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DEPARTMENT OF
WATER RESOURCES

September 9, 2020

Idaho Department of Water Resources

322 E. Front Street, Suite 648

P.O. Box 83720

Boise, ID 83720-0098

Attn: Gary Spackman, Director

Dear Director,

The Galena Ground Water District and South Valley Ground Water District have completed the enclosed Big Wood River Ground Water Management Plan for your review. Our collaborative effort in drafting this plan has included extensive research and guidance from our respective hydrologists to create a plan that manages the aquifer in the Big Wood River Management Area.

In anticipation of 2021 irrigation season, we are submitting this plan for review and eventual approval.

We look forward to working together with IDWR to manage our aquifer and maintain it's health for years to come.

Sincerely,

Galena Ground Water District

Pat McMahan, Chair



South Valley Ground Water District

Kristy Molyneux, Chair



Encl.

Cc: Brian Patton, IDWR

Matt Weaver, IDWR

BIG WOOD RIVER GROUNDWATER MANAGEMENT AREA PLAN

Introduction

Idaho law authorizes the Director of the Idaho Department of Water Resources (IDWR) to designate ground water management areas within the State of Idaho, upon a determination by the Director that the ground water basin or any part thereof is approaching the conditions of a critical ground water area. (Idaho Code § 42-233b). The Director has exercised that authority in a number of locations around the state. The Big Wood Ground Water Management Area (BWGWMA) was designated by Order of the Director on June 28, 1991. Attached as Exhibit 1A is a copy of the Order. In designating the BWGWMA, the Director determined that the surface and ground waters of the Big Wood River drainage are interconnected and that management policies were necessary to address the connection between ground and surface water within the Camas Creek, Silver Creek, and Big Wood River drainages above Magic Reservoir. The Director also established a Management Policy for the BWGWMA at the time of its designation. The extent of this area is shown in Exhibit 1.

In September of 2011, the IDWR Director created a Water Measurement District in the Upper Big Wood and Little Wood River Basins. However, this measurement district was abolished in September 2013 with the inclusion of ground water rights alongside surface water rights into State of Idaho Water Districts 37 and 37B.

The BWGWMA includes two Ground Water Districts; The South Valley Ground Water District (SVGWD) and Galena Ground Water District (GGWD) which were established by Blaine County upon petition of the ground water users in 2015 and 2016, respectively. The aerial extent of these districts is shown in Exhibit 2.

Delivery call attempts for administration of ground water rights in conjunction with surface water rights in the Big Wood River basin have been initiated but were ultimately dismissed on procedural grounds and have not resulted in contested case proceedings. Surface water users continue to assert the need for additional administration of ground water use in the BWGWMA.

Over the last several years, the SVGWD and GGWD have undertaken investments in measuring ground water usage, ground water elevations, recharge volumes, flows in Silver Creek and other measurement metrics that provide defensible data as a basis for the implementation of a ground water management plan (plan).

Since conjunctive use of surface and ground water is one of the key strategies in the management of water resources in the BWGWMA, additional stakeholders included in this plan are the following Big Wood River surface water entities:

- Baseline Canal Company
- Triangle Irrigation District
- Wood River Valley Irrigation District 45

- Hiawatha Canal #2
- Cove Canal #33
- Bannon Ditch #49
- Black Ditch #61
- Glendale #50

The ground water Districts have had multiple discussions with the downstream surface water users. Progress has been made primarily through the use of the Idaho Department of Water Resource Wood River Valley Ground Water Model. Hydrologists representing each ground water district and a group known as the Big Wood/Little Wood Water Users Association researched water usage and availability in the Big Wood River portion of the Big Wood River Ground Water Management Area. Discussion centered around a long-term equitable plan to improve the health of the watershed aquifer, to benefit water users both north and south of Timmerman Hills.

Hydrologic Conditions in the Big Wood River Valley Portion of the BWGWMA

The Big Wood River USGS flow measurements at Stanton Crossing were used to evaluate any trend associated with the flows from the development period through the present day (1911-2018). Monthly average flows were calculated for irrigation months of concern (i.e. July, August, September, and October). The historic USGS Stanton Crossing gage (Previous USGS Gage No. 13141000) was moved upstream in 1996 to a point above the confluence of the Big Wood River and Willow Creek. Idaho Power installed a stream gage on Willow Creek in 2000 and data are available from 2000 to the present.

From mid to late June the Big Wood River is separated near the Glendale Bridge and does not flow continuously to the Stanton Crossing gage. During this time, the discharge at the Stanton Crossing gage is a combination of water diverted through the Bypass Canal and gains from ground water until the river is re-connected late fall.

A Mann-Kendall trend analysis was used on average monthly Big Wood River flow data by month from 1911 to 1996 and from 1996 to 2019 to see if any statistical trend is available. Willow Creek also was evaluated from 2000 to 2019.¹ A simple evaluation of the Mann-Kendall tau or Z values indicates direction (positive means increasing and negative means decreasing) and statistical significance (when the p-value is less than 0.05, the trend is statistically significant). Table 1 outlines the trend observations.

	July			August			September			October		
	Tau	Z	P-Value	Tau	Z	P-Value	Tau	Z	P-Value	Tau	Z	P-Value
BWR 1911 –	0.05	0.66	0.51	0.06	0.74	0.46	0.04	0.50	0.62	-0.05	-0.58	0.56

¹ Gilbert, R.O., 1987, Statistical Methods for Environmental Pollution Monitoring, Ban Nostrand Reinhold, New York.

Helsel, D.R., D.K. Mueller, and J.R. Slack, Computer Program for the Kendall Family of Trend Tests, U.S. Geological Survey Scientific Investigations Report 2005-5275.

1996												
BWR 1996 – 2019	-0.03	-0.16	0.87	-0.08	-0.53	0.60	-0.10	-0.67	0.50	0.16	1.07	0.29
WC 2000 – 2019	0.51	3.08	0.002	0.39	2.37	0.02	0.40	2.43	0.01	0.78	4.77	0.000

Table 1: Mann-Kendall Trend Analysis for Flows in the Big Wood River.

From the statistical results in Table 1, the Big Wood River flow data shows no statistical significance in trend from 1911 to 1996 with all months having slightly positive trends, except October that has a slightly negative trend. The Big Wood River flow data shows no statistical significance in trend from 1996 to 2019, with all months showing slightly negative trends, except October that has a slightly positive trend. The flows in Willow Creek show positive trends that are statistically significant from 2000-2019.

These results show that there is no significant trend in the Big Wood River flow data from pre-ground water development period to present day ground water development. The need for historic water storage in Magic Reservoir and the statistical trend results show that using the Big Wood River flows as a metric for aquifer evaluation is not justified. Therefore, Big Wood River flows are influenced by more than ground water withdrawals alone due to ground water right diversions. Influences on flows in the Big Wood River at any one location include but are not limited to available precipitation, surface water diversions by surface water right holders, snow melt duration and frequency and river/shallow ground water interactions.

Another metric to consider are ground water levels in the Big Wood River valley aquifer. IDWR published a report in September 2019 titled, “Summary of Ground Water Conditions in the Big Wood River Ground Water Management Area: 2019 Update”. Within this report, IDWR summarized the ground water aquifer trends using the Mann-Kendall statistical evaluation, the same method as used in Table 1. IDWR found that there is a statistically significant downward trend of water levels in observation wells from 1968 to present. However, IDWR also stated that declining aquifer levels were expected since declining ground water levels were the basis for creating the BWGWMA in 1991. A similar evaluation from 1991 to present showed that the aquifer levels showed a statistically significant increase during April but there was no statistically significant trend during the other months tested. IDWR’s assessment states “Perhaps the October and November data contain enough noise that the trend is masked, or perhaps there is no trend and the water-table is stable.” (IDWR 2019 Update, p 15). A metric for evaluation of the plan is to continue to monitor the ground water levels of the aquifer to verify steady state or upward aquifer level trends are occurring.

Statistical evaluation of ground water levels using the average annual water level in well 01S 18E 14 AAB1 and the average annual discharge of the Big Wood River at Stanton Crossing were performed. No statistical correlation was determined because of other variables that contribute to flows in the Big Wood River, namely snow melt runoff, precipitation, surface water diversions, but a weak relationship may exist. The analysis shows ground water levels may have a small influence on discharge at Stanton Crossing but are not the primary cause of changes in discharge in the Big Wood River at this location.

