BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF THE PROPOSED EXPANSION OF THE EASTERN SNAKE PLAIN AQUIFER AREA OF COMMON GROUND WATER SUPPLY TO INCLUDE THE LITTLE LOST RIVER TRIBUTARY BASIN	**ORDER EXPANDING THE EASTERN SNAKE PLAIN AQUIFER AREA OF COMMON GROUND WATER SUPPLY TO INCLUDE THE LITTLE LOST RIVER TRIBUTARY BASIN**

BACKGROUND

In 2024, the Idaho Legislature passed, and the Governor signed into law, Idaho Code § 42-233c, which authorizes the Director ("Director") of the Idaho Department of Water Resources to expand the Eastern Snake Plain Aquifer ("ESPA") Area of Common Ground Water Supply ("ACGWS") to "include tributary basins that affect the [ESPA]." I.C. § 42-233c(2). As described below, the Director concludes the ESPA ACGWS should be expanded to include the entirety of the Little Lost River tributary basin because it is connected to and affects the ESPA.

FINDINGS OF FACT

1. The hydrologic connectivity of the ESPA and its tributary basins has been extensively studied and is well documented. Most water available to the Snake River Plain originates as surface water inflow or ground water underflow from tributary basins. *Amended Snake River Basin Moratorium Order* (July 16, 2024) at 9. Streamflow originating in tributary basins recharges the ESPA through a combination of infiltration of water from streams with losing reaches and incidental recharge from the diversion of surface water onto the Eastern Snake River Plain. *Id*. Consumptive use in the tributary basins reduces the water supply needed by senior surface water users reliant on the Snake River and springs emerging from the ESPA. *Id*.

2. The ESPA responds quickly and over broad areas to changes in inflow and outflow, including recharge from irrigation, stream and canal leakage, tributary-basin underflow, and ground water pumping.[1] Ground water moves from areas of higher hydraulic head to areas of lower hydraulic head along a hydraulic gradient, and larger gradients generally produce greater ground water flow.[2] Variations in recharge, pumping, or aquifer storage modify hydraulic heads and thereby can alter both the direction and rate of flow within the ESPA. These head-driven responses propagate far more rapidly than the physical movement of individual water

[1] Garabedian, S. P. (1992). Hydrology and digital simulation of the regional aquifer system, Eastern Snake River Plain, Idaho (USGS Professional Paper 1408-F). https://pubs.usgs.gov/pp/1408f/report.pdf. p. 63.
[2] Freeze, R.A., and Cherry, J.A. (1979). Groundwater. Prentice-Hall. p. 16.

molecules, producing measurable changes in springs and river discharge on management-relevant timescales.[3]

3. Modeled streamflow depletions resulting from ground water consumptive use in the Little Lost River basin outside the current ESPA ACGWS determine that approximately 40% of the depletions to the near Blackfoot to Minidoka reach are realized within ten years, and approximately 90% are realized within 30 years.[4]

4. The Little Lost River basin is tributary to the ESPA. *See Attachment A*. The Little Lost River extends approximately 49 miles through the Little Lost River valley and disappears into the ground at the margin of the Eastern Snake River Plain.[5] The southern portion of the Little Lost River basin was added to the ESPA ACGWS in 2024 when Idaho enacted Idaho Code § 42-233c(1). In this order, the Director is evaluating whether to expand the ESPA ACGWS to include the northern portion of the Little Lost River basin. *See Attachment A*.

5. All water originating in the Little Lost River basin is consumptively used or moves as ground water underflow into the ESPA.[6] Water originating in the northern portion of the Little Lost River basin that is not consumed by evapotranspiration moves to the southern portion of the Little Lost River basin as either streamflow or ground water underflow. Streamflow in the southern portion of the Little Lost River basin that is not consumed by evapotranspiration recharges ground water via streambed seepage, canal seepage, or on-farm infiltration and adds to the ground water underflow to the ESPA at the mouth of the Little Lost River basin.

