1701A(3) and, further, is barred from relitigating them under principles of res judicata.

Second, A&B's one remaining issue (issue no. 3 in the July 24, 2025 *Request for Hearing*) was mooted by A&B's stipulation with the Surface Water Coalition ("SWC") regarding A&B's 2025 mitigation obligation and thus does not warrant a hearing.

Because A&B's requests for hearing should be denied for all issues, AFA requests that the Department vacate the hearing set to commence on January 14, 2026.

II. In the Alternative, Clarify the Scope of Hearing

Alternatively, if the hearing is not vacated, AFA moves the Department to clarify the scope of hearing. Contrary to A&B's requests for hearing, A&B's expert report primarily concerns why the orders applying the *Sixth Methodology Order* are faulty and should be replaced by a Groundwater Management Plan ("GMP"). *See* David Colvin, *A&B Proportionate Share Expert Report* at 3, 4, 6 (Nov. 7, 2025), attached hereto as Exhibit 2. A&B's opportunity to challenge the substance and application of the *Sixth Methodology Order* was during the June 2023 hearing; its effort to litigate whether a GMP should replace the *Sixth Methodology Order* as the mechanism to regulate groundwater use on the Eastern Snake Plain Aquifer Ground Water Management Area ("ESPA-GWMA") is a collateral attack on the *Sixth Methodology Order* and should be rejected. If the Department proceeds with the hearing, the Director should clarify that the scope of hearing is limited to issues related to the Department's determinations of proportionate shares of the predicted in-season demand shortfall through application of the *Sixth Methodology Order* that have not previously been heard, not to testimony and evidence regarding a prospective GMP.

Finally, because upcoming discovery and other prehearing activities could be affected by the Department's ruling on this motion, AFA requests an expedited ruling. *See* Rule 220.02.f.

BRIEF IN SUPPORT

I. Standard of Review

In contested cases, parties may move the Department to review interlocutory orders without any time limitations. *See* Rule 711. Rule 710 defines interlocutory orders:

> Interlocutory orders or intermediate orders are orders that do not decide all previously undecided issues presented in a proceeding, except the presiding officer may by order decide some of the issues presented in a proceeding and provide that the decision on those issues is final and subject to review by reconsideration or exceptions filed with the agency head, or judicial review in district court, but is not final on other issues. Unless an order contains or is accompanied by a document containing one (1) of the paragraphs set forth in Rules 720, 730 or 740 or a paragraph substantially similar, the order is interlocutory. The following orders are always interlocutory: orders joining, consolidating or separating issues, proceedings or parties; orders granting or denying intervention; orders scheduling prehearing conferences, discovery, hearing, oral arguments or deadlines for written submissions; and orders authorizing, compelling or refusing to compel discovery. Interlocutory orders may be reviewed by the presiding officer issuing the order pursuant to Rules 711, 760, and 770.

(Emphasis added.) Upon review, the Department official that issued the interlocutory order may rescind it and issue a substitute order. *See* Rule 711, 760. Additionally, the Department may clarify interlocutory orders. *See* Rule 710, 770.

The *Order Granting Hearing* is an interlocutory order under the definition in Rule 710 and, because there are no time limits on the review of interlocutory orders, this motion is timely.

II. Argument

A. The Director Should Reconsider the *Order Granting Hearing*, Deny A&B's Requests for Hearing, and Vacate the Hearing

In the *Order Granting Hearing*, the Director erred in concluding that A&B is entitled to a hearing under I.C. section 42-1701A(3) because "A&B has not previously been afforded an opportunity for hearing on the issues it presented within the requests." *Order Granting Hearing* at 4-5. To the contrary, A&B participated in a hearing in the captioned matter from June 6-9, 2023, where it presented two issues that are substantively identical to five of the six issues for which A&B seeks a hearing now. *See,* Ex. 1. During the June 2023 hearing, A&B elicited testimony from Department employee Jennifer Sukow related to those issues, including the Department's use of steady-state modeling to determine proportionate shares of predicted in-

season demand shortfalls. *See City of Idaho Falls v. IDWR*, Case No. CV01-23-13238, *Settled Agency Hearing Transcript on Appeal* at 100:23-102:7 (4th Jud. Dist., Ada Cnty., Sep. 28, 2023).[2] Finally, A&B argued these issues in its post-hearing brief, including the assertion that the Department should reduce A&B's proportionate share of any predicted in-season demand shortfalls becaue A&B is no longer irrigating as much land with groundwater as it once was. *See Surface Water Coalition's Post-hearing Brief* at 12 (June 16, 2023).[3] These are the same issues that A&B seeks to litigate now; that it has sought to re-litigate them in the context of the referenced orders issued in 2025 does not cure the defect in their request.

While the Director did not address these issues in the *Post-Hearing Order Regarding Fifth Amended Methodology Order* dated July 19, 2023, A&B elected to not appeal the order. Accordingly, for five of the issues now raised, A&B has "previously been afforded an opportunity for a hearing on the matter," and thus not is entitled to a hearing under I.C. § 42-

[2] "Q. [by Mr. Simpson] And then Mr. Budge was asking you about a calculation that you did with respect to dividing up the IGWA's proportionate share under the Footnote 5, I believe, of the As-Applied Order. Do you recall that testimony? A. [by Ms. Sukow] Yes. Q. I'm not sure if I fully appreciated the calculation you made. But my understanding is that your method that you utilized, and this was your proposed method, acknowledged the long-term impacts of each ground water district on the Blackfoot to Minidoka reach. And then once that percentage was calculated, then it was utilized in the calculation of the responsibility of each ground water district of the total for IGWA; is that correct? A. Well, and again, that was provided as a courtesy, and the Department is not telling them, IGWA what each ground water districts responsibility is. But it is just an apportioning of it based on their long-term impacts." Available at https://idwr.idaho.gov/wp-content/uploads/sites/2/legal/CV01-23-13238/CV01-23-13238-20230928-Settled-Agency-Hearing-Transcript-on-Appeal.pdf (last visited Nov. 17, 2025).

[3] "The April As Applied Order identified A&B's proportionate share of the projected inseason demand shortfall to be 458 acre-feet. . . . This calculation was made using a steady-state run of ESPAM to apportion respective responsibility for the shortfall and mitigation obligation. . . . Since A&B has replaced groundwater with surface water delivery on certain lands, that should be taken into account when analyzing the proportionate share of any in-season demand shortfall predicted for the Surface Water Coalition."

1701A(3).[4] Moreover, A&B should be barred from relitigating these issues under principles of res judicata. *See Markin v. Grohmann*, 153 Idaho 223, 227-28 (2012).[5]

As for the one remaining issue (issue no. 3 in the July 24, 2025 *Request for Hearing*), while A&B may have been entitled to a hearing at the time the *Order Granting Hearing* was issued, the issue became moot by the following week when the Director found, "A&B does not need to establish that they can mitigate for its proportionate share of the predicted IDS." *Order Revising July 2025 Forecast Supply (Methodology Step 7-8)* at 12 n.7 (Sep. 11, 2025).[6] Accordingly, this is a moot issue that does not warrant a hearing.[7]

In sum, all six of the issues that A&B presented in its 2025 requests were litigated in the June 2023 hearing or are now moot. Accordingly, A&B is not entitled to a hearing under I.C. section 42-1701A(3), and the Department should deny the requests and vacate the hearing to conserve judicial resources.

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[4] Following the *Post-Hearing Order Regarding Fifth Amended Methodology Order*, the Director denied the *City of Pocatello's, City of Idaho Falls', and Coalition of Cities' Request for Hearing and Order Authorizing Discovery* on the same grounds: they "have previously been afforded an opportunity for a hearing on the issues," even though they were requesting a hearing on a different order. *See Order Denying Cities' Motion for Clarification and Reconsideration* at 2-3 (Sep. 25, 2023). On reconsideration, the Director should rule similarly on A&B's requests for hearing, as A&B also seeks a hearing on the same issues in 2025 as they did in 2023, even if it is a different as-applied order.

[5] "The doctrine of res judicata rests upon the ground that the party . . . has litigated, or had an opportunity to litigate the same matter in a former action in a court of competent jurisdiction, and should not be permitted to litigate it again to the harassment and vexation of his opponent. Public policy and the interest of litigants alike require that there be an end to litigation."

[6] A&B was relieved of this obligation because the SWC stipulated to accept 1,252 acre-feet of storage water as satisfactory, which is far less than the 5,039 acre-feet for which the Department determined A&B was responsible in the *Order Revising April 2025 Forecast Supply and Continuing May 16, 2025 Curtailment Order (Methodology Steps 5 & 6)* dated July 10, 2025.

[7] The Department has previously denied requests for hearing on the basis that the issue for which the party sought a hearing "was rendered moot because a mid-season order determined there was no longer an obligation." *Order Denying IGWA's Petition for Review* at 2 (Aug. 23, 2023). On reconsideration, the Director should rule similarly with respect to issue no. 3 in A&B's July 24, 2025 *Request for Hearing*, as A&B's issue was similarly mooted by an as-applied order that found it no longer had an obligation.