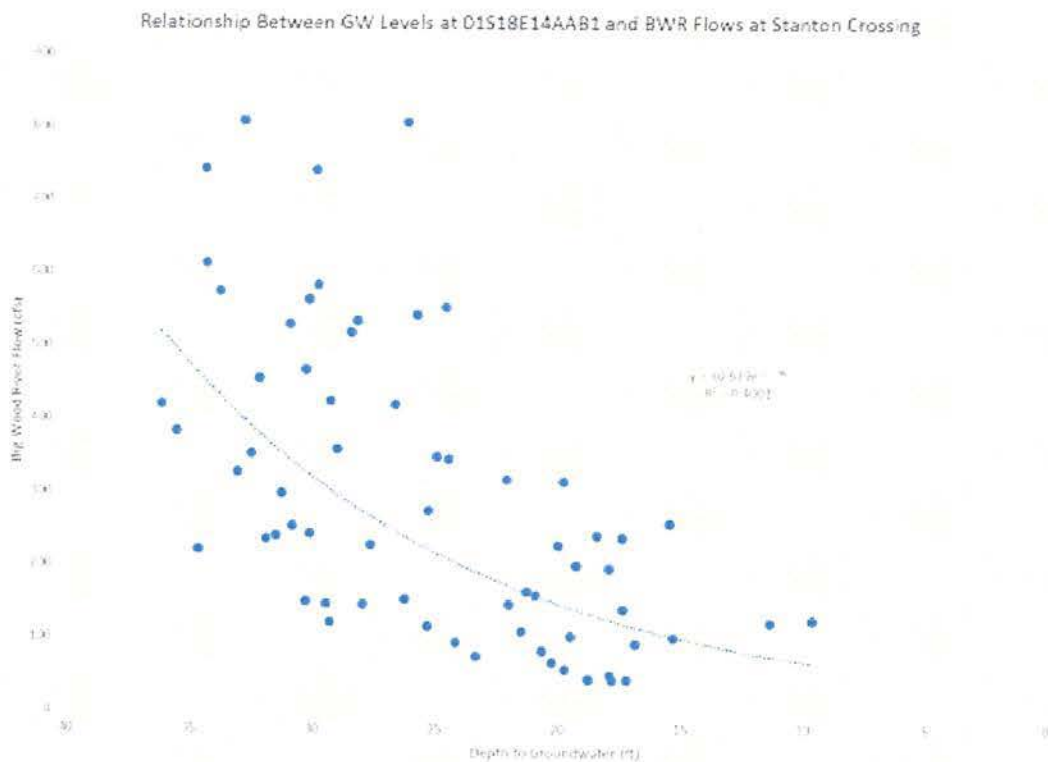


Figure 1. Correlation of Big Wood River discharge and water levels in well 01S 18E 14 AAB1
(See Exhibit 3 for Well Location)

Ground water levels in the Big Wood River valley appear to be stable since the creation of the BWGWMA in 1991. However, the discharge of Silver Creek at the USGS Gage No. 13150430, Silver Creek at Sportsman Access, continues to decline. The decline is less than the historical rate of decline beginning in 1975 as shown in Figures 2 and 3, below.

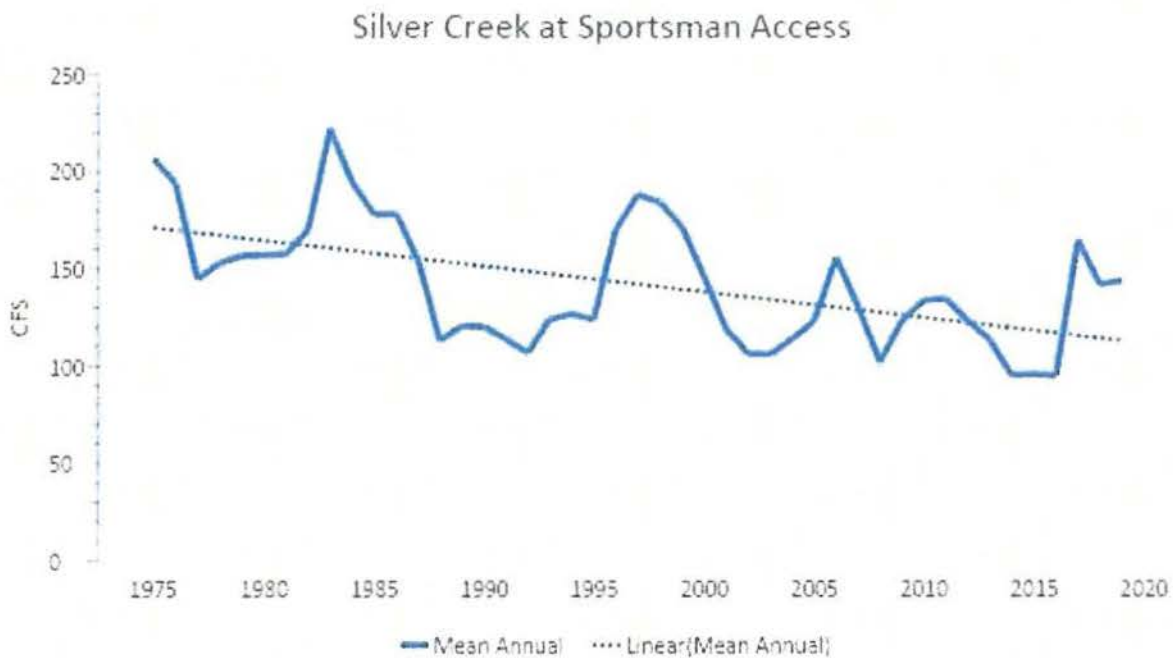


Figure 2. Silver Creek declining trend from 1975 through 2019

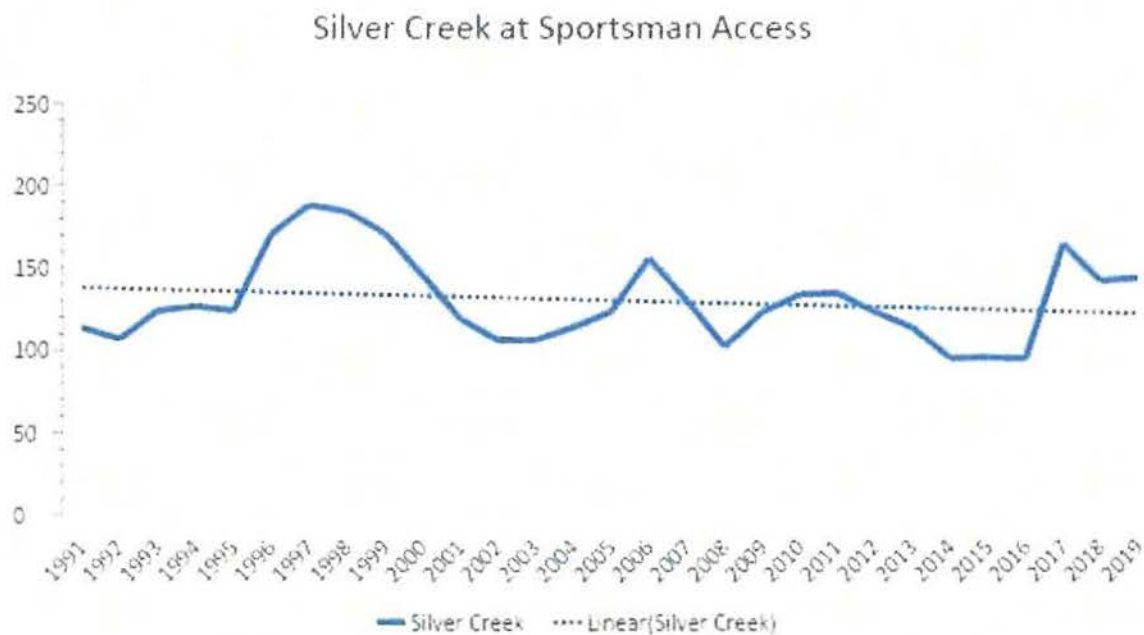


Figure 3. Silver Creek declining trend from 1991 through 2019

Figures 2 and 3 illustrate the change in the rate of Silver Creek discharge decline between the 1975 to 2019 period and 1991 to 2019 period. The reduction in rate of decline is most likely attributed to the stabilized ground water levels as evidenced by the correlation between Silver Creek discharge and ground water levels shown in Figure 4.