6. The connectivity of the Little Lost River tributary basin and the ESPA has been confirmed through studies employing strontium and uranium isotopic tracers that uniquely identify water in the ESPA originating from the Little Lost River basin.[7]

7. All water sources within the Snake River Basin must be administered by the Department as hydraulically connected sources of water unless decreed as separate sources. *Memorandum Decision and Order of Partial Decree*, In re SRBA Case No. 39576, Subcase No. 91-00005 (Feb 27, 2002). All water rights in the Little Lost tributary basin must be administered as hydraulically connected to other water sources in the Snake River Basin (including the ESPA)

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[3] Sukow, J. (2025). Snake River response to groundwater underflow from the Little Lost tributary basin. Memorandum. p. 5.

[4] Sukow (2025), p. 5, Figure 3.

[5] Rattray, G.W., 2019. Evaluation of Chemical and Hydrologic Processes in the Eastern Snake River Plain Aquifer Based on Results from Geochemical Modeling, Idaho National Laboratory, Eastern Idaho. 97 p. https://pubs.usgs.gov/pp/1837/b/pp1837b.pdf. p. 4-7.

[6] Clebsch, A., Waite, H.A., and Decker, S.O., 1974. The Availability of Water in the Little Lost River Basin, Idaho, p. 6.

[7] Rattray, G.W. and Paces, J.B. 2023. Evaluation of Hydrologic Processes in the Eastern Snake River Plain Aquifer Using Uranium and Strontium Isotopes, Idaho National Laboratory, Eastern Idaho. 76 p. https://pubs.usgs.gov/pp/1837/d/pp1837d.pdf. p. 59.

because no water rights in the Little Lost were decreed as separate sources from the rest of the Snake River Basin. *Partial Decree Pursuant to I.R.C.P. 54(b) for General Provisions in Basin 33*, In re SRBA Case No. 39576 (Jul. 27, 2005).

8. The principal aquifers of the Little Lost River basin consist of highly transmissive alluvial fill in the middle and upper valley, and alluvial fill interfingered with basalt in the southern part of the valley. Recharge to these aquifers occurs primarily from precipitation and infiltration of streamflow originating in the surrounding mountains. Ground water occurs under water table conditions, is hydraulically connected with surface water, and discharges to springs, irrigation wells, and the Little Lost River.[8]

9. The northern portion of the Little Lost River basin includes approximately 7,000 acres of land irrigated with ground water.[9,10] Of that irrigated area, approximately 27% relies solely on ground water rights, and approximately 73% has both surface water and ground water rights.

10. In the northern portion of the Little Lost River basin, reported ground water diversions during 2021-2024 ranged from 9,869 to 15,544 AF/yr, with an average annual volume of 12,692 AF.[11] Diversion volumes were reported for 69-83% of regulated wells (*see table below*).

	2021	**2022**	**2023**	**2024**
Reported Pumping (AF)	9,869	13,903	11,450	15,544
Percentage of wells with reported diversion volumes	69%	71%	71%	83%

11. The estimated average consumptive use of ground water for irrigation in the northern portion of the Little Lost River basin is 13,000 AF/yr.[12,13] Water consumed in the Little Lost River basin reduces the volume of net recharge to the ESPA and the volume of net aquifer discharge to the Snake River. The estimated reduction in net aquifer discharge to the Snake River resulting from ground water use in the Little Lost River tributary basin is 13,000 AF/yr. The estimated reduction in aquifer discharge to the near Blackfoot to Minidoka reach of the Snake River is 7,000 AF/yr.[14]

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[8] Clebsch (1974). p.1.
[9] IDWR, 2025. 2023 Irrigated Lands for the Eastern Snake River Plain Aquifer: Machine Learning Generated. https://data-idwr.hub.arcgis.com/documents/1a7fe009dc7d4979ac834873e99f6985/about
[10] Place of use data; accessed internally from IDWR's water right database on September 26, 2025.
[11] Data accessible from the Water Measurement Information System (WMIS); accessed March 19, 2025. https://research.idwr.idaho.gov/apps/WaterManagement/WMIS/PointOfDiversion.aspx
[12] Anders, M. 2025. Hydrology of the Eastern Snake Plain and Its Tributaries. https://idwr.idaho.gov/wp-content/uploads/sites/2/legal/ACGWS-Am.-Falls/ACGWS-Am.-Falls-20250324-Hyrdrology-of-the-Eastern-Snake-Plain-Its-Tributaries-Department-Presentation.pdf p.13
[13] Sukow (2025). p. 3.
[14] Sukow (2025). p. 4.