B. Alternatively, the Department Should Clarify that the Scope of Hearing Does Not Include Issues Related to the ESPA Ground Water Management Area

If the hearing is not vacated, the Department should clarify that GMP-related testimony and evidence is outside the scope of this hearing. It is apparent from its expert report that A&B desires to use this proceeding as a vehicle to advocate for the adoption of a GMP and/or to propose concepts (e.g., that not all ground water users should be "equally responsible" for mitigating demands shortfalls, and priority should be a factor in how demand shortfalls are apportioned amongst groundwater users[8]) that are inconsistent with the Department's Methodology-administrative framework. If A&B wishes to present testimony and evidence regarding a prospective GMP, they should do so in the appropriate matter (i.e., the ESPA-GWMA matter, IDWR Docket No. AA-GWMA-2016-001[9]) and should be barred from doing so here.

Moreover, A&B's current efforts are a collateral attack on the *Sixth Methodology Order*, which are prohibited under Idaho law. *See Cuevas v. Barraza*, 152 Idaho 890, 894 (2012); *Baird-Sallaz v. Sallaz*, 157 Idaho 342, 346 (2014). The Department applies the *Sixth Methodology Order* on an annual basis to predict/determine the SWC's in-season demand shortfall and accordingly order responsible junior groundwater users to mitigate or face curtailment in order to prevent or remedy the SWC's material injury. By advocating for a GMP that would reduce the mitigation obligation that A&B incurs from the Department's application of the *Sixth Methodology Order*, A&B is presenting arguments and evidence here that it made or

[8] *See* Ex. 2 at 4, 8.

[9] Moreover, A&B had the opportunity to present such concepts during the ESPA-GWMA Advisory Committee meetings in 2023-24. *See* https://idwr.idaho.gov/water-rights/groundwater-management-areas/eastern-snake-plain-aquifer-advisory-committee/ (last visited Nov. 17, 2025).

should have made during the June 2023 hearing, thereby collaterally attacking the *Sixth Methodology Order*.

In sum, to avoid the wasting of resources in discovery and other prehearing activities, the Department should clarify that testimony and evidence regarding a GMP is outside the scope of this hearing.

III. Conclusion

Based on the forgeoing, AFA requests that the Department reconsider the *Order Granting Hearing*, deny A&B's requests and vacate the hearing, or, alternatively, clarify the scope of hearing. Because upcoming discovery and other prehearing activities could be affected by the ruling on this motion, AFA requests an expedited ruling.

DATED this 18th day of November 2025.

SOMACH SIMMONS & DUNN

By _____
Sarah A. Klahn, ISB #7928

Attorney for American Falls-Aberdeen Ground Water District

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 18th day of November 2025, I caused a true and correct copy of the foregoing document to be filed and served via electronic mail to the following:

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Exhibit 1

Table of Issues Presented by A&B Irrigation District

Exhibit 1

Issues Presented by A&B		
May 5, 2023 *Original Request for Hearing*	**April 29, 2025 *Request for Hearing***	**July 24, 2025 *Request for Hearing***
1) Whether the order's identified proportionate share (458 acre-feet) of the predicted injury (75,200 acre-feet) to TFCC is calculated correctly based upon A&B's actual diversion and use of water rights that are subject to the identified curtailment date (junior to December 30, 1953).	1. Whether the order's identified proportionate share (384 acre-feet) of the predicted injury (63,000 acre-feet) to TFCC is calculated correctly based upon A&B's actual diversion and use of water rights that are subject to the identified curtailment date (junior to August 28, 1955).	1. Whether the order's identified proportionate share (5,039 acre-feet) of the predicted injury (75,300 acre-feet) to TFCC is calculated correctly based upon A&B's actual diversion and use of water rights that are subject to the identified curtailment date (junior to October 11, 1900).
2) Whether the steady-state use of the ESPAM 2.2 in identifying A&B's proportionate share is consistent with the transient use of the model in identifying ground water rights subject to curtailment as outlined in the *Fifth Methodology Order*.	2. Whether A&B should be allowed to mitigate for a portion of groundwater right 36-15127A (approximately 508.3 acres) that will be diverted used during the 2025 irrigation season, as opposed to mitigating for all 1,886.4 acres authorized by the water right.[1]	2. Whether the steady-state use of the ESPAM 2.2 in identifying A&B's proportionate share of the estimated in-season demand shortfall is consistent with the transient use of the model in identifying ground water rights subject to curtailment as outlined in the *Sixth Methodology Order*.
Green = Previously Heard in 2023 **Purple = Moot**	3. Whether the steady-state use of the ESPAM 2.2 in identifying A&B's proportionate share is consistent with the transient use of the model in identifying ground water rights subject to curtailment as outlined in the *Sixth Methodology Order*.	3. Whether the Director's failure to implement the May 16, 2025 curtailment order in accordance with Idaho law has injured A&B by subjecting its senior water right 36-2080 to curtailment and/or mitigation requirements during the 2025 irrigation season.

[1] While issue no. 2 in the April 29, 2025 *Request for Hearing* may appear different, it is substantively the same as issue no. 1 in both the April 29, 2025 *Request for Hearing* and July 24, 2025 *Request for Hearing*: whether A&B should be required to mitigate for a water right in whole (based on authorized diversion/use) or in part (based on actual diversion/use).

Exhibit 2

***A&B Proportionate Share Expert Report by* David Colvin**

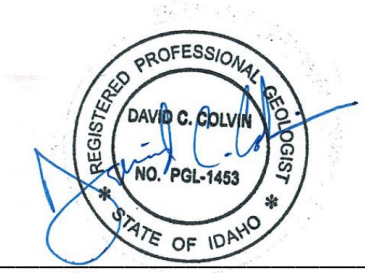
A&B Proportionate Share Expert Report Docket No. CM-DC-2010-001

Prepared for:

A&B Irrigation District

November, 2025
1604FLE01

The technical material in this report was prepared by or under the supervision and direction of the undersigned.



David Colvin, PG

The following LRE Water staff members contributed to the preparation of this report.

Principal Hydrogeologist	David Colvin, PG
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GIS Technician	Tucker Fullmer

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1. Introduction

This report provides David Colvin's opinions regarding the 2025 implementation of the July 19, 2023 *Sixth Final Order Regarding Methodology for Determining Material Injury to Reasonable In-Season Demand and Reasonable Carryover* (IDWR, 2023, Methodology Order) issued by the Director of the Idaho Department of Water Resources (IDWR). On September 3, 2025 the Director issued an order granting a hearing (IDWR, 2025f) related to the following topics requested by the A&B Irrigation District (A&B):

1. Whether the order's identified proportionate share (384 acre-feet) of the predicted injury (63,000 acre-feet) to TFCC is calculated correctly based upon A&B's actual diversion and use of water rights that are subject to the identified curtailment date (junior to August 28, 1955).
2. Whether A&B should be allowed to mitigate for a portion of groundwater right 36-15127A (approximately 508.3 acres) that will be diverted [sic] used during the 2025 irrigation season, as opposed to mitigating for all 1,886.4 acres authorized by the water right.
3. Whether the steady-state use of the ESPAM 2.2 in identifying A&B's proportionate share is consistent with the transient use of the model in identifying ground water rights subject to curtailment as outlined in the *Sixth Methodology Order*.

The following report represents the expert opinions of David Colvin, Principal Hydrogeologist and Rocky Mountain Regional Director for LRE Water. Mr. Colvin's curriculum vitae is provided as Attachment A. The next section contains a summary of his opinions and is followed by additional discussion sections. If additional information becomes available, Mr. Colvin reserves the right to alter his opinions regarding A&B's proportionate share.

2. Summary of Opinions

My detailed opinions regarding the A&B proportionate share analysis are summarized below.

- **Opinion 1** - A&B's mitigation plan specifies that storage water is only required to cover the in-season demand shortfall (IDS) beyond the benefits of other mitigation measures.
- **Opinion 2** - According to the terms and conditions of the A&B mitigation plan, they should only have to mitigate for groundwater use on the acres currently being diverted (e.g., approximately 508.3 acres of water right 36-15127A).
- **Opinion 3** - An ESPA Groundwater Management Plan (GMP) could provide coordination of mitigation actions and curtailment, balancing in-season demands with the decades of

historical junior groundwater pumping. A GMP could be structured to allow for transient modeling of the long-term mitigation obligations/actions and the in-season mitigation action benefits to reach gains.