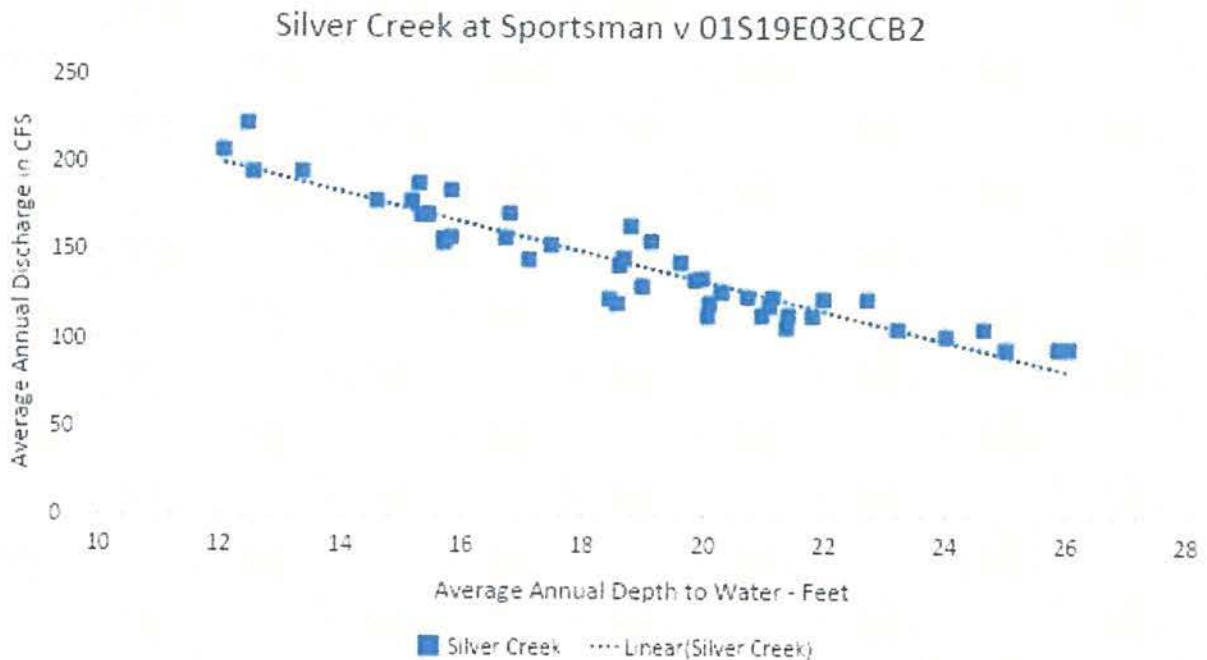


Figure 4. Correlation of Silver Creek discharge and water levels in well 01S 19E 03 CCB2
(See Exhibit 3 for Well Location)

Figure 4 illustrates the correlation between ground water levels and the discharge of Silver Creek at the Sportsman Access gage. In this case, ground water elevations and the discharge of Silver Creek at Sportsman Access are closely correlated, and, unlike the Big Wood River at Stanton Crossing, ground water levels have a significant influence on Silver Creek discharge.

Since there appears to be a continuing decline in outflow from the Triangle Area of the BWGWMA to Silver Creek, the plan addresses measures to deal with the decline. The proposed metric for Silver Creek at Sportsman Access is to reverse the average annual discharge decline since 1991 by maintaining and improving the ground water levels in the Triangle Area of the BWGWMA which will result in the increased discharge of Silver Creek at the Sportsman Access gage.

Stakeholders

This Plan was jointly developed by the SVGWD and GGWD. There are additional stakeholders in the management area. The representatives and annual diversion volumes for the Ground Water Districts are shown in Table 2 below. Ground water average diversion volumes collected during 2016 - 2019 represent baseline conditions for this management plan and were collected and reported by the Water District 37 Watermaster.

Organization	Representative(s)	2016 - 2019 Average WD37 Reported Usage
South Valley Ground Water District (SVGWD)	Kristy Molyneux Michael Lovas Justin Stevenson	30,800 AFA
Galena Ground Water District (GGWD)	Pat McMahon Judd McMahan Karl Nichols	8,700AFA
Cities (Ketchum, Hailey, Bellevue)	TBD	5, 800 AFA
Total Estimated Usage		45,200 AFA

Table 2: 2016 - 2019 Average Ground Water Diversion Volumes.

Management Plan Element Overview

The Management Plan in large part is based on the unique hydrology of the Wood River Valley. The SVGWD and GGWD have undertaken an analysis of the aquifer and its relationship to surface water sources by qualified hydrologists and the first section of this plan provides for an overview of that relationship. The majority of the Wood River Valley aquifer is not confined, or has no limiting geological layer to inhibit movement of water and as a result ground water will move through the valley and flows to either the Wood River or Silver Creek during any given season. In the very southern end of the Wood River Valley, a smaller confined aquifer does trap water from flowing under the Timmerman Hills. This plan needs to take this into consideration and the ground water recharge portions are tied to this hydrology.

The plan outlines 7 elements to stabilize and enhance the aquifer as well as the metrics and tools to evaluate the aquifer stability. Implementing these plan elements will increase the reliability of water supplies for surface water rights that rely upon natural flow in the Big and Little Wood Rivers and storage water from Magic Reservoir. These elements were also developed to allow ground water pumpers in the Big Wood Valley to continue to use their valid water rights while minimizing the potential economic impact to the State and local economies as a result of a delivery call. Acceptance of this plan by IDWR is also intended to provide “safe harbor” from a future delivery call and or curtailment of ground water users and members of ground water districts that divert ground water from the Wood River Valley Aquifer who participate in and abide by the terms of this plan.

The key elements of the plan will follow but in summary the Goals and Objectives include:

- Develop and implement a ground water recharge program that benefits all entities who participate in implementing the program.
- Provide “safe harbor” pursuant to Idaho Code § 42-233b from curtailment to ground water users and members of ground water districts that divert ground

water from the Wood River Valley Aquifer who participate in and abide by the terms of the plan.

- Increase reliability of water supplies for owners of senior surface water rights that rely upon natural flow in the Big and Little Wood Rivers and storage water from Magic Reservoir.
- Ensure cloud seeding in the basin, or some future method of precipitation enhancement, is continued in conjunction with IWRB, Water District 37 and Idaho Power
- Minimize economic impact on individual water users, the state and local economy arising from water supply shortages.
- Increase enforcement of water measurement, compliance with water right limits and reporting throughout Basin 37.
- Ensure that measures taken to address current water shortages are not compromised by the permitting of new water rights in the future.
- Develop a local water bank to allow for using surface water rights for recharge and using ground water rights for mitigation with appropriate credit and compensation.

SVGWD and GGWD have no regulatory authority over the actions described in this element, but will collaborate with municipalities in the valley and local Non-Governmental Organizations to educate, encourage, and promote conservation measures by water users and delivery organizations throughout the management area, such as:

- Crop rotation.
- No-till, minimum till drill planting techniques.
- Planting of cover crops to reduce erosion and irrigated area.
- Utilize technology such as soil moisture sensors and LESA (Low Elevation Sprinkler Application) packages, replace worn nozzles, install VRI (variable rate irrigation) on pivots, and VFD (variable frequency demand) pump systems.
- Remove end-guns on pivots to increase irrigation efficiency.
- Promote utilization of xeriscape landscaping to reduce water usage and irrigated areas.
- Promote programs sponsored by environmental and non-governmental organization groups such as the Trout Friendly lawn maintenance sponsored by Wood River Land Trust.
- Propose potential collaboration with municipalities to provide financial incentive to monitor irrigation use on odd and even days throughout the irrigation season within City service boundaries.
- Initiate bi-annual or quarterly round table meetings with non-governmental offices/non-profits to discuss ways to conserve water and promote aquifer health.

- Initiate bi-annual meetings with Upper Wood River Valley Irrigation Districts and Canal Companies to discuss incidental recharge and assess ability to distribute potential recharge water throughout the valley.