ANALYSIS

Idaho Code § 42-233c(2) authorizes the Director to expand the ESPA ACGWS to include tributary basins that affect the ESPA. To enter an order expanding the ESPA ACGWS, the director must provide notice to the owner of each water right proposed to be administered in the tributary basin. I.C. § 42-233c(3). The notice shall describe the action to be taken, the reasons therefore, and the time and place of a hearing to be held concerning the proposed action. I.C. § 42-233c(3). Only after the hearing has taken place may the Director enter an order expanding the ESPA ACGWS. I.C. § 42-233c(4). If the tributary basin affecting the ESPA has been designated as a critical ground water area or a ground water management area and has an approved ground water management plan, in addition to the notice and hearing requirements, the Director must determine the existing ground water management plan is insufficient to manage the effects of ground water withdrawals on the aquifer before expanding the ESPA ACGWS to include the tributary basin. I.C. § 42-233c(2).

The Little Lost River tributary basin has not been designated as a critical ground water area or a ground water management area. On March 7, 2025, the Director provided a notice of public hearing via U.S. mail to all owners of non-exempt ground water rights on record with the Department that have an authorized point of diversion within the proposed administrative area of the Little Lost River tributary basin.[15] On March 24, 2025, the Director held a hearing concerning the proposed expansion of the ESPA ACGWS at Howe Community Center, 1533 Highway 33, Howe, Idaho 83244. Oral public comment was allowed and recorded during the hearing, and written public comment was open for submission until April 7, 2025.

Repeated public comments raised concerns about the hydraulic connectivity between the Little Lost River tributary basin and the ESPA. Several commenters interpreted connectivity as the amount of time it would take for an individual water molecule to travel from the tributary basin to the ESPA or ultimately to the Snake River. Under this interpretation, systems are viewed as more connected when the travel time is shorter and less connected when the travel time is longer.

While travel time is one way to conceptualize connectivity, it represents only a limited aspect of the hydrologic relationship between these systems. Transport of water molecules occurs via advection, which means that the particles travel at the rate of ground water flow. Focusing solely on the movement of individual water molecules overlooks the hydraulic influence that occurs through water-level changes.

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[15] The *Notice of Proposed Action, Public Hearing and Written Comment Period* dated March 7, 2025, stated the notice would be sent to all current owners of exempt and non-exempt ground water rights that have an authorized point of diversion within the proposed Little Lost River tributary basin. This statement was incorrect. Idaho Code § 42-233c only requires notice be sent to "the owner of each water right proposed to be administered in the tributary basin." I.C. § 42-233c(3). Since the Department will not be administering the exempt ground water rights, the Department only provided notice to holders of non-exempt ground water rights.

When water levels or storage increase within the Little Lost River tributary basin, the resulting rise in hydraulic head spreads across the ESPA as a pressure wave, which steepens the hydraulic gradient from the aquifer to the Snake River, resulting in increased aquifer discharge to the river. Conversely, reductions in water levels within the Little Lost River tributary basin reduce the hydraulic gradient, leading to decreased aquifer discharge to the river. The propagation of head changes occurs via the elastic deformation of the aquifer matrix and the expansion/contraction of water in the aquifer and does not involve ground water flow. Therefore, changes in hydraulic gradients manifest on timescales much shorter than the physical travel time of an individual water molecule. While molecular travel time may be long, the hydraulic systems remain dynamically connected through pressure responses that influence aquifer and river discharge behavior within management-relevant time scales.

Recognizing this pressure-based connectivity underscores why coordinated management and timely curtailment of junior ground water users is necessary to prevent material injury to senior surface water rights. Consumptive use of ground water and surface water in tributary basins reduces inflow to the ESPA and the Snake River and, therefore, reduces the water supply needed by senior surface water users reliant on the Snake River and springs emerging from the ESPA.

CONCLUSIONS OF LAW

1. The notice and hearing requirements of Idaho Code § 42-233c(3) were met.

2. Because the Little Lost River tributary basin affects the ESPA, and based on the foregoing findings of fact, the ESPA ACGWS should be expanded to include the Little Lost River tributary basin pursuant to Idaho Code § 42-233c(2).