- **Opinion 4** - The IDWR methodology contains logical inconsistencies rooted in problems with attempts to constrain injury determination and defining mitigation requirements within a single irrigation season. ESPA methodology calculation of IDS is caused by decades of junior groundwater pumping, and the mitigation responsibility should consider priority.
- **Opinion 5** - The Methodology order does not specify how to calculate the proportionate amount of mitigation required by each junior groundwater right covered by a mitigation plan. IDWR should calculate proportionate share consistently.
- **Opinion 6** - A&B's mitigation plan is unique and should be treated as such in how IDWR calculates proportionate shares. According to the terms of the plan, consideration should be given to all A&B's mitigation activities.
- **Opinion 7** - There was a time when the ESPA was in balance and groundwater pumping was not reducing the supplies of senior surface water rights and causing in-season demand shortfalls. Because IDWR continued to approve new groundwater rights without consideration of long-term impacts on the connected surface water sources, the system became over-appropriated and junior groundwater pumping began reducing the senior surface water supplies. IDWR should explain how the groundwater rights with a priority date senior to the time of over-appropriation are equally responsible for mitigating the IDS as groundwater rights junior to that time.
- **Opinion 8** - When the IDS was estimated in July, IDWR recognized actual supply and demand conditions and that the May curtailment was not implemented. Partially because no May curtailment was implemented, the July IDS increased.
- **Opinion 9** - If IDWR had implemented the May curtailment, the July IDS would have been less, and the curtailment date could have been more junior. IDWR's lack of curtailment action contributes to a reduction in the availability of groundwater rights junior to 1955.

3. A&B Mitigation Plan

A&B Irrigation District (A&B) developed a mitigation plan to address the depletive effects of its junior priority groundwater rights on the near Blackfoot to Minidoka reach gains (reach gains) of the Snake River. The initial plan (A&B, 2015) was approved by the Director in the Final Order Approving Mitigation Plan issued on December 16, 2015 (IDWR, 2015). A&B and the Surface Water Coalition (SWC) later filed a Stipulated Mitigation Plan, which was approved in January 2025 (IDWR, 2025a), as an amendment to the original plan.

The mitigation actions originally specified in the A&B Mitigation Plan include:

1. Conversion of 1,378 acres (or 1,377.8 acres) from groundwater to surface water irrigation.

2. Development of a second pumping plant and pipeline project to deliver available surface water, supporting future groundwater-to-surface-water conversions.

3. Enrollment of 121 acres in the federal Conservation Reserve Enhancement Program (CREP)[1].

4. Delivery of storage water, using A&B's storage rights in American Falls and Palisades Reservoirs, if the benefits of other conversions and CREP activities do not satisfy the injury caused by A&B's junior priority groundwater rights.

A&B's mitigation plan specifies that storage water is only required to cover the in-season demand shortfall (IDS) beyond the benefits of other mitigation measures:

> *"Finally, A&B holds rights to storage water in American Falls Reservoir (46,826 af) and Palisades Reservoir (90,800 af) and has the ability to participate in Water District 1's Rental Pool. Available storage, if necessary, can be rented and delivered to injured Coalition members to mitigate for any shortfalls caused by the District's junior priority ground water that are subject to curtailment. This action would only be necessary if the benefits of the above conversions and CREP action did not satisfy the injury caused by A&B' s ground water rights that are found to be subject to curtailment."* (A&B, 2015)

A&B's approved mitigation plan includes significant actions related to the conversion of groundwater to surface water. A&B historically mitigates injury to the SWC by curtailing groundwater diversions on approximately 3,574 acres within its irrigation service area and replacing that groundwater use with surface water (soft conversions). However, IDWR requires A&B to demonstrate its ability to mitigate annually for its proportionate share of the predicted IDS.

According to the terms and conditions of the A&B mitigation plan, the district should only have to mitigate for groundwater use on the acres actually being diverted (e.g., approximately 508.3 acres of water right 36-15127A) instead of the full authorized acreage (1,886.4 acres). A&B intends to continue delivering surface water to approximately 3,573.6 acres formerly irrigated with groundwater. IDWR has not demonstrated why it cannot calculate a partial mitigation obligation for only partial use of a groundwater right.

[1] No longer active.

4. Lack of Coordination with other Mitigation Plans

Other stipulated mitigation plans, like those approved for the Ground Water Districts (IGWA), the Coalition of Cities, and the Southwest Irrigation District (SWID) are fundamentally different from A&B's plan. In these other plans, the SWC agreed to junior groundwater users undertaking aquifer mitigation actions (such as recharge, conversions, and voluntary curtailment) every year, regardless of the annual mitigation obligation, in exchange for obtaining safe harbor from the SWC delivery call. Under other agreements, these entities do not need to establish annually that they can mitigate for their proportionate share of the predicted IDS with actions such as reductions in junior groundwater pumping. Unlike IDWR's apportionment of A&B mitigation requirements, IGWA is allowed to determine how to apportion those reductions between their member organizations in a way that is unlikely to accurately represent the reach gain impacts and IDS.

Mitigation plans allow for multi-season accounting of groundwater withdrawals and provide mitigation water supplies over multiple years. However, IDWR is required to administer water rights within each year. This highlights one of the fundamental issues in this hearing, the tension between calculating the reach gain impacts of decades of junior groundwater pumping and requiring mitigation within a single season.

There is no comprehensive coordination between mitigation plans and curtailment. An ESPA Groundwater Management Plan (GMP) would provide this coordination, balancing in-season demands with the decades of historical junior groundwater pumping. A GMP could be structured to allow for transient modeling of the long-term mitigation obligations/actions and the in-season mitigation action benefits to reach gains.

5. Methodology Steps

IDWR annually implements steps supporting the Methodology Order (**Figure 1**). The IDWR methodology contains logical inconsistencies rooted in problems with attempts to constrain injury determination and defining mitigation requirements within a single irrigation season. IDWR calculates the IDS using observed or predicted water supply conditions. These supplies are impacted by long term and in-season pumping. The issue at hand is how to identify which junior groundwater pumping is causing the injury during any given season while considering the groundwater right's priority and location.

In the Sixth Methodology Order, IDWR is directed to use the transient version of the Eastern Snake Plain Aquifer Model (ESPAM) Version 2.2 (IDWR, 2021) for the calculation of what curtailment date will provide enough increased gains to mitigate the IDS within a few months. Because curtailment is a short-term change in the system, the transient model was found to be more appropriate than a steady state model for calculating how reach gains are impacted within a given irrigation season. The Director's order found that only 9% to 15% of the steady state response is predicted to accrue to the near Blackfoot to Minidoka reach between May 1 and September 30 of the same year which would not fully mitigate the IDS. (IDWR, 2023b, Findings of Fact 86)

The Methodology order does not specify how to calculate the proportionate amount of mitigation required by each junior groundwater pumping entity covered by a mitigation plan. IDWR should calculate proportionate share consistently.

IDWR has been using the steady state version of the model to calculate the proportionate share of the IDS each entity is responsible for mitigating. IDWR's rationale for applying the steady state model is that the junior groundwater pumping has been happening for many decades and that it is in approximately equilibrium conditions. (Sukow, 2025) There is no IDWR order specifying that a steady-state model should be used for calculating proportionate shares of IDS mitigation responsibility.

A steady state model is useful in understanding systems that are in equilibrium. However, it does not accurately predict changes in a given irrigation season. Any change to the system at a specific time is best represented with a transient model that shows how that change propagates through the system over time. Mitigation actions and groundwater curtailments represent changes in the ESPA at specific times and are best modeled using transient models. Because the Methodology is limited to each irrigation season, the transient version of the model should be consistently used for implementing the steps and apportioning mitigation obligations that occur during an irrigation season.

Because most ESPA groundwater pumping has been happening for decades, IDWR uses a pre-mitigation, steady-state version of ESPAM to calculate the proportionate share for A&B, assuming the groundwater irrigation for all acres continues to be pumped. A&B's mitigation plan is unique and should be treated as such in how IDWR calculates proportionate shares. According to the terms of the plan, consideration should be given to all of A&B's mitigation activities. Use of the steady-state model does not account for priority between junior ground water rights, and how that should be apportioned.

Relevant issues with using the steady state ESPAM model during the Methodology implementation include:

- The lagged timing of depletive effects from junior groundwater pumping is not represented. All resulting mitigation and curtailment impacts (increased reach gains) are assumed to be instantaneous. This does not reflect the hydrologic reality within a given irrigation season or across multiple years.
- Because the lagged timing is ignored, changes in junior groundwater pumping far from the river are assumed to have immediate impact on reach gains when the reality is that they can take decades to happen.
- Steady state models cannot reflect temporal variations such as seasonal irrigation patterns or reductions to pumping under recent mitigation plans.
- A steady state model cannot differentiate between priority dates and doesn't reflect the evolution of groundwater development through time.

There was a time when the ESPA was in balance and groundwater pumping was not reducing the supplies of senior surface water rights. Because IDWR continued to approve water rights, the system became over-appropriated and junior groundwater pumping began reducing the senior surface water supplies. IDWR should explain how the groundwater rights with a priority date senior to the time of over-appropriation are equally responsible for mitigating the IDS as those groundwater rights junior to that time. It is too late for junior groundwater pumping to offset all depletive impacts in time, location, and amount and so IDWR has chosen to focus on the IDS as calculated for every irrigation season. It stands to reason that all groundwater rights are not equally responsible for the IDS based upon relative priorities.