The Ground Water Districts will also hold public forums annually prior to the irrigation season, focused on current ground water conditions and highlighting specific conservation practices, such as the list above.

Management Plan Element 2 – Ground Water Recharge and Adaptive Management.

The second management plan element seeks to develop and implement a ground water recharge program that benefits all stakeholders associated with the BWGWMA in the Wood River valley. IDWR has created a ground water flow model for the Wood River Valley. GGWD and SVGWD have utilized the ground water model to validate the viability of recharge in specific areas to maintain and raise ground water levels and make water available to the Big Wood River and Silver Creek late in the irrigation season.

Many SVGWD members have both surface water and ground water rights while GGWD members typically rely only on ground water rights. A key element of this plan is for surface water users to be able to make surface water rights available for recharge when those rights are in priority. Over the last half-century, the irrigation water application method used in the Wood River Valley has gone from flood irrigation to sprinklers and pivots; and sprinkler and pivot irrigation efficiency has followed. Flood irrigation necessitated high diversion rates and volumes to reach areas far removed from the surface water source. This method allowed crops to use water needed for growth while the remaining water diverted was allowed to percolate into ground, incidentally recharging the ground water aquifer. Using existing surface water rights for managed recharge replicates the incidental recharge due to historic flood irrigation practices.

The Wood River Valley Ground Water Model² shows that diverting water available in the Big Wood River under existing water rights into the District 45 Canal and the Baseline Canal for recharge use would increase flows in Silver Creek and in the Big Wood River. Water can also be diverted under temporary permits to use flood water for prevention of flood damage and for recharge under Idaho Code § 42-202A(5).

Recharge will require access to surface water rights, including those rights that were previously used when lands were being flood irrigated, either by some users agreeing to dry up land and providing their surface water to be used for recharge via a proposed local water bank or from excess discharge due to drying up acres associated with cover crop planting and or through changes in irrigation practices.

² Wylie A., Sukow J., McVay M., and Bartilino J., 2019, Groundwater-Flow Model for the Wood River Valley Aquifer System, Version 1.1: U.S. Geological Survey data release, <https://idwr.idaho.gov/files/projects/wood-river-valley/20190627-Groundwater-Flow-Model-forthe-Wood-River-Valley-Aquifer-System.pdf>

The following proposed recharge development goals will be split up into three development periods in order to coincide with adaptive management timelines. The recharge development goals for each period are listed in Table 3. If aquifer water level stabilization as observed in the existing well network (calculated as the average annual water level in those wells) is not realized, or the Silver Creek metric, reversing the decline since 1991, is not achieved, recharge volumes listed in the following period will continue to increase. The location, duration and rate of recharge will be determined by land availability and infiltration capacity, surface water availability, and simulated benefits to the Big Wood River and to Silver Creek. The proposed annual recharge volume shared between the SVGWD and the GGWD (Table 3) in each period will depend on available water and other factors including constructing facilities sufficient to accept the proposed volumes of water for recharge. If a water right is required for the recharge of water in periods outlined in Table 3, both ground water districts will work with IDWR to secure the correct water right(s).

Development Period	Annual Recharge Volume Goal (acre-ft per year)
Years 1 – 4	10,000
Years 5 – 8	15,000
Years 9 - 12	To be evaluated

Table 3: Annual Recharge Volume Goals

Management Plan Element 3 – Improvements to surface water canal diversions and delivery systems to increase capacity and efficiency and at the same time improve in-stream flows.

The eight canal companies and irrigation districts within the Wood River valley need to be part of the solution to the ground water issues within the valley and need to be included as stakeholders in this management plan.

This plan element addresses increasing capacity in the surface water delivery systems to provide a mechanism for flood control, natural, incidental and managed recharge, and improve the potential for increased stream flows through managed recharge. The ground water districts will support canal districts efforts to identify hydrological benefits of repair and maintenance to surface water conveyance systems, determine associated costs, and prioritize projects and research funding to ensure adequate measurement and capacity of surface water conveyance systems for existing and future water rights. As an example, SVGWD and GGWD have partnered with Water District 37 to fund flow data collection in Silver Creek on the Northwest corner of Simplot, Inc. property. This location is outside the southern boundary of the BWGWMA. This cooperative data collection is a three-year commitment with the goal to understand the water loss from Silver Creek near the Highway 93 undercrossing.

During the early irrigation season when flows in the river are generally high, canal headgates are opened and seepage rates are high in those canals, recharging the aquifer. Lining existing surface water canals may increase efficiency of water right delivery but would limit the amount of “incidental recharge” occurring through seepage in canals. As the irrigation season progresses into the mid to late summer months, seepage is reduced due to the soaking of the canals with the duration of time water is run in the canals and this seepage decreases. Therefore lining of canals may limit early irrigation season recharge that may end up in surface waters such as the river later in the irrigation season, and may not contribute a great deal of instream flow in the middle to late summer when river levels are declining.

Management Plan Element 4 – Increase Monitoring, Enforcement and Compliance

This plan element seeks to identify actions that can be taken to increase monitoring of diversions, enforcement of those who over divert and compliance by existing water right holders. These actions are as follows:

- IDWR approved flow monitoring equipment shall be required for all ground water irrigation diversions to accommodate water measurement reporting. IDWR will be encouraged to recommend ground water diversions be equipped with meters that accommodate data loggers so water diversions can be reported by time of year.
- GGWD, SVGWD will participate with IDWR’s in identification and maintenance of an effective ground water level monitoring network. The water levels in this network’s wells will be the metric used for evaluation of water level conditions in the valley including trends that may illustrate the effectiveness of this plan.
- Work with IDWR to improve assessment of domestic well irrigation including an audit for non-compliance and issuance of Notice of Violations if required.
- Collection of high-resolution CIR imagery of the Wood River Valley flown in years that NAIP aerial imagery is not collected. This will be done to evaluate potential over irrigation from domestic use and from valid irrigation water right holders. (We may be able to give this a lower priority since the NAIP program flew CIR in 2019 that is available to evaluate unauthorized irrigation.)
- Work with local municipalities and County government to regulate new development including maximizing the use of existing water delivery facilities.
- Continue annual reporting of data collected pursuant to this plan.
- Encourage Water District 37 to increase ground water diversion measurements throughout the year.
- Work with IDWR and Water District 37 to inventory existing surface water diversion measurement devices, if existing devices aren’t functional or don’t measure properly, to mandate replacement of existing devices with new devices with improved discharge measurement accuracy consistent with IDWR standards or under approved water right conditions.

Management Plan Element 5 – Review of New Water Rights

- Encourage IDWR to maintain moratorium on new rights that could result in a depletion of Big Wood River Basin.
- Work with IDWR to ensure that SVGWD and GGWD are notified in writing of all new proposed consumptive water rights and transfer applications of existing water rights. Review new water right and transfer applications to determine potential aquifer impacts and recommend to IDWR necessary mitigation when necessary.
- Encourage that the county and municipalities require new development within their respective management area and area of impact to have a water right for irrigation or will need to acquire a right to mitigate for irrigation or any other consumptive purpose.
- Encourage the county and municipalities to limit the number of domestic wells in subdivisions. Encourage the county and municipalities to require sub-divisions to use a common well for irrigation that is measured and administered by the Water District.

Management Plan Element 6 – Establish a Local Water Bank

Establishment of a local water bank rental committee to allow existing surface water rights to be leased and rented for recharge use to offset depletions to the aquifer by ground water right holders.

Given the unique aquifer in the Wood River Valley, a local water bank will be proposed for consideration by the Idaho State Legislature for aquifer stabilization and enhancement purposes so that surface and ground water rights leased into the bank can be rented for recharge or other aquifer enhancement purposes. SVGWD and the GGWD may rent water from the rental bank for ground water recharge or other aquifer enhancement purposes. Recharge may count towards recharge volumes outlined in this management plan. Both the SVGWD and the GGWD desire to work with IDWR on policy guidelines for processing of water supply bank rental applications.

Management Plan Element 7– Advisory Committee

The board members of the GGWD and SVGWD shall oversee ongoing activities as designated in this plan.