ORDER

IT IS ORDERED that the Eastern Snake Plain Aquifer Area of Common Ground Water Supply is expanded to include the Little Lost River tributary basin as depicted in Attachment A.

DATED this 26th day of November 2025.

MATHEW WEAVER
Director

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that, on this 26th day of November 2025, I caused to be served a true and correct copy of the foregoing *Order Expanding the ESPA ACGWS to Include the Little Lost River Tributary Basin*, by USPS mail, upon the following:

BRENT L, N SCOTT AND NORMAN G ALLEN
PO BOX 1057
HOWE, ID 83244

NORMAN S ALLEN
PO BOX 1072
HOWE, ID 83244

ALLEN FARMS INC
3952 N 1700 W
HOWE, ID 83244

DAVID S, SHERI AND TYLER JAMES ANDREASON
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HOWE, ID 83244-0031

DAVID S AND SHERI L ANDREASON
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BRENDA AND DARYL ANDREASON
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LYNN AND MARCINE BINGHAM
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BIRCH CREEK RANCHES LLC
1032 GRANDVIEW DR
IVINS, UT 84738

BORAH PEAK FARMS LLC
8789 PENROSE LN STE 400
LENEXA, KS 66219-8198

BUTTE COUNTY CEMETERY MAINTENANCE DISTRICT
PO BOX 302
ARCO, ID 83213-0302

BUTTE COUNTY JOINT SCHOOL DISTRICT #111
PO BOX 89
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DON O CALLISTER
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SANDRA L DRUSSEL
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MATTHEW J, RAMONA AND RICHARD A LAGOMARSINO
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HOWE, ID 83244

LITTLE LOST DAIRY LLC
PO BOX 88
TERRETON, ID 83450-0088

LITTLE LOST RIVER LAND & CATTLE LTD
3776 N 1800 W
HOWE, ID 83244-8716

MADARIETA SOD FARM
C/O RAYMOND MADARIETA
PO BOX 1062
HOWE, ID 83244

KAYALIN AND RUSSELL H MAYS
PO BOX 51
HOWE, ID 83244-0051

DARRELL DEAN MAYS
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C/O JOHN L MC DONALD
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HOWE, ID 83244-8711

ROBERT J NORRIS
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HOWE, ID 83244-9714

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HOWE, ID 83244-8719

PANCHERI BROTHERS LLC
1494 HIGHWAY 33
HOWE, ID 83244-8719

PANCHERI INC
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HOWE, ID 83244

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ROMRELL PROPERTIES LLC
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HOWE, ID 83244