IDWR's transient ESPAM curtailment modeling should contain the information needed to apportion the mitigation responsibility by priority date and the timing of impact within a given irrigation season.

5.1 2025 Methodology

In the April 2025 Forecast Supply Order (IDWR, 2025c), IDWR estimated that the IDS would be 63,000 AF. They utilized the transient version of ESPAM 2.2 to select a curtailment date of August 28, 1955 (**Table 1**). The majority of irrigation covered by A&B's groundwater rights has a priority date of September 9, 1948, so the A&B proportionate share was calculated to be the relatively small volume of 164 AF (Baxter, 2025). IDWR failed to curtail wells that they should have in May, as required by the methodology when an IDS is identified. (IDWR, 2025e) When the IDS was estimated in July, IDWR recognized actual supply and demand conditions and that the May curtailment was not implemented. Partially because no May curtailment was implemented, the July IDS increased to 75,300 AF (**Table 1**). Mitigating this IDS within a three-month period pushed the curtailment date back to October 11, 1900. This predates all of the A&B priorities and so their proportionate share increased to 5,039 AF. Of the 12,300 AF IDS increase, A&B was

identified as being responsible for 4,875 AF or 40% of the increase. Using a transient ESPAM analysis, we calculated that curtailment of A&B groundwater rights would yield less than 14 AF of in-season reach gain benefit if initiated in August.

If IDWR had implemented the May curtailment, the July IDS would have been less, and the curtailment date could have been more junior. IDWR's lack of curtailment action contributes to a reduction in the availability of groundwater rights junior to 1955. **Figure 2** shows data IDWR provided as back up to their July curtailment date modeling. Annotations have been added to highlight the modeling of different priority dates (1955 versus 1900).

Table 1 - 2025 Methodology Steps, IDS, A&B Proportionate Share, and Curtailment Date

Date	April 16	July 10
Steps	1-3	5 & 6
In-Season Demand Shortfall (IDS)	63,000 AF	75,300 AF
A&B Share	164 AF[1]	5,039 AF
Curtailment Date	8/28/55	10/11/1900

Note: 1- Original calculated proportionate share updated via email (Baxter, 2025)

6. Alternative Calculation of Proportionate Shares

Steady-state modeling does not accurately calculate the impacts of in-season pumping or mitigation. It also oversimplifies calculation of long-term pumping because it assumes that all pumping has been at equilibrium forever and will continue unchanged forever.

An alternative approach to calculating proportionate share (including for A&B) could be devised to accurately estimate the in-season reach gain benefits of curtailment and mitigation actions, while holding junior groundwater pumpers responsible for their depletions, even if located far from the river.

IDWR has already recognized that transient modeling is more accurate for curtailment date identification and that it can be used for estimating the timing, location, and amount of long-term pumping. (Sukow, 2022) A transient model run could be used to estimate the in-season benefits of curtailment, recharge, conversions, and other mitigation activities with consideration of the priority dates of each water right. The actual amount of in-season reach gain benefit for a given priority date can be calculated. If that amount does not fully mitigate the IDS, then a transient or steady state model can be used to calculate the remaining priority date-based mitigation requirement that can only be achieved using direct delivery of storage water.

Using the transient ESPAM, Jennifer Sukow has calculated that the maximum reach gain benefit of curtailment of all groundwater pumping junior to October 1, 1900 is 97,700 AF (Sukow, 2022). Up to that amount of reach gain benefit can be met by any action within approved mitigation plans, including storage delivery. For any IDS identified more than that volume, a transient or steady-state model could be used to calculate the additional amount of mitigation that can only be met by direct delivery of storage water within the irrigation season.

In July 2022, IDWR calculated an IDS of 162,000 AF (IGWA, 2025d). If the transient ESPAM model predicts a maximum of 97,700 AF of curtailment or reduction in pumping benefit during that season, then those junior pumpers identified as contributing to the in-season increase in reach gains should be responsible for that amount of mitigation. Because the full IDS includes another 64,900 AF, that amount of mitigation responsibility could be identified with a transient or steady state model, and only able to be mitigated by delivery of storage water by groundwater rights junior to a specific date. In this case, the curtailment of groundwater pumping junior to November 27, 1984 was calculated to provide 64,647 AF, or nearly the remainder of the entire IDS.

This alternative approach to apportioning mitigation obligations could be recommended to the Director for approval and adoption.

7. References

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Sukow, Jennifer, 2025 (October 22). *Deposition of Jennifer Sukow,* Docket No. CM-DC-2010-001.

Figures

2023 SWC Methodology
Steps as defined by the Sixth Final Order Regarding Methodology for Determining Material Injury to Reasonable In-season Demand and Reasonable Carryover - July 19, 2023

Key
- Schedule
- Methodology Step
- Step Detail

by April 1

Step 1: SWC submits upcoming irrigated acres

by April 15

Step 2: USBR/USACE Joint Forecast for Heise Gage

- Calculate FS for each SWC entity = natural flow supply + storage allocations
- IDWR compares FS, RISD, & IDS
- Transient ESPAM run to determine curtailment date that meets DS in nrBF-Minidoka reach

May 1

Step 3: Jr GW users secure water to meet April DS

- DS reduced by reasonable carryover shortfall water secured in prior year.
- Water delivery for SWC at Time of Need

As soon as practical

Step 4: Director issues curtailment of junior GW users

- 1) w/o mitigation plans; 2) w/o water secured; 3) fail to comply w/ mitigation plans
- Presumes junior GW users are not already under previous years' curtailment(s)
- If actual SWC natural flow diversion or storage accrual exceeds predictions, Director will revise DS

Within 14 days of WD1 storage allocation

Step 5: Do SWC storage allocations fill?

- Yes: no reasonable carryover shortfall
- No: reasonable carryover provided to SWC
  - Reasonable carryover water made available to SWC (not to exceed storage).

Halfway through irrigation season ~July

Step 6: Recalculate RISD, FS, and the estimated Time of Need

- Utilize YTD actual project efficiency, BD, and CWN

Shortly before Time of Need ~August

Step 7: Recalculate RISD, FS, and the estimated Time of Need

- Forecasted natural supply based on analogous years w/ similar BF to Milner reach gains.

Time of Need

Step 8: Junior GW useres deliver DS

Nov 30

Step 9: Order Establishing Reasonable Carryover

- Dept. determines total actual volumetric demand and total actual CWN
- Analysis of reasonable carryover shortfall
- Selection of future BLY
- Refinement and improvement of method

Dec 14

Jr GW Users establish storage/ mitigation

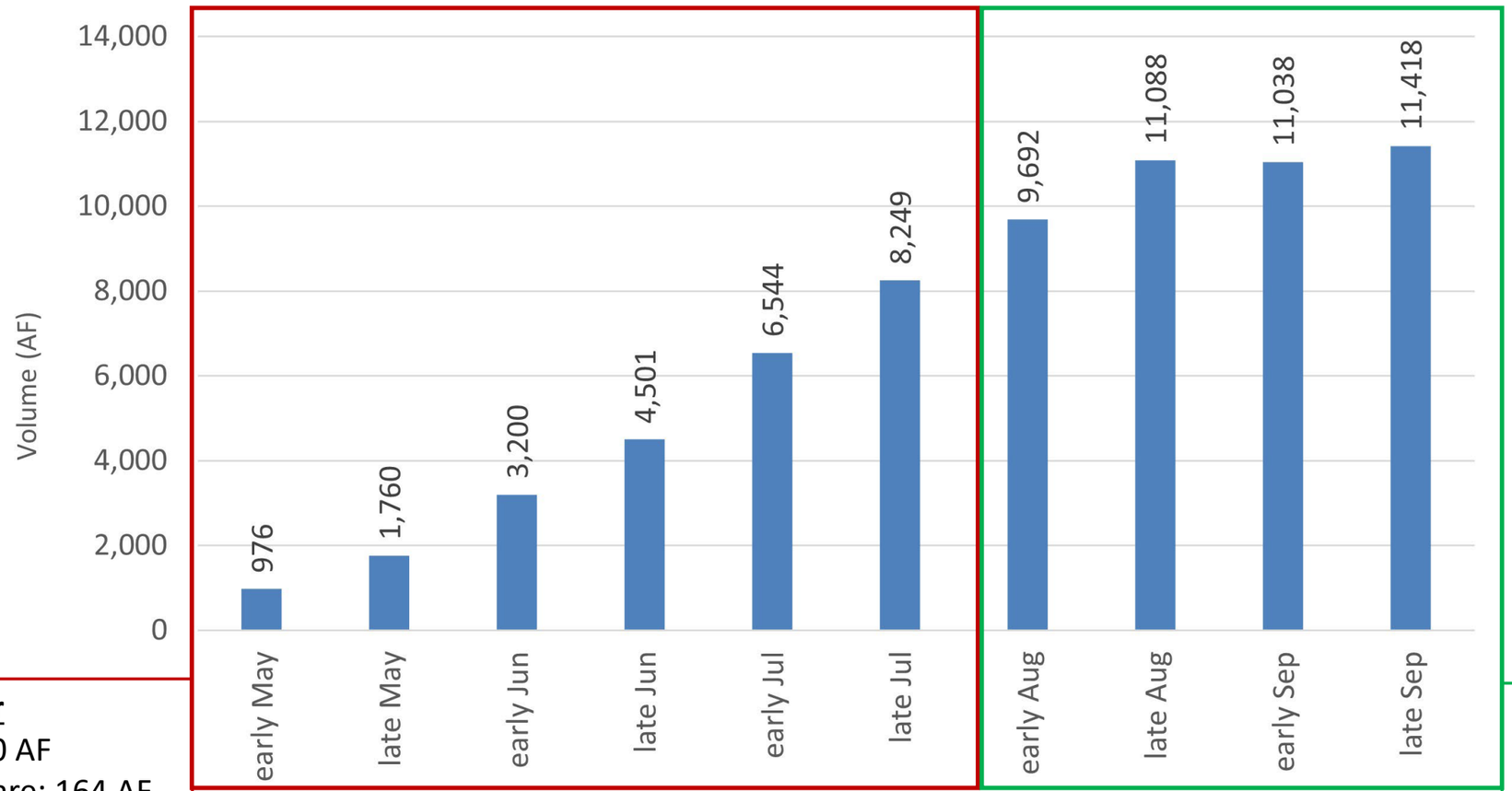
- Director issues curtailment if mitigation insufficient