Cloud Seeding

Ensure cloud seeding in the basin is continued in conjunction with the Idaho Water Resource Board (IWRB), Water District 37, and Idaho Power. Flows in the Big Wood River are primarily dependent on precipitation and snow melt runoff. Cloud seeding is a pro-active method of increasing the water supply in a given hydrologic basin. This plan assumes cloud seeding will be initiated and continued via Water District 37 assessment and contributions from the IWRB to fund efforts by Idaho Power in the Wood River basin. From time to time the effectiveness of and opportunities to optimize cloud

seeding in the Wood River basin may be reviewed in conjunction with IDWR, Idaho Power, NRCS, and other state or federal agencies.

Adaptive Management

If after a period of four years and for each quadrennium period thereafter, the Director may review annual ground water level data, the discharge of the Big Wood River at Stanton Crossing and Silver Creek discharge at Sportsman Access gage as described in this management plan's Management Elements. If the Director determines the measures set forth under this Management Plan are not effectively managing the impacts of ground water withdrawals in the BWGWMA and after 12-years (3 cycles) the ground water statistical trends or the Big Wood River or Silver Creek discharge are in decline, the Director shall direct the Groundwater Districts to provide recommended alternative or additional measures on such a timeline as necessary to address and correct the impacts of ground water withdrawals in their respective districts. The Director may make such revisions to this Management Plan as necessary to effectively manage the impacts of ground water withdrawals in the BWGWMA. The Director may also request recommendations from other water users as he deems appropriate.

Metric of Evaluation:

A ground water level monitoring network will be used to evaluate the success of the proposed management plan on Wood River Valley aquifer levels. The network of wells within the BWGWMA will consist of at least 18 wells currently being monitored by IDWR and or the U.S. Geological Survey (USGS). All wells within the network will be instrumented per IDWR and or USGS methods and will be monitored by one or both agencies to maintain independence. An annual report will be generated and presented at the SVGWD and GGWD meetings in the first quarter of the following monitoring year summarizing the ground water levels observed. This monitoring network and subsequent annual reports will be part of the basis for evaluating the management plan. Success of the proposed management plan will be as follows:

1. Ground water levels after the first 12 years are above the average historic low that occurred during the period of 2014-2015. After 12 years of the ground water management elements, the anticipated ground water levels will be above the 1991 levels when the BWGWMA was established.
2. Seasonal fluctuations are expected as part of the natural system. Annual average values will be used, not instantaneous values.

Management and maintenance of existing ground water levels are critical for promoting stable aquifer water levels. Aquifer water levels have recently been found to be stable or increasing³.

³ <https://idwr.idaho.gov/files/publications/20190920-Summary-Groundwater-Conditions-Big-Wood-River-GWMA-2019-Update.pdf>

The discharge of Silver Creek at Sportsman Access will continue to be monitored to confirm the discharge is responding to improved ground water levels as expected. As more ground water elevation data become available the correlation between ground water levels and Silver Creek discharge may be able to be refined to improve in season forecasting.

Future development will occur and will also rely on water supply from the same local valley aquifer. Benchmark ground water levels throughout the valley as reported by IDWR and the USGS will be used to direct future mitigation scenarios so that benchmark ground water levels are at a minimum maintained. A decrease in benchmark water levels in the local valley aquifer will require action under this plan's alternatives as outlined in Management Plan Elements contained herein.

Tool for Evaluation:

IDWR's Wood River ground water model is the tool that will be used to evaluate the proposed management activities, including recharge. If the model gets updated, the most recent version will be used for evaluation of ground water levels outlined in this plan. The IDWR model is the best science presently available.

Effective Date:

The management plan set forth herein is effective on the date the order adopting it becomes final and continues in effect until modified or rescinded by order of the Director.

Signed this 8TH day of September, 2020.

Galena Groundwater District

By:  _____

South Valley Groundwater District

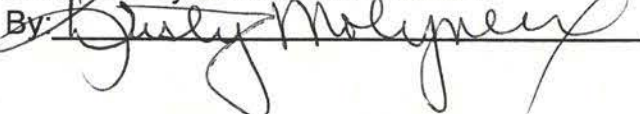
By:  _____



Exhibit 1. Big Wood River Ground Water Management Area

Exhibit 1A

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

IN THE MATTER OF DESIGNATING)
THE BIG WOOD RIVER GROUND)
WATER MANAGEMENT AREA)
_____)

ORDER

This matter having come before the Director of the Idaho Department of Water Resources as a result of concern over the relationship between ground water pumping and the flow of surface streams in the Big Wood River drainage, the Director Finds, Concludes and Orders as follows:

FINDINGS OF FACT

1. The Director of the Department of Water Resources has the responsibility to administer the use of ground water in the state of Idaho to protect prior rights and yet allow full economic development of the resource.
2. The surface and ground waters of the Big Wood River drainage are interconnected. Diversion of ground water from wells can deplete the surface water flow in streams and rivers. New ground water uses can also deplete available supplies for other users and affect basin underflow which presently accumulates in the Magic Reservoir.
3. There are a number of Applications for Permit to Appropriate Water pending before the department which propose additional consumptive uses of ground water within the Big Wood River drainage.
4. Injury could occur to prior surface and ground water rights including the storage right in Magic Reservoir if the flows of streams, rivers and ground water underflow in the Big Wood River Basin are intercepted by junior priority ground water diversions.

CONCLUSIONS OF LAW

1. Section 42-226, Idaho Code, declares all ground waters to be the property of the state, whose duty it is to supervise the appropriation and allotment of the same. One of the goals is to assure that early appropriations of ground water are protected in the maintenance of reasonable ground water pumping levels.
2. In order to determine whether withdrawals from the existing and proposed wells will have an adverse impact on prior water rights diverted from surface water and/or ground water, the

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2. The surface and ground waters of the Big Wood River drainage are interconnected. Diversion of ground water from wells can deplete the surface water flow in streams and rivers. New ground water uses can also deplete available supplies for other users and affect basin underflow which presently accumulates in the Magic Reservoir.

3. There are a number of Applications for Permit to Appropriate Water pending before the department which propose additional consumptive uses of ground water within the Big Wood River drainage.

4. Injury could occur to prior surface and ground water rights including the storage right in Magic Reservoir if the flows of streams, rivers and ground water underflow in the Big Wood River Basin are intercepted by junior priority ground water diversions.

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2. In order to determine whether withdrawals from the existing and proposed wells will have an adverse impact on prior water rights diverted from surface water and/or ground water, the

construction and use of additional wells in the area must be monitored and controlled.

3. Section 42-233b, Idaho Code, authorizes the Director of the Idaho Department of Water Resources to designate "ground water management areas" to allow increased management of the ground water resources.

4. The director of the department of water resources should designate a ground water management area for a portion of the Big Wood River basin upstream from Magic Reservoir and from which ground water pumping can have an effect on flows of streams and rivers in the basin.


ORDER

NOW, THEREFORE IT IS HEREBY ORDERED that the following described area be included within and designated as the "Big Wood River Ground Water Management Area" pursuant to the provisions of Section 42-233b, Idaho Code:

Beginning at Magic Dam on Big Wood River and continuing eastward approximately one mile to the drainage divide at Rattlesnake Butte, which separates tributaries of the Big Wood River above Magic Dam from those below the dam, thence northward approximately three miles and eastward approximately fourteen miles along the divide to a point where the divide crosses the north-south section line common to sections 28, 29, 32 and 33, T1S, R20E, BM, which is near the NE corner of Section 32, T1S, R20E, BM., thence east approximately five miles to the divide separating Silver Creek tributaries from the upper Little Wood River basin, thence continuing in a counterclockwise direction along the entire topographic boundary of the upper Silver Creek and Big Wood River basins, including Camas Creek returning to the point of beginning at Magic Dam.

Attached to this order is a map identified as Attachment 1. which graphically shows the boundaries of the management area.

DATED this 28TH day of JUNE, 1991.


R. KEITH HIGGINSON
Director

MANAGEMENT POLICY

FOR

THE BIG WOOD RIVER GROUND WATER MANAGEMENT AREA

I. GENERAL

A. Introduction

The Big Wood River drainage basin is located in southcentral Idaho within Blaine, Camas, Lincoln and Gooding Counties. In the approximate center of this basin is Magic Reservoir with a water storage capacity of 191,000 acre feet. This reservoir generally divides the basin into two distinct areas. The area upstream from the reservoir is herein referred to as the upper Big Wood River Basin.