ROY L SERMON
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SUNNY BAR RANCH LLLP
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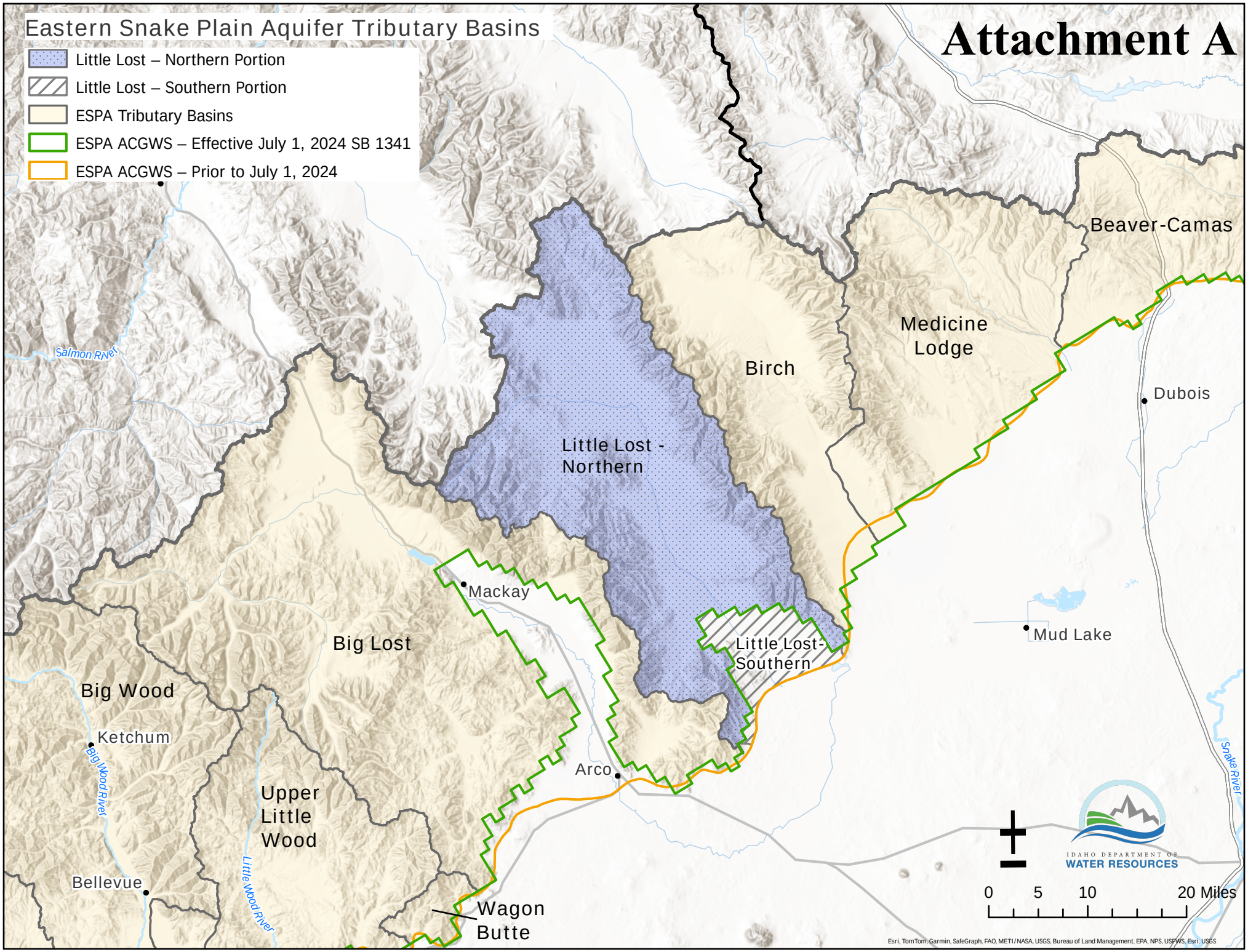
Megan Jenkins
Executive Assistant


Eastern Snake Plain Aquifer Tributary Basins
Little Lost – Northern Portion
Little Lost – Southern Portion
ESPA Tributary Basins
ESPA ACGWS – Effective July 1, 2024 SB 1341
ESPA ACGWS – Prior to July 1, 2024
Attachment A
Beaver-Camas
Medicine Lodge
Birch
Dubois
Salmon River
Little Lost - Northern
Mackay
Big Lost
Little Lost - Southern
Mud Lake
Big Wood
Ketchum
Big Wood River
Arco
Upper Little Wood
Little Wood River
Snake River
Bellevue
Wagon Butte
IDAHO DEPARTMENT OF WATER RESOURCES
0 5 10 20 Miles
Esri, TomTom, Garmin, SafeGraph, FAO, METI / NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, USGS

EXPLANATORY INFORMATION TO ACCOMPANY AN ORDER EXPANDING THE EASTERN SNAKE PLAIN AQUIFER AREA OF COMMON GROUND WATER SUPPLY

The accompanying document is an order issued by the Director of the Idaho Department of Water Resources expanding the Eastern Snake Plain Aquifer Area of Common Ground Water Supply pursuant to Idaho Code § 42-233c. To contest the order, you must request hearing as explained below.

REQUEST FOR HEARING

(*See* Idaho Code § 42-233c and Idaho Code § 42-1701A(3))

Idaho Code § 42-233c(4) states:

> The director may issue an order expanding the eastern Snake plain aquifer area of common ground water supply after the hearing. Any person aggrieved by the action of the director may contest such action pursuant to section 42-1701A(3), Idaho Code.

Idaho Code § 42-1701(3) states, in relevant part:

> [A]ny person aggrieved by any action of the director, including any decision, determination, order or other action, … shall be entitled to a hearing before the director to contest the action. **The person shall file with the director, within fifteen (15) days after receipt of written notice of the action issued by the director, or receipt of actual notice, a written petition stating the grounds for contesting the action by the director and requesting a hearing.**