Definitions:
- BD - baseline year demand
- BLY - baseline year
- CWN - crop water need
- Day of Allocation - time in the irrigation season when the Water District 01 watermaster is able to issue allocations to storage space holders after the reservoir system has achieved its maximum physical fill, maximum water right accrual, and any excess spill past Milner Dam has ceased.
- IDS - in-season demand shortfall
- FS - forecasted supply, the combination of the forecast of natural flow supply and the storage allocation
- Natural Flow Supply - cumulative flow past the Heise gage from April-July (90-21 avg 3.284 MAF)
- Reasonable Carryover - the difference between a baseline year demand ("BD") and projected typical dry year supply
- Reasonable Carryover Shortfall = Actual Carryover - Reasonable Carryover
- RISD - reasonable in-season demand
- Time of Need - predicted day in which the remaining storage allocation will be equal to reasonable carryover. The Time of Need will not be earlier than the Day of Allocation.

DATE: 10/30/25

AUTHOR: DC

Figure 1
SWC Methodology Steps



April Steps 1-3 Order
Predicted IDS: 63,000 AF
SS Predicted A&B Share: 164 AF
Curtailment Date: 8/28/1955
*Curtailment never implemented

Modeled increase in ESPA discharge to near Blackfoot to Minidoka reach resulting from curtailment of ground water junior to August 28, 1955, May-July, and junior to October 11, 1900, August-September

July Steps 5-6 Order
Predicted IDS: 75,300 AF
SS Predicted A&B Share: 5,039 AF
Curtailment Date: 10/11/1900

Adapted from IDWR background information (https://idwr.idaho.gov/wp-content/uploads/sites/2/legal/CM-DC-2010-001/July-2025.zip) provided with the Director's July 10, 2025 Order Revising April 2025 Forecast Supply and Continuing May 16, 2025 Curtailment Order (Methodology Steps 5 & 6)

DATE: 10/2/25

AUTHOR: DC

Figure 2
IDWR 2025 Methodology Steps
Transient ESPAM Curtailment Modeling

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A SPHERUS ENVIRONMENTAL COMPANY

Appendix A: Curriculum Vitae for David Colvin

DAVE COLVIN, PG

Rocky Mountain Regional Director | Principal Hydrogeologist | Senior Project Manager

EDUCATION

M.S. Environmental Science and Engineering, Colorado School of Mines, 2002

B.S. Geology, Syracuse University, 1996

PROFESSIONAL REGISTRATION

Professional Geoscientist
AZ RG#68926
ID #PGL-1453
WY #PG-3602

Project Management Professional (PMP) #1749472 (inactive)

PROFESSIONAL ACTIVITIES

Colorado Water Congress

Colorado Groundwater Association

National Groundwater Association

AWRA Colorado
2017/2018 Past President

Water Education Colorado
2012 Water Leaders Program

Dave is a Principal Hydrogeologist and Senior Project Manager with over 25 years of experience in groundwater hydrology, water resources, and environmental sciences. He serves as the Rocky Mountain Regional Director responsible for managing a diverse group of water resource professionals. Dave supervises teams of diverse subject matter experts and provides technical leadership to solve today's water resource challenges. His technical expertise subject areas include groundwater supply and storage development, groundwater management, groundwater governance/administration, surface water/groundwater interaction, horizontal wells, riverbank filtration (RBF), soil aquifer treatment (SAT), managed aquifer recharge (MAR), aquifer storage and recovery (ASR), aquifer characterization, groundwater modeling, and subsidence caused by groundwater pumping.

FEATURED PROGRAM & PROJECT EXPERIENCE

Salt River Project – Gila River Basin Adjudication, Arizona Superior Court Case W1-103, San Pedro Basin, AZ (2018 – ongoing)

Hydrogeologist providing groundwater analysis and modeling supporting adjudication of water rights in the San Pedro Basin. Tasks include review of groundwater model development, calibration and uncertainty analysis, and trial/litigation support. Provides protection of surface water flows, riparian habitat, and water rights from negative impacts due to groundwater pumping.

Surface Water Coalition, Idaho (2019-ongoing)

Lead Hydrogeologist and Project Manager providing litigation support related to water management of the Eastern Snake Plain Aquifer. Provides protection of surface water flows and senior surface water rights from negative impacts of junior groundwater pumping. Serves on the Eastern Snake Plain Hydrologic Modeling Committee supporting MODFLOW modeling activities related to complex surface water/groundwater management and water rights administration. Also serves as the SWC representative on technical working groups guiding the implementation and adaptation of a settlement agreement between the SWC and Idaho Ground Water Appropriators including monitoring/evaluation of hydrology, pumping reductions, consumptive use and planning for managed aquifer recharge. Provides technical input to the development of a Groundwater Management Area adaptive management plan.

City of Aurora – Horizontal Well Project; Weld County, CO (2019 – ongoing)
Project Manager for feasibility evaluation and planning of two radial collector wells for the City's Prairie Waters System. The project targets increasing system yield while maximizing riverbank filtration water quality improvements. Investigation included hydrogeophysical surveys, exploratory drilling, aquifer testing, and groundwater modeling. Results included siting and design of horizontal wells that maintain the existing system water quality while providing adaptable system operations that can increase yield during drought demands. Currently the Lead Hydrogeologist providing design, construction phase, testing, and permitting services.

Salt River Project – Gila River Basin Adjudication, Arizona Superior Court Case W1-106 Verde River Watershed, AZ (2019 – ongoing)
Project manager and hydrogeologist providing groundwater analysis of Verde River watershed water management impacts to the Verde River. Support includes review and response to subflow administrative procedures.

Salt River Project – Cooperative Agreement No. 1, Big Chino Sub-Basin, AZ (2016 – ongoing)
Project manager and hydrogeologist providing groundwater analysis characterizing water management impacts on flows of the Upper Verde River Springs. Support includes specialized technical consulting, review and oversight of modeling and monitoring programs implemented by a multi stakeholder group seeking science-based resolution of water rights conflict.

City of Northglenn – ASR Feasibility Evaluation and Pilot Testing (2020 – ongoing)
Lead hydrogeologist and Project Manager for feasibility investigation and pilot test system design services. Support includes ASR feasibility data analysis, water quality evaluation, DWR and EPA UIC permitting, pilot system design and test planning. The project will provide pilot storage of the City's fully consumable water rights, providing more surface storage space for other supplies. If recovered water quality is compatible, the pilot system will be converted into permanent infrastructure as the first phase of a larger ASR system.

Riverence Holdings LLC – Snake River Spring Supply Support (2022-ongoing)
Project Manager and lead hydrogeologist supporting multiple fish hatcheries throughout Idaho's Magic Valley. Provides hydrogeologic planning of spring fed aquaculture focusing on upgradient aquifer pumping and recharge impacts on water rights, water quality, and water supply reliability.

Dominion Water and Sanitation District – Groundwater Support; Douglas County, CO (2015-ongoing)
Lead Hydrogeologist providing Denver Basin and South Platte alluvial aquifer groundwater resources planning services including water rights evaluation, water quality assessment, well field yield estimation and project planning. Provides hydrogeologic and contractor management support during Denver Basin well site design, construction, testing, aquifer characterization, and sampling. Additional technical support includes regional groundwater management planning, documentation for County hearings, interactions with local water agencies, and groundwater transaction due diligence.