The headwaters of Silver Creek are located east of the Big Wood River in the Bellevue Triangle. Silver Creek provides water to users who divert from the creek and from the Little Wood River to which it is tributary.

The upper Big Wood River Basin (including Silver Creek), particularly in Blaine County, is an area of continued economic growth and development. Water resource development to support some of this growth has occurred through transfers of existing water rights and new water appropriations.

B. Geohydrologic Characteristics of the Big Wood River Basin

The surface and ground water system in the upper Big Wood River Basin is interconnected. Diversion and use of water from a tributary stream or well will impact the total water supply available in the system. Downstream from Magic Reservoir, the river and ground water system are not as directly connected and there are other sources of water supply including canals bringing water from the Snake River and the Snake Plain ground water system. Magic Reservoir collects much of the water which moves through the upper Big Wood River Basin and which is not diverted and used upstream from that point. Except during periods of high runoff when Magic Reservoir fills and spills, the available water supply, both surface and ground water, upstream from Magic Reservoir is fully appropriated. Camas Creek and the Big Wood River are the major surface water tributaries upstream from Magic Reservoir.

Silver Creek is fed by numerous springs whose flows depend partly on percolating seepage resulting from Big Wood River irrigation diversion and use upstream in the Bellevue area. Ground water inflow contributes to the surface flow of Silver Creek and its tributaries from the headwaters to

a point approximately two miles upstream of Picabo, where Silver Creek ceases to be a gaining stream.

Diversions of ground water in the Bellevue Triangle, and generally in locations hydrologically upstream from Picabo, will deplete the surface flow of Silver Creek. Prior water right holders who divert from the Little Wood River also depend on surface water flow from Silver Creek. Depletion of Silver Creek flow will injure these earlier-in-time right holders. Many of the Little Wood River right holders also receive storage water from Magic Reservoir.

C. Present and Proposed Uses

Approximately 73 applications for permit to appropriate ground water upstream from Magic Reservoir and in the upper Silver Creek area are pending before the Department of Water Resources. Protests have been filed with the department against some of these applications. Complaints have also been lodged that continued granting of permits to develop new ground water uses in the upper Big Wood River Basin is interfering with prior surface water rights.

D. Recent Declines

The water years 1987 to the present have been below average within the basin. As a result, Magic Reservoir has not filled to its capacity within that time period. It has been suggested that this has been caused, in part, by the diversion of water within the basin under water rights with priority dates later in time than the Magic Reservoir rights.

Many natural flow rights have been cut off because of insufficient surface water flows. Since the water supply of the basin is finite, any withdrawal and consumption of water which would otherwise contribute water to a surface water source, when the source is fully appropriated, will injure another water user.

Various estimates have been made of the quantity of water within the basin. The studies have not all agreed on the total quantity of water but all have generally agreed that the surface and ground waters of the area are interconnected and that withdrawal and use of water from either source will impact the total supply.

E. Past Department Designation

In 1980, the Director of the Department of Water Resources issued a policy memorandum by which he declared that the surface water of the Big Wood River upstream from Magic Reservoir was fully appropriated. Since that date, no new permits for consumptive purposes have been issued for the use of the river or any of its tributaries. The department has continued, however, to issue permits for the use of ground water within the watershed. It now appears

that this policy must be changed with respect to new consumptive uses of ground water.

II. STATUTORY REQUIREMENTS AND AUTHORITIES

- A. Section 42-226, Idaho Code, declares all ground water to be the property of the state, and charges the state with supervising the appropriation and allotment of the same. One of the purposes of this is to assure that early appropriators of ground water are protected in the maintenance of reasonable ground water pumping levels.
- B. Section 42-233b., Idaho Code, authorizes the Director of the Department of Water Resources to designate a "Ground water Management Area" when the water supply in the area may be approaching conditions which could lead to designation as a critical ground water area.
- C. Section 42-237 a.g., Idaho Code, empowers the Director to prohibit or limit the withdrawal of water from any well during the period that he determines that water to fill any water right is not available.
- D. Policy 1F of the State Water Plan adopted by the Idaho Water Resource Board provides that "It is the policy of Idaho that where evidence of hydrologic connection exists between ground and surface water, they be managed as a single resource."

III. MANAGEMENT POLICY

Management policies which could be used in connection with future use of water in the upper Big Wood River Basin include the designation of all or a portion of the drainage as a groundwater management area, a critical ground water area or to issue a moratorium on additional permits for development.

The designation of a ground water management area for the upper Big Wood River Basin is the preferred management policy. Under this policy, additional approvals of ground water for consumptive uses can be granted upon a showing by an applicant and a determination by the department that the water supply is adequate and other water rights will not be injured. After the water rights of the basin are determined in the Snake River Basin Adjudication, and a method for the co-regulation of surface and ground water rights has been determined, the Director may require record keeping and reporting and may also issue orders if needed to reduce or stop ground water diversions.

This management policy allows the processing of all pending filings. Most consumptive use applications will be denied unless the applicants can demonstrate there will be no injury or can provide acceptable mitigation to prior rights.

The department will continue to consider the approval of applications for permit which propose non-consumptive uses, municipal uses, stockwater and domestic uses as defined in Section 42-111, Idaho Code. Domestic uses meeting the definition of Section 42-111, Idaho Code, are not subject to the application for permit filing requirements of Section 42-229, Idaho Code.

Section 42-111, Idaho Code, defines "domestic uses" as

- A. The use of water for homes, organization camps, public campgrounds, livestock and for any other purpose in connection therewith, including irrigation of up to one-half (1/2) acre of land, if the total use is not in excess of thirteen thousand (13,000) gallons per day, or
- B. Any other uses, if the total use does not exceed a diversion rate of four one-hundredths (0.04) cubic feet per second and a diversion volume of twenty-five hundred (2,500) gallons per day.

For purposes of this management policy, applications for ground water permits seeking water for multiple ownership subdivisions or mobile home parks will be considered provided each unit satisfies the definition for the exception of need to file an application for permit as described above.

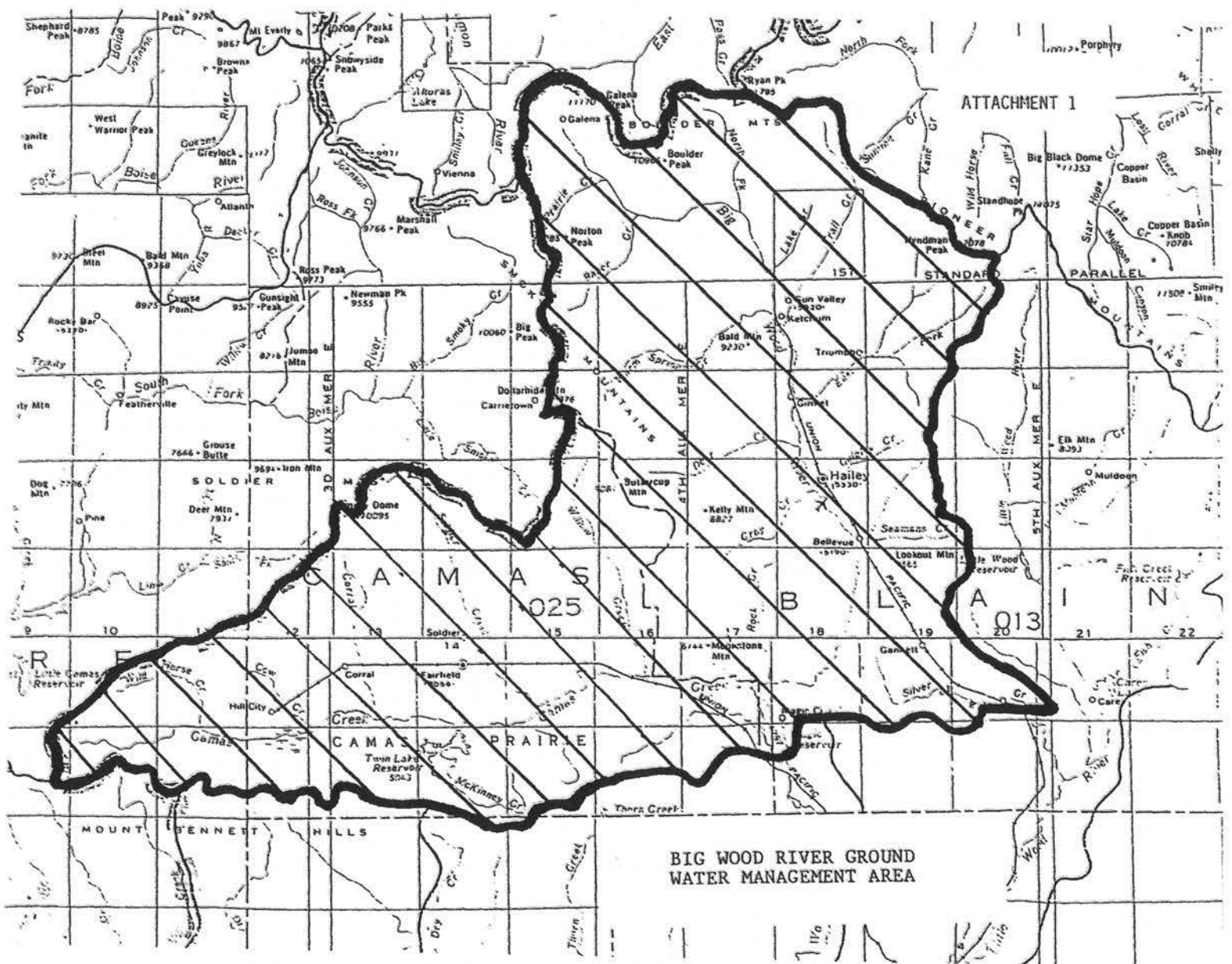
While an incorporated city has wide latitude under state law to beneficially use its water rights for municipal purposes, any new large consumptive use within the municipal limits, such as irrigation of lands not associated with a dwelling, or irrigation of more than one-half acre associated with a dwelling, must be mitigated by the municipality.

The department will continue to accept and process new applications for permit and applications seeking amendment or transfer of existing water rights. Applications for amendment or applications for transfer which propose a change in the point of diversion from outside the ground water management area to within the area which would directly or indirectly result in the irrigation of new land will be treated as a proposed new appropriation of water.

Dated this 28TH day of JUNE, 1991.

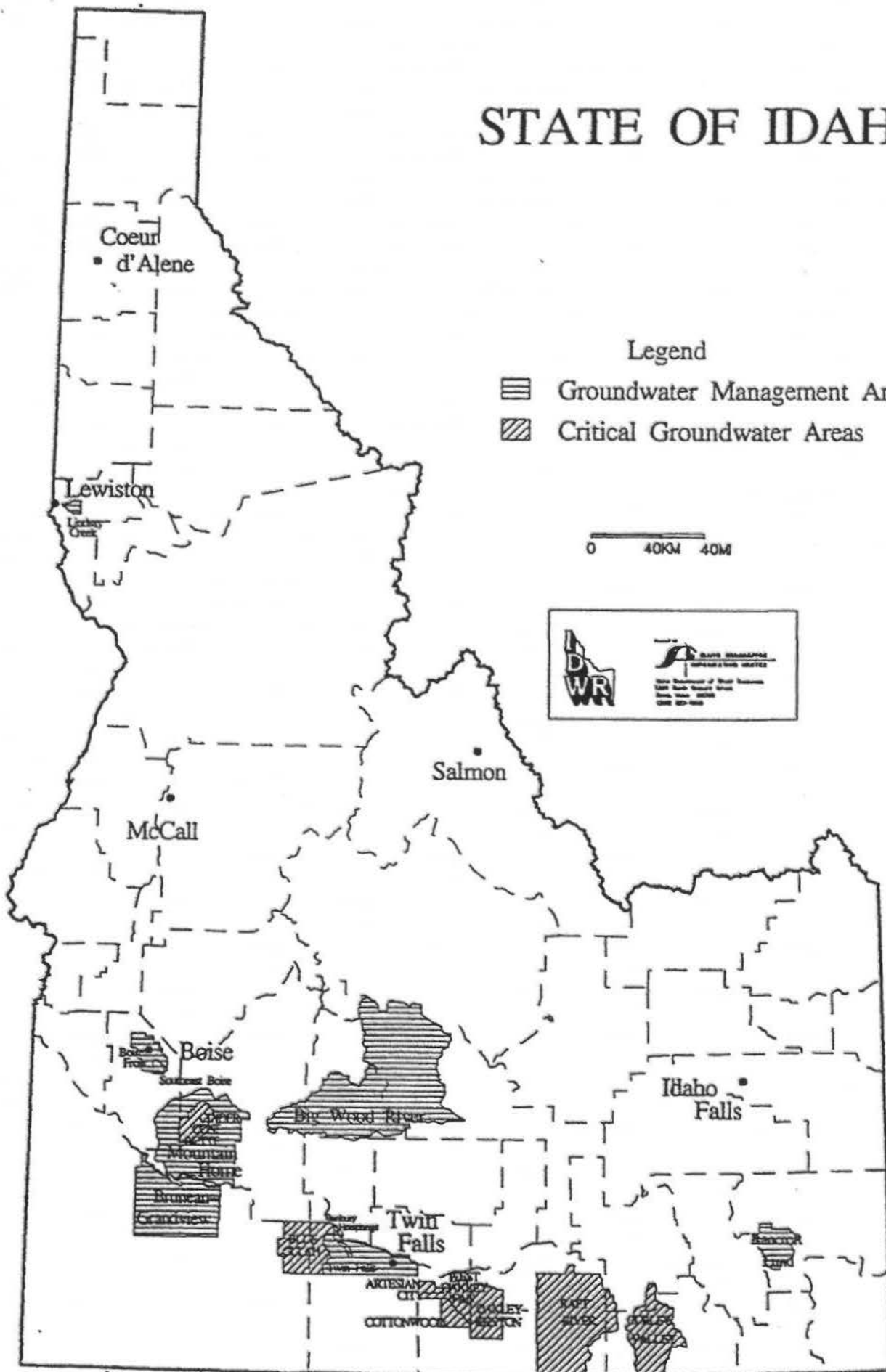

R. KEITH HIGGINSON
Director

ATTACHMENT 1





BIG WOOD RIVER GROUND WATER MANAGEMENT AREA

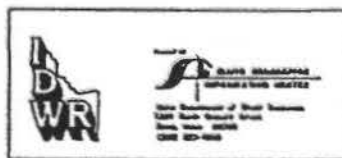
STATE OF IDAHO



Legend

-  Groundwater Management Areas
-  Critical Groundwater Areas

0 40KM 40M



OD-5816
 WR5816NP
 SELECTION FILE: JIMGW

IDAHO DEPARTMENT OF WATER RESOURCES
 SOURCE SUMMARY REPORT
 BY WATER SOURCE/PRIORITY DATE

DATE: 09/12/95
 TIME: 17:06:02
 PAGE: 1

WATER RIGHT NUMBER	OWNER NAME	D C	PRIORITY DATE	STG	POINT OF DIVERSION	POD FLAG	TOTAL DIVERSION	TOTAL ACRES	WATER USES
WATER SOURCE: GROUNDWATER									
37-08195	CITY OF KETCHUM	C	10/05/1984	A	04N 17E 1	SUSE	2.750 CFS	40.0	81,40,43
37-08204	SUN VALLEY LAND AND MINERAL INC.	C	03/12/1985	A	03N 17E 27	SUSE	4.380 CFS	38.0	01,04,10,43,46
37-08268	RINKER CO.	C	03/24/1986	A	03N 18E 18	NESENE	2.620 CFS	131.0	01
37-08294	GARDNER, ROBERT E.	C	05/01/1987	A	01N 19E 18	SESESE	6.000 CFS	300.0	01
37-08354	ALMA, W. WILLEM	C	07/07/1988	A	02N 19E 31	SWSW	0.175 CFS	6.0	01
37-08459	MC MAHAN, KATHRYN	C	09/22/1988	A	01N 18E 1	SWNEE 2	0.100 CFS	5.1	43,01
37-08439	STARWEATHER SUBDIVISION PROPERTY	C	10/25/1988	A	03N 18E 20	WWSW 4	0.960 CFS	30.0	43,01,49
37-08552	REESE, JANET S.	C	09/11/1989	A	02N 18E 30	SWSWSW	0.200 CFS	3.0	01,43,52
37-08580	FARNES, DORLA	C	10/26/1989	A	02S 17E 11	WWSW	0.200 CFS	1.0	10,01,43
37-08598	HERMANN, RANDALL	C	03/01/1990	A	05N 17E 10	SENESE	0.120 CFS	4.0	01
37-08656	JOHN BROWN INC.	C	06/04/1990	A	01N 18E 14	SWSW	4.000 CFS	349.0	01
37-08645	BALDWIN, PHYLLIS	C	07/11/1990	A	01S 19E 11	WWSW	1.240 CFS	60.0	01,43
37-08672	RAMM, PAUL C.	C	08/16/1990	A	01N 19E 18	SWNW	0.060 CFS	3.0	01
37-08671	RAMM, PAUL C.	C	08/16/1990	A	01N 19E 18	SWNW	0.100 CFS	5.0	01