City of Aurora – Box Elder Basin Aquifer Storage and Recovery (ASR) Feasibility Investigation and Pilot Testing (2018 – Ongoing)

Project Manager and lead hydrogeologist investigating the feasibility of recharging and storing water in the Box Elder alluvial aquifer at the Aurora Center for Renewable Energy (ACRE). Tasks included hydrogeophysical surveys, exploratory drilling/test pits, and infiltration testing. The project identified recharge as a viable option for innovative underground water storage opportunities. Services include recharge source water characterization, water rights and permitting planning, water quality evaluation, groundwater modeling, and pilot system design.

Town of Erie – Water Supply Planning Support (2018 – ongoing)

Lead hydrogeologist and Project Manager providing groundwater support related to water supply planning. Services include aquifer characterization, water quality studies, ASR feasibility analysis, and water rights. Prepared Colorado Water Conservation Board and Division of Local Affairs grant applications to obtain project funding. Provided due diligence review and retrofit design of an existing horizontal well currently being incorporated as expanded supply. Provided feasibility investigation, alternatives analysis, water rights, design, construction procurement/oversight, and testing for a 1,000 foot long horizontal directionally drilled riverbank filtration well.

Town of Castle Rock – Groundwater Support; Douglas County, CO (2015-ongoing)

Project Manager providing comprehensive groundwater support. Projects have included:

- Denver Basin Well Drilling, Testing, and Aquifer Storage and Recovery (ASR) – Support includes Denver Basin ASR planning/permitting, bidding services, contractor management, construction oversight, well/pump design, aquifer testing, and groundwater regulatory support.
- Alluvial Well Field Expansion and Rehabilitation – Project Manager for two projects aimed at improving yields in well fields affected by biofouling and performance issues. Oversaw construction and testing of six horizontal directional drilled (HDD) wells installed to increase yield, performance, and sustainability.

City of Aurora and Town of Castle Rock – Lost Creek Underground Storage Pilot Project; Lost Creek Designated Basin, CO (2017-2018)

Project Manager for aquifer characterization and evaluation of recharge potential for underground water storage pilot project. Obtained grant funding and facilitated multiple stakeholder project planning and implementation. The project identified important field investigation methods and results for storage related aquifer characteristics previously overlooked in desktop studies.

City of Aurora – Prairie Waters North Campus Master Plan; Adams and Weld Counties, CO (2017-2019)

Lead hydrogeologist providing master planning services for approximately 20 MGD expansion of the Prairie Waters Project – North Campus over the next 20 years. Facility expansion included riverbank filtration well field, pipelines, and storage reservoirs. Led facilities operational planning, supported water resource planning, gap analysis, and capital improvements planning.

Denver Water – Aquifer Storage and Recovery (ASR) Pilot Project, City and County of Denver, CO (2016-current)

Groundwater technical support and project management for ASR feasibility investigation. Provided Denver Basin aquifer characterization including exploratory borehole drilling, hydrogeophysical investigation (Nuclear

Magnetic Resonance and conventional methods), and 3-D geologic modeling. Current services include an advisory role for installation of a multi-aquifer Westbay Denver Basin monitoring well.

City of Greeley – ASR Feasibility Evaluation (2019-2021)

Senior Technical Advisor for a project evaluating the feasibility of new and existing ASR projects in multiple bedrock aquifers. Includes evaluation of water quality, aquifer characteristics, well construction/testing, project planning, and regulatory support, including negotiating an EPA UIC Rule Authorization in less than two months.

Project 7 Water Authority – Riverbank Filtration Feasibility Study, Montrose CO (2019-2020)

Project Manager for RBF feasibility study in the Uncompahgre River alluvial aquifer. The study included geophysical surveys, borehole drilling, pumping test analyses, water quality investigation, and groundwater modeling. The project objectives where to characterize vertical and horizontal well field alternatives for maximum yield while providing water quality pre-treatment improvements.

Colorado Water Conservation Board - HB16-1256 South Platte Storage Study; CO (2018)

Lead hydrogeologist providing evaluation of underground water storage options for the Lower South Platte alluvial aquifer. Provided alluvial storage site evaluation, conceptual design, cost estimates, and comparison to surface storage options.

Aurora Prairie Waters Project – North Campus; Weld County, CO (2008)

Supported City of Aurora's Prairie Waters project near the South Platte River, CO. Acted as team liaison for multi-consultant, multi-disciplinary project team. Field investigation and construction tasks included field oversight of drilling, well construction, pump/motor installation, aquifer testing, system start up testing, well field yield optimization, and geotechnical investigations. Support also included the design, construction, and operation of alluvial recharge and riverbank filtration pilot test facilities. Developed and implemented pilot test procedures, including tracer studies to assess flow paths, travel times, and stream/aquifer interaction. MODFLOW modeling support for the Prairie Waters Project included development of regional groundwater model for Colorado Division 1 case 2006CW104. Performed parallel processing model calibration using UCODE. Prepared expert and rebuttal reports, exhibits and materials used in settlement negotiations.

Eagle River Water and Sanitation District and Upper Eagle Regional Water Authority – Groundwater Support; Eagle County, CO (2010-ongoing)

Project Manager and lead Hydrogeologist for alluvial well field groundwater support. Projects have included:

- GWUDI Evaluation – Regulatory support, groundwater modeling and operational monitoring of alluvial well fields in support of CDPHE GWUDI evaluation
- Lake Creek Well Field Planning – Services included groundwater modeling, well drilling, aquifer testing, source water quality characterization, regulatory support for Eagle County 1041, CDPHE, and DWR permitting
- Well field maintenance and rehabilitation support – well rehabilitation in response to well issues including pump issues, casing holes, and water quality contamination

City of Steamboat Springs – Infiltration Gallery System Expansion; Routt County, CO (2018-ongoing)
Project Manager for feasibility evaluation of alluvial groundwater supply expansion alternatives. Expansion options being considered include vertical and horizontal well options. Tasks included exploratory drilling, aquifer testing, groundwater modeling and conceptual expansion system design. Modeling was performed to optimize well siting to maximize yield, maintain water quality, and to minimize pipeline costs.

Texas Water Development Board – Statewide Subsidence Risk Evaluation (2018)
Technical advisor for risk evaluation of subsidence due to groundwater pumping in all Texas major and minor aquifers. The project used well lithology data with model predicted water level declines to create a statewide risk map and prioritized table. Recommended follow up actions for identified areas of risk. The project provided important subsidence risk information for statewide planning and local user considerations.

Village at Taos Ski Valley – Spring Water Supply Expansion; Taos County, NM (2018-ongoing)
Senior Technical Advisor providing groundwater evaluation into the management, protection and expansion of spring water supplies.

City of Phoenix – ASR Tracer Test Design; Maricopa County, AZ (2017)
Provided MT3D groundwater modeling to assist in aquifer characterization, travel time estimates, and the design of an ASR tracer injection test for feasibility. The testing was in support of the Northeast Phoenix Reclaimed Water Recharge and Recovery Study. The system is intended to create a potable water resource through Indirect Potable Reuse (IPR), provide additional non-potable supplies, and to mitigate land subsidence issues.

Groundwater Relief – Kutupalong Refugee Camp Groundwater Supplies; Cox's Bazaar, Bangladesh (2019)
Volunteer hydrogeologist providing well testing and water quality support to field geologists. The project is developing emergency water supplies for nearly 1 million Rohingya refugees who have fled religious persecution in Myanamar.

City of San Angelo – Riverbank Filtration Feasibility Evaluation; Tom Green County, TX (2018)
Provided feasibility evaluation, preliminary siting, design and costs for a potential riverbank filtration (RBF) well field near the Concho River. This information was used to evaluate RBF as an alternative for expansion of the City's water supply.

Tarrant Regional Water District – Cedar Creek Wetlands; Kaufman County, TX (2013)
Project manager and lead Hydrogeologist for riverbank filtration feasibility investigation along the Trinity River. Project tasks include geotechnical, hydrogeologic, and surface geophysical surveys, groundwater modeling, and design, construction and testing of riverbank filtration pilot test sites.

Rangen, Inc. – Water Rights Support; Gooding County, ID (2010-2016)
Expert witness providing testimony and trial support for a water rights hearing (IDWR Case No. CM-DC-2011-004) involving springs and complex surface water/groundwater interaction of the Eastern Snake Plain Aquifer. Represented a fish hatchery reliant on spring flow that was being impacted by groundwater pumping. Served

on the Eastern Snake Plain Hydrologic Modeling Committee supporting MODFLOW modeling activities in the Eastern Snake Plain of Idaho.

Overturf, McGath, and Hull, P.C. – Stewart No. 1 Ditch Company; Pitkin County, CO (2017)

Expert witness support including expert and rebuttal reports, depositions, and settlement negotiations for a civil case involving alleged roadway water damage from ditch operations.

Fredrickson Law Offices – In-Play Golf; Weld County, CO (2017)

Expert witness providing expert and rebuttal reports, depositions, and trial support for a civil case involving alleged water damages from golf course irrigation.

Boulder Valley School District – Douglass Elementary Non-Tributary Determination; Boulder County, CO (2018)

Project Manager for a non-tributary well application in the Boulder Complex Area of the Denver Basin Aquifers. Provided aquifer characterization and regulatory support leading to a non-tributary determination and permit approval.

Boulder County Parks and Recreation – Kenosha Ponds Groundwater Evaluation; Boulder County, CO (2016)

Expert witness providing hydrogeology water rights support for a Boulder County Parks and Recreation augmentation pond. Technical support included expert report writing and trial exhibit preparation for the hydrologic characterization of a recharge pond between two streams where the pond bottom was below the water table.

City of Burkburnett, Texas – Alluvial Well Field Evaluation; Wichita County, TX (2016)

Project Manager and groundwater lead for evaluation of underperforming well fields near the Red River. Wells ranged from 3-50 years old with a variety of issues causing low yields. Project tasks included well operational data integration, analysis, and development of alternatives to improve well yields.

Penrose Water District – Arkansas River Alluvial Well Field; Fremont County, CO (2016)

Groundwater technical management for planning, design, and construction of an alluvial well field for diversion of Arkansas River water rights. Tasks included aquifer characterization, water rights support, groundwater modeling, contractor management, well drilling, construction and testing.

Salt River Project – New River Agua Fria Underground Storage Project; Phoenix, AZ (2013)

Project involved optimization and in-channel expansion design for an existing recharge facility. Support included evaluation of operational data and adaptation of an existing MODFLOW model for operational optimization and feasibility testing.

City of San Marcos, Texas – Well Performance Investigation and Replacement Plan; Hays County, TX (2015)

Project Manager and groundwater lead for investigation into reduced yield problems for a well in the Edwards Aquifer. Well construction and operational data were analyzed to test viability of rehabilitation or equipment replacement. Provided ultimate solution of siting a replacement well in a more productive aquifer area.

Winkler Services – Well Field Siting and Design; Wink County, Texas (2017)
Technical advisor for well field siting in the Pecos Valley Alluvium and Upper Dockum Aquifer. Support included project planning, aquifer characterization, and geologic modeling.

Oakwood Homes – Neighborhood Scale Dewatering Systems and Water Rights; CO (2016)
Project Manager and groundwater lead for planning, design, and permitting of neighborhood scale dewatering systems. Managed project work including groundwater modeling, system design, data analysis, contractor coordination, DWR and CDPHE permitting, and water rights evaluations.

Donala Water and Sanitation District – Reuse Evaluation; El Paso County, CO (2015)
Preliminary feasibility investigation into riverbank filtration alternatives for indirect potable reuse. Evaluated hydrogeologic conditions for permitting, cost, and performance feasibility considerations.

City of Scottsbluff – Well Field Uranium Investigation and Monitoring; Scotts Bluff County, NE (2016)
Technical advisor for a project aimed at reducing uranium concentrations in an alluvial groundwater supply. Provided aquifer characterization and uranium monitoring data analysis.

Confidential Client; Groundwater Supply and Subsidence Analysis; AZ (2010-2011)
Development of regional MODFLOW models used to estimate well field yield and land subsidence due to groundwater pumping in Arizona. Work included statewide study of subsidence-related empirical relationships and prediction methods, aquifer characterization, 3-D geologic and groundwater flow modeling, automated model calibration and predictive uncertainty analysis using PEST, and numerical MODFLOW subsidence modeling.

Confidential Client - Oilfield Produced Water Infiltration Modeling, San Louis Obispo County, CA(2008-2010)
Lead Hydrogeologist for the development of an engineering design MODFLOW-SURFACT model with the goal of infiltrating 13 acre-feet of water per day into the subsurface of a 200 acre alluvial site. Performed model calibration using PEST software in a parallel processing environment utilized 50 geologic conceptualizations for stochastic predictions of system performance.

Colorado Department of Public Health and Environment – Summitville Superfund Site; Summitville, CO (2008)
Provided support for abandoned mine hydrology and geochemistry, field sampling, monitoring and mine facility inspection, and database support. The project goal was to monitor and minimize mine waste impacts on the Alamosa River.

Various Mines – Groundwater Modeling and Analysis; Basin and Range Province; NV (2008-2010)
Provided MODFLOW modeling and water balance studies in support of mine water management and regulatory reporting. Analyses included point flow surface water modeling to evaluate stream gain/loss; detailed water balance quantifications; well inventories and pumping estimates; groundwater underflow assessments.

Miron Construction - Laramie-Fox Hills Well; Hudson, Colorado (2008)
Assisted in design and field engineering for the construction and testing of a 960-foot deep, large capacity, municipal/industrial, Laramie-Fox Hills water supply well at the Hudson Correctional Facility.

Perini/US Army Corps of Engineers – Groundwater System Design and Optimization; Baghdad, Iraq (2007)
MODFLOW modeling support for the U.S. Agency for International Development in Baghdad, Iraq. Developed a numerical groundwater model for the optimization of water supply well locations and pumping operations. Main objectives were to maximize well yields while minimizing differential land subsidence across newly constructed East End Barracks.

Colorado Haiti Project (Volunteer Position); Petit Trou de Nippes, Haiti (2013)
Technical advisor for groundwater development, management, and protection in a rural, developing area of Haiti.

Water For People Groundwater Management Project (Volunteer Position); San Pedro Sula, Honduras (2008)
Technical advisor for development of a scope of work for a participatory groundwater management plan aimed at restoring and protecting an over utilized alluvial aquifer in a developing region.

ASARCO - California Gulch Superfund Site; Leadville, Colorado (2000-2005)
Conducted environmental sampling for the Kids First Program to identify and address sources of lead exposure for children in residential areas. Provided statistical analysis and reporting for evaluation of program effectiveness. Designed sampling plan and performed soil sampling and analysis to delineate extent of metals contamination at the Arkansas Valley Smelter Operable Unit. Provided technical support for hydrogeological and geochemical characterization of the Apache Tailings site; and implemented the surface water and groundwater performance monitoring program to assess the effectiveness of the remedial action. Conducted synoptic surface water flow measurement and water quality sampling.

Asarco - Omaha Lead Site, Omaha, Nebraska (2003)
Assisted in the development of program to identify sources of lead exposure for children in residential areas.

Mine Waste and Tailings Pile Sites, Various Locations (2000-2004)
Performed hydrologic evaluation of remedial alternatives for repository evaluation using Hydrologic Evaluation of Landfill Performance (HELP) model.

Industrial Groundwater Contamination Sites, Various Locations (2000-2005)
Performed groundwater modeling to assist design of groundwater extraction remediation wells using MODFLOW modeling code.

EPA - Vasquez Boulevard and Interstate 70 Superfund Site, Denver, Colorado (2002-2003)
Designed, directed, and performed environmental sampling for project identifying sources of lead and arsenic exposure for children in residential areas.

Hertz Rent-a-Car - Former Underground Storage Tank, Colorado Springs, Colorado (2000-2002)

Project Hydrogeologist and technical lead for the characterization, monitoring, and remediation of hydrocarbon contaminated soils and groundwater at a former underground storage tank site. Performed quarterly monitoring and reporting; developed and implemented an in-situ chemical oxidation remediation program.

R&R Super Service - Former Underground Storage Tank, Arvada, Colorado (2000-2002)

Project Manager and technical lead for the characterization and remediation of soils and groundwater contaminated by petroleum hydrocarbons at a former service station. Responsibilities included client and regulatory interaction; site characterization activities to delineate the nature and extent of contamination in soil and groundwater; modeling of vapor and mass extraction rates using VENT2D; respirometry testing to quantify biodegradation rates in vadose zone soils; startup testing; operating, maintaining, and monitoring of an air sparge/soil vapor extraction system.

City and County of Denver - Former Stapleton International Airport Remediation; Denver, Colorado (1998-2000)

Served as a hydrogeologist conducting field investigations to define nature and extent of hydrocarbon and solvent contamination, contributing to remediation. Field tasks included lithologic logging with a hollow-stem auger and direct-push drilling rigs; soil, groundwater, and soil vapor testing, remediation system construction/operation/maintenance, data evaluation and reporting.

National Park Service – Mt. Rainier National Park, Longmire, Washington (1996-1997)

Biologist and crew leader for aquatic ecosystem studies in Mt. Rainier National Park. Conducted field surveys and sub-alpine wetland monitoring. Performed aquatic field sampling, wetland classification, biological species identification, and aquatic laboratory analyses.

PRESENTATIONS & PUBLICATIONS

Colvin, Dave and Chipman, Jeff, 2025. "Squeezing Water Storage into an Urban Landscape – Northglenn ASR Pilot Project." National Ground Water Association – Managed Aquifer Recharge – Unleashing Resiliency, Protecting Groundwater Quality Conference. Denver, CO

Colvin, Dave, 2025. "Challenges of Advancing the Best Available Science for Groundwater – Surface Water Conflict Resolution." Colorado State University - The Past and Future of Groundwater in the West Symposium. Fort Collins, CO.

Colvin, Dave, 2024. "Aurora Water's Radial Collector Well Providing RBF Solutions." American Groundwater Trust Colorado Groundwater Conference. Golden, CO.