37-08674	NEW DEER CREEK RANCH INC.	C	09/07/1990	A	03N 18E 30	SESE	0.090 CFS	3.0	01
37-08681	PUCHNER, PHILIP F.	C	09/14/1990	A	01N 18E 28	NESENE	0.130 CFS	3.0	43,01
37-08680	PUCHNER, PHILIP F.	C	09/14/1990	A	01N 18E 28	SWSW 3	0.130 CFS	3.0	43,01,04
37-08682	PUCHNER, PHILIP F.	C	09/14/1990	A	01N 18E 28	SWNESE	1.200 CFS	60.0	01
37-08686	HEATHERLANDS HOMEOWNERS ASSN INC	C	09/28/1990	A	03N 18E 17	NESESE	0.860 CFS	6.5	49,43,01
37-08698	HARRIS, TIMOTHY H.	C	10/16/1990	A	04N 17E 1	SWSWSW	0.130 CFS	3.0	01,43,50,55
37-08708	MC STAY, G.M.	C	02/13/1991	A	02N 18E 10	SSESE	0.130 CFS	3.0	43,01
37-08737	REMBER, CRAIG	C	02/19/1991	A	01N 18E 23	NESE	1.600 CFS	80.0	01
37-08711	HOBBS, JIM	C	02/19/1991	A	03N 18E 33	NESESE	0.070 CFS	1.0	43,01
37-08738	IRELAND, IAN DAVID	C	02/26/1991	A	01S 14E 11	SWSWSW	0.090 CFS	3.0	01
37-08714	CROPPER, LINDA C.	C	02/27/1991	A	02N 19E 31	SENESE 3	0.130 CFS	3.0	01,43
37-08725	MC ATEE, KENT	C	03/08/1991	A	02N 17E 35	WNESE	2.000 CFS	222.0	01
37-08709	GARDNER, ROBERT	C	03/08/1991	A	01S 19E 13	SENESE	10.200 CFS	511.0	01
37-08723	GMMK-B	C	05/06/1991	A	01S 19E 10	WNESE	0.240 CFS	1.8	01,43
37-08727	ROSE, DONNA	C	05/16/1991	A	04N 18E 25	SESE	0.060 CFS	2.0	01,50
37-08728	KENDALL, CHUCK	C	05/21/1991	A	04N 18E 19	SESENE	0.130 CFS	3.0	01,43
37-08731	WOOD, SYLVIA	C	06/14/1991	A	01N 18E 36	SSENE	0.090 CFS	3.0	01
37-08762	NORTH STAR FUNDING INC	C	06/21/1991	A	01N 18E 1	SENESE	0.500 CFS	25.0	01
37-08763	RYAN, RONALD D	C	07/12/1991	A	05N 17E 26	SENE	0.130 CFS	3.0	01,43
37-08749	HEAD, JOSEPHINE	C	07/18/1991	A	02N 18E 36	SENE	0.360 CFS	18.0	01
37-08765	WOODS, JR, WARD W	C	08/28/1991	A	03N 18E 32	SENESE	0.180 CFS	4.0	01,43
37-08761	BASABE, SUSAN A	C	09/24/1991	A	01S 11E 35	SESESE	4.760 CFS	238.0	01
37-08768	LIMES, JAMES L	C	11/29/1991	A	01N 19E 18	SWNESE	0.090 CFS	10.0	01
37-08817	NEILL, STEVEN	C	08/02/1993	A	02N 19E 31	WNESE	0.060 CFS	3.5	01
37-08848	CITY OF BELLEVUE	C	06/06/1995	A	02N 18E 25	SWSWSW	3.350 CFS	40	
WATER SOURCE: SPRING									
37-08552	REESE, JANET S.	C	09/11/1989	A	02N 18E 30	SWSWSW 4	0.200 CFS	3.0	01,43,52

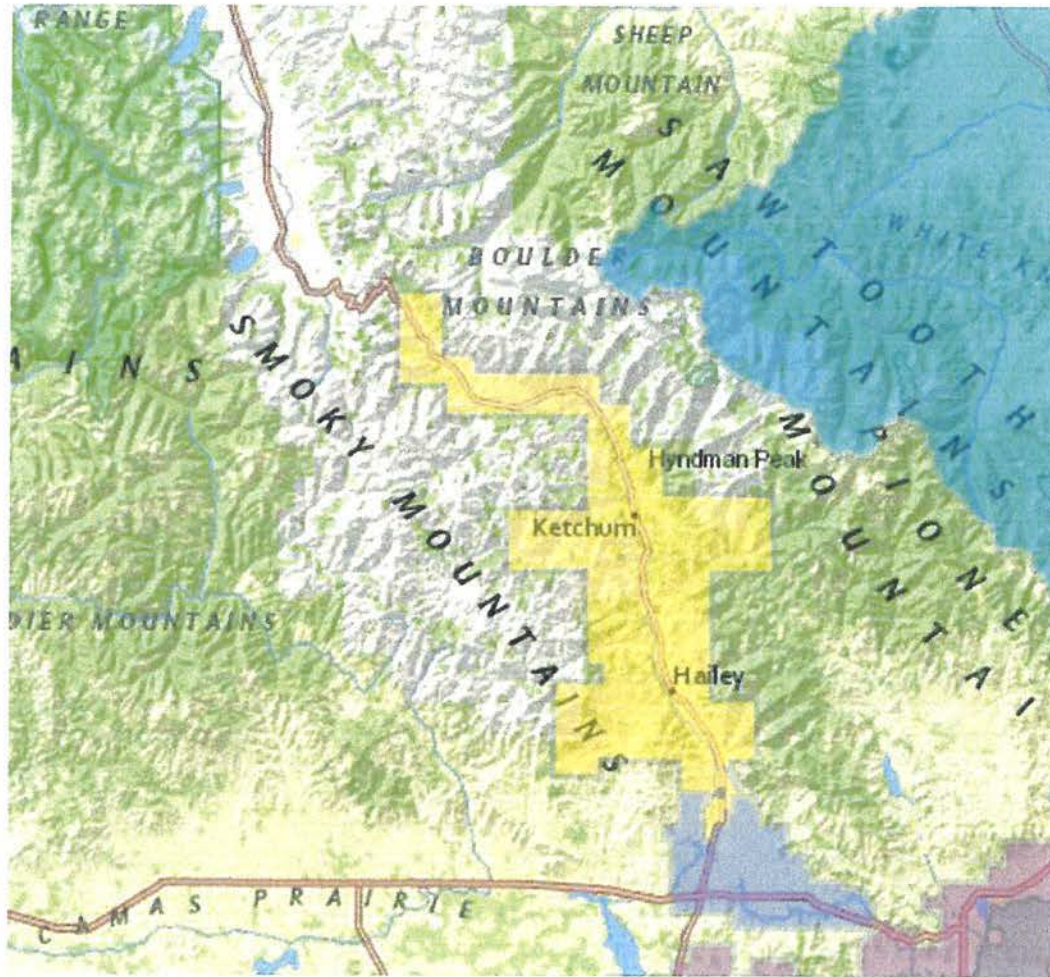


Exhibit 2. The Galena (yellow) and South Valley (purple) Ground Water Districts

Exhibit 3. Well Locations