Colvin, Dave, 2022. "Evaluation of ASR for Water Supply Resiliency – Determining ASR Feasibility for the City of Northglenn." RMSAWWA/RMWEA Rocky Mountain Water Conference. Keystone, CO.

Colvin, Dave, 2021. "Managed Aquifer Recharge – Overcoming Challenges to Realizing the Benefits." South Dakota Water and Wastewater Association Annual Conference. Rapid City, SD.

Colvin, Dave, 2020. "Moving from Conflict to Collaboration: The Role of MAR in Mitigating Groundwater Pumping Impacts to Surface Water" 17th Biennial Symposium on Managed Aquifer Recharge. Tempe, AZ.

Colvin, Dave, 2020. "Drawing the Line in the Sand between Underground Water Storage and Augmentation Recharge." American Water Resources Association – Colorado Chapter & Colorado Groundwater Association Joint Annual Symposium. Denver, CO

Colvin, Dave, 2019. "Demonstrating Dominion and Control – Moving from Black Magic to Understandable Science." American Groundwater Trust Annual Colorado Groundwater Conference. Denver, CO.

Colvin, Dave, 2019. "Now We Know What We Don't Know: An ASR Regulatory Update". Colorado Groundwater Association September Meeting. Denver, CO.

Colvin, Dave, 2019. "The Evolution of Colorado Underground Water Storage Administration". American Water Resource Association / Colorado Groundwater Association 2019 Joint Annual Symposium. Denver, CO.

Colvin, Dave, 2018. "Technical Considerations for ASR Planning in Colorado's Front Range". American Groundwater Trust Annual Colorado Groundwater Conference. Denver, CO.

Colvin, Dave, 2018. "ASR Panel Discussion: The Revolution of Subsurface Water Storage". American Water Works Association ACE18 Conference. Las Vegas, Nevada.

Colvin, Dave, and Keester, Michael, 2017. "Applying Web-Based Information Management Tools to Increase Efficiency and Expand Opportunities for Groundwater Conservation Districts". Texas Association of Groundwater Districts Groundwater Summit. San Marcos, TX.

Colvin, Dave, and Pence, Rachel, 2017. "Using NMR and Hydrogeophysics to Evaluate ASR Feasibility in the Denver Basin". 2017 NGWA Conference on Hydrogeophysics and Deep Groundwater, Denver, CO. (https://ngwa.confex.com/ngwa/hdg2017/webprogram/Paper11286.html)

Colvin, Dave, and Justus, Heather, 2016. "Benefits of Directionally Drilled Alluvial Well Lateral Arms in the Town of Castle Rock". 2016 RMSAWWA/RMWEA Joint Annual Conference, Keystone, CO.

Colvin, Dave, and Furnans, Jordan, 2016. "Can/Should Texas learn from Colorado? A primer on groundwater-surface water interactions and regulation methods". 2016 Texas Water Conservation Association Spring meeting, Woodlands, TX. (http://www.slideshare.net/TWCA/twca-annual-convention-canshould-texas-learn-from-colorado-jordan-furnans-and-dave-colvin)

Colvin, Dave, 2015. "Methods for Confident Model Predictions and Integration". Colorado Water Congress 2015 Annual Conference; DARCA Workshop Series, "The Next Step: Modeling Colorado's Water Plan", Denver, CO.

Colvin, Dave, 2014. "Groundwater Challenges and Solutions for Colorado Watersheds." 2014 Colorado Sustaining Watersheds Conference, Avon, CO.

Colvin, Dave and Loopesko, William, 2014. "Advantages of Alluvial Aquifer Storage Alternatives for Managing Hydrologic Extremes and Future Water Supply Risks." 2014 Upper Colorado River Basin Water Forum, Grand Junction, CO.

Colvin, Dave, 2014. "Groundwater Solutions for Indirect Potable Reuse." 2014 Rocky Mountain Water Reuse Workshop, Golden, CO.

Colvin, Dave, Bauer, Jacob, and Noack, Tim, 2013. "Effective Tools and Project Planning for Riverbank Filtration Feasibility Investigation" Poster session at 2014 Texas Water, Dallas, TX. (http://s3.amazonaws.com/eventmobi-assets/events/txwater14/documents/person/1366969/201404_RBF_Feasibility_Poster_Final.pdf)

Colvin, Dave, and Bauer, Jacob, 2013. "Cost Effective Feasibility Investigation of Natural Subsurface Reuse Treatment Systems." Poster session at the 2013 National Water Reuse Symposium, Denver, CO.

Colvin, Dave, Bauer, Jacob, and Neupauer, Roseanna, 2013. "Riverbank Filtration Feasibility Modeling." MODFLOW and More 2013. Integrated Groundwater Modeling Center. Golden, CO.

Colvin, David C., 2012. "Comparison of One and Three Dimensional MODFLOW Subsidence Results." 2012 Groundwater Summit, National Groundwater Association, Westerville, OH.

Colvin, David C., 2012. "One Dimensional MODFLOW Modeling of Land Subsidence Due to Fluid withdrawal." GSA 2012 Cordilleran Section Meeting, Vol. 44, No. 3. Geological Society of America. Boulder, CO.

EXPERT TESTIMONY

Dave has provided expert testimony in trial or depositions in the following cases:

Salt River Project; Superior Court of the State of Arizona, Maricopa County, Gila River Adjudication, Contested Case No. W1-106, Subflow Zone Delineation Technical Report for the Remainder of the Verde River Watershed, August 2024.

Idaho Surface Water Coalition; Idaho Department of Water Resources Snake River Basin Moratorium, Administrative Hearing Regarding on the Consolidated Big Wood and Snake River Moratorium Matter, October 2023.

Idaho Surface Water Coalition; Idaho Department of Water Resources Docket No. CM-DC-2010-001, Hearing Regarding the Fifth Methodology Order, June 2023.

Idaho Surface Water Coalition; Idaho Department of Water Resources Docket No. AA-GWMA-2016-001, Order Designating the Eastern Snake Plain Aquifer Groundwater Management Area, February 2020.

Stewart No. 1 Ditch Company; Pitkin County Case No: 2014CV30084, Pitkin County Board of County Commissioners v. Brothers, et. al., September, 2015.

In-Play Golf, Inc; Weld County Case 12CV727, Helen Hawkins et. al. v. Vista Ridge Development Corporation et. al., August, 2015.

Rangen, Inc.; Idaho Department of Water Resources In the Matter of Application for Idaho Water Rights Permit No., 36-17011, February, 2015.

Rangen, Inc.; Idaho Department of Water Resources Case No. CM-DC-2011-004, Distribution of Water To Water Right Nos. 36-02551 and 36-07694, May, 2013.

EXPERT REPORTS

Dave has performed groundwater analysis, aided in settlement negotiations, and authored or contributed to reports in the following cases.

Salt River Project; Superior Court of the State of Arizona, Maricopa County, Gila River Adjudication, Contested Case No. W1-106, Subflow Zone Delineation Technical Report for the Remainder of the Verde River Watershed, August 2024.

Idaho Surface Water Coalition; Idaho Department of Water Resources Snake River Basin Moratorium, Administrative Hearing Regarding on the Consolidated Big Wood and Snake River Moratorium Matter, October 2023

Idaho Surface Water Coalition; Idaho Department of Water Resources Docket No. CM-DC-2010-001, Hearing Regarding the Fifth Methodology Order, June 2023

Idaho Surface Water Coalition; Idaho Department of Water Resources Docket No. AA-GWMA-2016-001, Order Designating the Eastern Snake Plain Aquifer Groundwater Management Area, February 2020

Town of Erie; CO Division 1 Case Nos. 2019CW3063 and 2019CW3064, Application for Underground Water Rights and Plan for Augmentation, 2020.

Salt River Project; AZ Big Chino Cooperative Agreement #1, Evaluation of Big Chino Water Ranch impacts on Upper Verde Springs discharge, 2016 - ongoing.

Salt River Project; AZ Gila River Adjudication Contested Case No. W1-103, Groundwater adjudication and subflow depletion evaluation, 2017 – ongoing.

In-Play Golf, Inc; Weld County Case 12CV727, Helen Hawkins et. al. v. Vista Ridge Development Corporation et. al., August, 2015.

Stewart No. 1 Ditch Company; Pitkin County Case No: 2014CV30084, Pitkin County Board of County Commissioners v. Brothers, et. al., September, 2015.

Rangen, Inc.; In the Matter of Application for Idaho Water Rights Permit No. 36-17011, February, 2015.

Rangen, Inc.; Idaho Department of Water Resources Case No. CM-DC-2011-004, Distribution of Water To Water Right Nos. 36-02551 and 36-07694, May, 2013.

Boulder County Parks and Open Space; CO Division 1 Case No. 2010CW320, Change of Use and Plan for Augmentation for Kenosha Ponds Open Space, 2013.

City of Aurora; CO Division 1 Case No. 2006CW104, Aurora's Prairie Waters Project, 2007.